

THE USAF IN THE PERSIAN GULF WAR

On Target

Organizing and Executing the Strategic Air Campaign Against Iraq

Richard G. Davis

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NOTICE: This volume covers only strategic air operations over Iraqi territory. For coverage of air matters in the Kuwaiti Theater of Operations, please read Perry Jamieson's *Lucrative Targets*.

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Foreword

The war in the Persian Gulf in 1991 capped an era of USAF modernization and enhanced readiness begun in the late 1970s and that continued through the 1980s. The long lead-time weapons acquisition and training programs, begun a decade or more earlier, came to fruition against a far different opponent and in an unforeseen locale than that envisioned by their creators. The force designed to counter the superpower foe of the Cold War, the USSR, never fought a direct battle against that enemy during the existence of the Soviet Union. Instead, the USAF fought the first war of the so-called New World Order, a war that had as much in common with the colonial wars of the late nineteenth century as it had with the high-technology wars of the late twentieth century.

The USAF shouldered the bulk of the fighting for the first thirty-nine of the conflict's forty-two days. This volume covers the air offensive against strategic military and economic targets within the pre-August 1990 borders of Iraq. The offensive air plan once again displayed the ability of the U.S. military to turn the necessity of improvisation into a virtue when, in mid-August 1990, an element of the Air Staff in the Pentagon wrote the basis of the offensive plan in ten days. The plan was founded upon the precepts of Col. John A. Warden III's air power theories—centers of gravity, shock effect, and the importance of leadership-related targets. Once the outline plan reached the arena of operations, the U.S. Central Air Forces (CENTAF), under the able leadership of Lt. Gen. Charles A. Horner, adopted the targeting philosophy of the plan and, after many modifications owing to new targets and an increased force structure, employed it with devastating effect.

The author describes not only the outstanding performance of USAF men and machines but also the difficulties and complexities of coordinating the many elements of air and staff operations. Among these were the complex coordination of the fighters with their tankers, the speedy transmission of data from the all-seeing eyes of AWACS and JSTARS aircraft, the multiple bomb runs over chemical and biological warfare bunkers, and the shortcomings of certain types of intelligence. All these factors impacted on mission effectiveness. The author also diagrams how outside influences—political pressure from neutrals, such as the Israelis, and from public news media—can affect the direction of the bombing effort.

Although this account of the air campaign in the Persian Gulf concentrates on the operational history of a six-week war, it also places that war into its larg-

Foreword

er political and military context, especially in its tale of the interplay between the U.S. military and civilian leadership. It illustrates, with reference to actual missions, the operational advantages of stealth fighter bombers as well as their vulnerabilities. Davis presents the reader with a detailed account of one of the USAF's most important air operations in the last half of the twentieth century.

In the decade after the conclusion of the Gulf War, the pattern of strategic air operations against Iraq became the template for USAF operations over Bosnia and during the air war over Serbia and, most recently, in Afghanistan as well. In planning for air operations in the Balkans, USAF officers were strongly influenced by John A. Warden's methodology and ideology with its emphasis on centers of gravity and strikes on leadership targets. Stealth air combat operations, inaugurated en masse in the Gulf War, became even more prevalent with the introduction of the B-2 bomber. Likewise, the use of precision weapons grew. The aversion of western democracies to both military and civilian casualties and their effect on targeting, tactics, and strategy first encountered over Iraq became more pronounced in subsequent conflicts—as did the continuing challenge in matching accurate intelligence to precision weapons.

Because of these enduring trends, study of the Persian Gulf War will continue to offer members of the service and the public valuable insights and information applicable to current military affairs.

RICHARD P. HALLION
The Air Force Historian

Author's Note

This work is focused on the “offensive air campaign against Iraq,” a term implying that the strategic phase of the air campaign that attacked military and economic targets in Iraq proper was part of a larger overall air operation. The author also uses the term “strategic air campaign” sometimes interchangeably with “offensive air campaign” to refer to the strategic phase of the campaign, not the overall campaign. No air operation occurs in a vacuum, especially one involving the vast geographic distances of the theater of operations and the numerous military units supplied by the Coalition partners. The author, therefore, has made a thorough effort to place the Persian Gulf War in its larger political and military context to explain the motivations behind the Coalition’s conduct of the campaign. The professionalism of the USAF also profoundly affected the conduct of operations. It is important to understand that the unprecedentedly high morale, discipline, and training of U.S. servicemen and women, which rested to some extent upon honoring local customs and the strictures of Islam and to a greater extent on the all-volunteer military, had a positive affect on operations.

The extraordinary air plan, hastily developed for the strategic phase of the campaign by the Air Staff, provided the linchpin for this narrative. The underlying targeting philosophy of the plan, not necessarily all its details, drove the final prewar preparations and directed much of the first ten days of the war, as well as heavily influenced air operations to the conflict’s end. The plan’s goals and objectives, drawn up by airmen and approved by the national leadership, provide a ready-made yardstick for judging the USAF’s performance in the strategic air phases of operations against Iraq. Neither in the light of operations in the Balkans nor those in Afghanistan in the decade since this work’s creation has the author found reason to change his original conclusions as expressed here.

Many people assisted me in the research and preparation of this volume. The support of my wife, Lois, my daughter, Erin, and my sons, Owen and Colin, enabled me to spend many long hours away from home at the classified word processor in my office and at Langley and Shaw AFBs and Hurlburt Field. Several members of the Air Force History Field Program gave freely of their time, supplying useful advice and directing me through valuable records in their custody. In particular, I would like to thank Grant M. Hales, George W. Bradley III, James M. George, CMSgt. Gerald Wright, Jeffery S. Underwood, David L. Rosmer, Barry R. Barlow, Patrick E. Murray, Herbert A. Mason, Jr., and SSgt. Randy G. Bergeron. Dr. Wayne Thompson, assigned to the Center for Air Force

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History, served as the Checkmate historian from early August 1990 through June 1991 and as then as Senior Historical Advisor to the Gulf War Air Power Survey. Historians owe a permanent debt to him for the documentation he collected and preserved. He generously shared his unique knowledge of wartime planning and personnel with all members of the History Support Office Desert Shield/Storm writing team. The reviewers of the first draft of the manuscript, Gen. Charles A. Horner, Lt. Gen. Buster C. Glosson, Col. John A. Warden III, Col. George K. Williams, Lt. Col. David A. Deptula, Lt. Col. Bernard E. Harvey, and Herman Wolk, earned the author's gratitude for their painstaking and honest work, which revealed new insights into wartime operations. I would further also like to thank my colleagues in the Air Force History Support Office—especially Dr. Perry D. Jamieson, Dr. Diane T. Putney, and William T. (Tom) Y'Blood—Dr. Alfred (Fred) M. Beck, and Jacob (Jack) Neufeld. Finally, the Air Force Historian, Dr. Richard P. Hallion showed an unflagging interest in this work, which included taking time from his schedule to serve as the initial reader of the manuscript

RICHARD G. DAVIS

The Author

The author, Dr. Richard G. Davis, joined the USAF history program in 1980, transferring to the Air Staff History Branch in 1985 and to the Histories Division in 1990. He has published several articles on World War II strategic bombing and a military biography on one of the USAF's leading practitioners of strategic bombing, General Carl A. Spaatz. Davis became familiar with modern service programs and doctrine by covering the Program Objective Memorandum and issues surrounding the interservice agreements known as the "31 Initiatives" from 1985 to 1990.

Contents

Foreword	v
Author's Note	vii

Desert Shield

1: The Kuwait Crisis and the Decision to Intervene	1
2: The Initial Deployment	33
3: The Offensive Air Campaign Plan	57
4: The Offensive Deployment, Morale, and Training	111

Desert Storm

5: The Decision for War	147
6: Thunder and Hail over Baghdad: The Initial Attacks	181
7: Weather and the Great Scud Hunt	221
8: Continuing the Air Offensive against Iraq	247
9: Assessment	285

Glossary	321
Availability of Sources	325
Bibliography	327
Index	335

Illustrations

F-111	5
Lt. Gen. Charles A. Horner	10
F-15E	13
General Norman Schwarzkopf and Prince Khalid bin Sultan	40
TR-1; KC-10	43
Lt. Gen. Charles A. Horner and General Michael J. Dugan	59
GBU-10	67
General Merrill A. "Tony" McPeak	101
Planning maps	104
F-111; F-15	116

Contents

General John T. Chain	136
Lt. Gen. Charles A. Horner and Col. Hal M. Hornburg	137
General Colin L. Powell	151
F-15	155
Destroyed bunker	156
JSTARS aircraft	169
IOC and SOC regional map	177
B-52	191
CBU-87s	195
F-111	205
Destroyed rocket propellant plant (UN Photo 159129 / H. Arvidsson) ..	215
Satellite imagery of Middle East	222
Lt. Gen. Buster C. Glosson and Lt. Col. David A. Deptula	227
Maj. Gen. John A. Corder	228
Black Hole personnel	229
Postattack Scud storage bunkers (USNphoto)	239
Warsaw Pact hardened aircraft shelter	255
KC-10s	257
Tab Vee hardened aircraft shelter	258
F-117A	263
Aircraft bunker and shelter	276
Destroyed Iraqi warehouse; nerve agent component jerry cans (UN Photos 158687 (<i>bottom</i>) and 158689 (<i>top</i>) / both H. Arvidsson) . . .	295
Nerve agent incineration chamber; nerve agent hydrolysis plant (UN Photos 159110 (<i>left</i>) and 159116 (<i>right</i>) / both H. Arvidsson)	311

Chapter One

The Kuwait Crisis and the Decision to Intervene

We know that Washington's threats are those of a paper tiger. America is still nursing the disasters from the Vietnam War, and no American official, be it even George Bush, would dare to do anything serious against the Arab nation.

Iraqi editorial, August 2, 1990.¹

On August 2, 1990, the Republic of Iraq occupied the Emirate of Kuwait, extinguished its government and armed forces, and annexed it. The Iraqi leader, Saddam Hussein, had achieved a strategic surprise over the United States and the Arab powers in the Persian Gulf as dramatic as that of Egyptian President Anwar Sadat over the Israelis in October 1973.² This action followed an escalating dispute between Iraq and Kuwait. In brief, the Kuwaitis refused to kowtow to three Iraqi demands: forgiveness of billions of dollars of loans extended to Iraq during its war with Iran in the 1980s, adherence to lower Organization of Petroleum Exporting Countries (OPEC) petroleum sales quotas, and the halting of alleged overexploitation of the Rumaila oil field,³ which extends across a portion of the border shared by the two nations. Although the Iraqis may have prepared for

1. From an editorial cited in Norman Cigar, "Iraq's Strategic Mindset and the Gulf War: Blueprint for Defeat," *Journal of Strategic Studies* 25, No. 1 (Mar 1992), p. 3.

2. For a discussion of this and its implications for the conduct and analysis of U.S. foreign relations, see P. Edward Haley, "Saddam Surprises the United States: Learning from 'The Revolution of August 2,'" *Armed Forces and Society: An Interdisciplinary Journal* 22, No. 2 (Winter 1995/96), pp. 159–185.

3. Carlye Murphy, "Persian Gulf Crisis Swells: Iraqi Is Given New Title," *Washington Post*, Jul 20, 1990, p. A12.

On Target

their move far in advance,⁴ the Kuwaitis' rejection of their demands provided the proximate cause of the invasion. Iraq also had tenuous claims, unrecognized by the international community, to overall suzerainty of Kuwait on the basis of administrative arrangements with Great Britain in the 1920s through 1940s, the Ottoman Turkish Empire in the sixteenth through nineteenth centuries, and the even earlier Baghdad caliphate. When Iraq's president, Saddam Hussein, substituted action for rhetoric by seizing his neighbor, he transformed a regional quarrel into a world crisis. Saddam also doubled his proven petroleum reserves to approximately 200 billion barrels and gained control of about 20 percent of the entire world's crude oil production. Within a week of the fall of Kuwait City, the first of hundreds of thousands of U.S. soldiers, sailors, and airmen began to arrive in Saudi Arabia for the dual purpose of protecting that monarchy from Iraqi aggression and of reversing the conquest of Kuwait. When U.S. and world economic sanctions, political pressure, and diplomatic negotiations all failed in the face of Saddam Hussein's unbending determination to retain his newly acquired nineteenth province, the United States, Saudi Arabia, and their many allies were left with only two choices: war or surrender.

Surrender had unthinkable domestic political consequences for the alliance's leaders and guaranteed international anarchy by allowing the world's revisionist powers to act on their desires to rearrange the globe to their advantage, free from the threat of reprisal. Therefore, the president of the United States, George H. W. Bush; the king of Saudi Arabia, Fahd ibn Abd al-Aziz al-Saud; and their allies decided upon war.

The Persian Gulf War began early in the morning of January 17, 1991, with massive allied air strikes on Iraq and Iraqi targets in Kuwait. The United States Air Force (USAF) spearheaded this air offensive and furnished the bulk of the attacking aircraft. During the forty-two days of fighting, the USAF and its Coalition and other U.S. service partners simultaneously conducted three, and then four, closely coordinated phases of a single air campaign. The first phase, which began the war and continued until its conclusion, struck at strategic targets deep in Iraq; the second phase suppressed Iraqi air defenses in Kuwait and southern Iraq; the third attacked Iraqi regular army and Republican Guard ground units to prepare the way for a possible Coalition ground assault; and the fourth supplied close air support (CAS) to attacking Coalition units. The strategic air campaign that constituted the initial phase of the four-phase plan sought to isolate and incapacitate Saddam Hussein's government; gain and maintain air supremacy in order to permit unhindered air operations; destroy Iraqi nuclear, biological, and chemical (NBC) weapons capability; and eliminate Iraq's offensive military capability, which included key military production facilities and

4. James Blackwell, *Thunder in the Desert: The Strategy and Tactics of the Persian Gulf War* (New York: Bantam Books, 1991), p. 72. Blackwell refers to unnamed intelligence sources who claim that the Iraqis had trained on one-to-one mock-ups of Kuwait in a base camp in southeastern Iraq since 1989.

The Kuwait Crisis and the Decision to Intervene

infrastructure and instruments of power projection, such as the Iraqi Air Force (IZAF), the Republican Guard, and short-range ballistic missiles (SRBMs).⁵ This work will emphasize USAF operational planning and combat operations while focusing on the role of the USAF in the diplomatic and military moves undertaken by the U.S. government in the period leading up to the outbreak of hostilities and during the hostilities themselves.

The Kuwait Crisis

Saddam Hussein's seizure of Kuwait on August 2, 1990, initiated a series of diplomatic and military actions and reactions culminating in an armed conflict between Iraq and an international Coalition headed by the United States. During the period between the fall of Kuwait and the outbreak of hostilities on January 17, 1991, the USAF played a significant role. Using the major diplomatic, military, and political decisions of the U.S. government as a chronological framework, this section will examine the buildup of USAF units and aircraft within the area of responsibility (AOR); discuss command arrangements defining both the USAF's position within the overall American military effort and the USAF's internal command arrangements within the AOR; and, lastly, concentrate on the service's planning and preparations for an offensive air campaign against Iraq.

This chapter examines how the governments of the United States, Iraq, and Saudi Arabia combined to create the situation least desired by Iraq: the direct intervention of a global superpower against Iraq's interests. If Iraq could prevent the direct intervention of a non-Gulf power within the Gulf, then Iraqi domination of the region was ensured. However, Iraq contained only a single locus of decision-making—Saddam Hussein. He initiated the crisis, and his judgement as to the likelihood of outside interference would drive events. His insular viewpoint and the sycophantic nature of information channels available to him adversely affected his ability to calculate the risks he indulged in. This chapter, and those that follow, for all their focus on the actions of the USAF, spin a cautionary tale on the millennium-old sin of hubris.

USAF technological trends and doctrinal thought under development for almost twenty years culminated in this short though precise and destructive strategic bombing campaign. Some technical developments had proceeded openly, such as advances in navigation made possible by the satellites of the Global Positioning System (GPS); others, such as electronic combat devices and precision guided munitions (PGMs), proceeded in acknowledged but secret projects; some, such as stealth flight technology, hatched and matured out of public sight in the so-called supersecret "black world." At the same time, the USAF also began to assess its strategic warfighting doctrine (see especially Chapter 3) in an

5. Brfg Slide, "Air Campaign Plan & Targets," Reflections on Desert Storm: The Air Campaign, Lt. Gen. Charles A. Horner, Comd Gen, 9AF, n.d. [May 1991].

On Target

effort to adapt to changing circumstances and technology. A brief review of the background of some of these important changes is necessary.

Operations Linebacker I and Linebacker II, which were conducted by U.S. air power over North Vietnam from May to October 1972 and in December 1972, served as both a harbinger and a last hurrah for the old order of strategic bombardment. In Linebacker I, launched to counter a massive North Vietnamese ground offensive into the Republic of South Vietnam's northernmost provinces, USAF fighter-bombers made the first sustained use of PGMs. They employed electro-optically guided bombs and also laser-guided bombs known generically as glide bomb units (GBUs) to strike key bridges and other pinpoint targets. For example, on May 10, 12, and 13, 1972, PGMs "dropped"⁶ seven bridges, including the infamous Paul Doumer Bridge and the bridge at Thanh Hoa, "the bridge that would never go down." Heavy air defenses had prevented conventional attacks on these two bridges for five years. Between April 6 and June 30, 1972, PGM-equipped F-4Cs of the 8th Tactical Fighter Wing (TFW), Ubon, Royal Thai Air Force Base (RTAFB), destroyed 106 bridges including some heretofore off-limits spans near the Chinese border.⁷ The dropping of numerous bridges in rapid succession interrupted North Vietnamese logistics by overtaking repair capabilities and denying alternate routes.

The USAF was slow to address the doctrinal implications of this new level of bombing accuracy. It did not equip the major portion of the combat aircraft it procured between 1972 and 1990—the F-15C, F-16, and A-10 series—with GBU-delivery capability.⁸ The service did upgrade its PGM technology by further developing its initial delivery system, Paveway I. Paveway II (GBUs-10, -12, and -16) featured improved guidance, structural improvements, and folding wings that allowed strike aircraft to carry more of these weapons. Paveway II became operational in the mid-1970s. Paveway III (GBUs-22, -24, and -27) went into service in the mid-1980s with improved maneuverability, an autopilot, a laser scanner for target location, and low-level launch capability.⁹ By mid-1990 the USAF's entire PGM-capable fleet consisted of only 125 to 135 fighter

6. These attacks characteristically left bridge spans all or partially severed from their supports and resting in the water. The structures appeared as if they had dropped into the water. USAF pilots quickly made note of this, and service slang began to refer to bridges as "dropped" rather than destroyed. It is a more accurate term in that a permanent bridge is not "destroyed" unless its concrete abutments and piers are demolished.

7. Maj. A.J.C. Lavalley, ed., *The Tale of Two Bridges*, USAF Southeast Asia Monograph Series (Washington, D.C.: GPO, 1976), Vol. 1, Monogr. 1 pp. 84–86.

8. The F-16 and the A-10 can deliver the Maverick air-to-ground missile (AGM-65). It is a precision guided munition designed for an anti-armor role, and it achieved excellent results in attacks on Iraqi tanks and armored personnel carriers. The Maverick does not have the penetration, weight, or quantity of high explosives required for use in strategic bombardment.

9. Richard P. Hallion, *Storm Over Iraq: Air Power and the Gulf War* (Washington, D.C.: Smithsonian Institution Press, 1992), App E "The 'Smart' Bomb," pp. 303–307. This is a useful short history of GBU use and development. Also see Ray Braybrook, "On Target!: A Review of Precision Air Attacks in the Gulf War," *Air International* 41, No. 4 (Oct 1991), pp. 177–182.

The Kuwait Crisis and the Decision to Intervene

*F-111 mounted with
four Paveway laser-
guided bombs*



bombers: 64 swing-wing F-111Fs, 56 stealth F-117As, and a handful of F-4Es. A further 24 F-15E Strike Eagles would replace the F-4Es and come on-line as PGM-capable aircraft by the end of 1990.¹⁰

While many nations and the other U.S. armed services possessed PGMs by 1990, the USAF alone possessed an air-delivered PGM with hard-target penetrating capacity.¹¹ By May 1988 the BLU-109/B (I-2000) penetrating bomb had completed much of its initial operational tests and evaluations both in an unguided version (intended for F-16s) and in guided versions for PGM-capable aircraft.¹² The cleanly designed 2,000-pound bomb's ballistic and handling characteristics were similar to the standard American Mk-84 blast and fragmentation bomb, which simplified its employment in the field. But this version had a body of 1-inch-thick, high-strength forged steel that encased 550 pounds of Tritonal explosive filler and a tail-mounted, delayed-action fuse. Striking with a high kinetic impact velocity and at the proper angle of impact, the bomb could penetrate six feet of hardened concrete or several feet of rubble and other filler.¹³ However, a strike with too shallow an impact angle contributed to the J-hooking effect, in which the weapon moved sideways rather than downward with a consequent lessening of its penetration. (The Paveway III [GBU-24 and -27] also

10. For the F-117 figure, see slide 741622, Air Force Stealth Technology Review, June 10-14, 1991, Checkmate, Desert Storm Files, F-117. As of mid-1990 the F-15E Strike Eagles of the 4th TFW, Seymour Johnson AFB, N.C., had not yet received their LANTIRN targeting pods. Although one of the 4th's squadrons was in operational status and the other was in the process of working up, none of its planes were PGM-capable. By the beginning of 1991, both squadrons had deployed to CENTAF, and some had targeting pods.

11. The British Royal Air Force possessed the JP-233 airfield-denial munition capable of penetrating hardened concrete runways. It was not designed for use against structures. A hardened structure is an individual building or facility sheathed in several feet of specially hardened steel-reinforced concrete. The structure may also be covered with several feet of rubble and earth. Earth fill, hardened concrete, and sheet steel plate may alternate in covering a single super-hardened facility. A conventional high-explosive bomb will either explode on contact or only dig a slight hole in a hardened structure before exploding. It essentially does no damage other than obliterating aerials and other soft protrusions from the target. A penetrating munition can burrow through several feet of hardened material to explode within the target.

12. Capt. Jeffery A. Paulk, "Unguided BLU-109/B," *USAF Fighter Weapons Review*, Spring 1990, p. 32.

13. *Ibid.*, p. 33.

On Target

came in I-2000 penetrator variants for the F-111F and F-117A respectively.) When joined to a guided delivery system, the BLU-109 offered a weapons system of awesome lethality and surgical precision. Like the Belgians at Eben Emael in May 1940, the Iraqis in January 1991 would find hardened concrete insufficient insurance against a foe's ingenuity.

If Linebacker I pointed to the future, Linebacker II sent a somewhat mixed signal to the analyst. Linebacker II intended not only to deny valuable matériel and safe areas to the enemy, but to break his will and force him to return to the peace table. It attempted to do so by employing large-scale B-52 strikes on key targets primarily in the Hanoi-Haiphong areas. With approximately 200 B-52Ds and Gs available at Andersen Air Force Base (AFB), Guam, and at U-Tapao, RTAFB, the USAF launched eleven days of massed heavy bomber raids of 60 to 129 aircraft equipped with radar bombsights and conventional iron bombs.¹⁴ From December 18 to 29, 1972, American bombers blasted over thirty-four targets, including marshaling yards, storage and warehouse facilities, fabrication plants, and airfields with 500- and 750-pound bombs. They flew 729 sorties, dropped 15,237 tons of bombs, and lost 15 B-52s, for a loss rate of 2 percent.¹⁵ Because of the enormous bomblift of the B-52D—up to fifty tons—the amount of high explosives delivered in a raid of twenty-five B-52s compared favorably to that of a typical 750- to 1,000-plane B-17 raid of the Eighth Air Force during World War II. The Linebacker II missions, with single formations of aircraft occupying over seventy miles of airspace, marked the end of the era of massed heavy bombers conducting strategic bombing. By the end of the 1960s, not even the United States, much less any other power, could afford to build and maintain large numbers of heavy, multiengine bombers with their insatiable demands on national resources and trained personnel. From 624 B-52s and FB-111s in Fiscal Year 1973,¹⁶ the USAF strategic bomber inventory steadily declined to a projected total of 266 B-1s, B-2s, and B-52s in FY 1993.¹⁷

Another aspect of Linebacker II presaged Gulf War air operations. During Linebacker II, large numbers of other combat aircraft flew in support of the attacking bombers. For example, a raid of thirty B-52s on Haiphong on December 22, 1972, required the assistance of sixty-five supporting aircraft including EB-66 and EA-6B U.S. Navy (USN) electronic countermeasures craft; F-105

14. See Brig. Gen. James R. McCarthy and Lt. Col. George B. Allison, *Linebacker II: A View from the Rock*, USAF Southeast Asia Monograph Series (Maxwell AFB, Ala.: Airpower Research Institute, Air War College, 1979), Vol. 6, Monogr 8, for a day-by-day description of the campaign.

15. Earl H. Tilford, Jr., *Setup: What the Air Force Did in Vietnam and Why* (Maxwell AFB, Ala.: Air University Press, June 1991), p. 263.

16. USAF, *Statistical Digest*, Fiscal Year 1973 (28th ed.), Jul 31, 1974, p. 59.

17. Maj. Gen. Robert M. Alexander, "Force Structure for the Future," in Richard H. Schultz, Jr., and Robert L. Pfaltzgraff, Jr., eds., *The Future of Air Power in the Aftermath of the Gulf War* (Maxwell AFB, Ala.: Air University Press, Jul 1992), p. 220. In September 1990 the Strategic Air Command had approximately 300 bombers of which a little more than 200 were B-52Gs and -Hs.

The Kuwait Crisis and the Decision to Intervene

Iron Hands to suppress surface-to-air missile (SAM) defenses; F-4 Hunter/Killers to suppress anti-aircraft artillery (AAA); and numerous other F-4s to provide close escort, MiG combat air patrol (CAP); chaff delivery (metallic streamers delivered in bundles from aircraft to deceive and mislead enemy radar), and chaff delivery escort.¹⁸ In World War II the Eighth Air Force required one fighter escort for two bombers, but the complexity, layering, and integration of modern electronic/missile/gun/aircraft air defenses has reversed that ratio, a consideration that goes far to justify the expense of a modern air defense system. An attack by thirty bombers exposed ninety-five aircraft to enemy countermeasures. This further militated against mass bomber attacks; the attacking force simply became too large to defend. Multifaceted air defenses demanded equally complex responses from attacking aircraft. This compelled the attacker to divide his force into aircraft specializing in different roles and to combine those aircraft into packages tailored to meet the specific threats within the expected target area. After the war in Southeast Asia, the USAF continued the practice of developing strike packages as part of its overall target planning methodology. The Gulf War planners made heavy use of force packaging.

Making oneself invisible to the eye of the foe has been the stuff of legend for thousands of years. More recently it has become the province of technology. From 1940 to the mid-1970s, aerial opponents sought to jam, spoof, or destroy radar with electronic countermeasures by dispensing various configurations of chaff and by developing antiradiation missiles to home on and destroy emitters. Such brute force or active methods proved subject to counter-countermeasures, interfered with one's own electronic equipment, and were seldom broad enough to blind every specific threat. The U.S. experience in Vietnam and the Israeli experience in the October 1973 war of flying against ever more complex air defenses, however, stimulated interest in the development of a passive response to this problem—air vehicles designed to present little or no radar cross section (RCS) from any angle and with a minimal heat signature to foil infrared (IR) detection. In late 1978 Lockheed Aircraft Corporation and the USAF began development of a stealth combat aircraft,¹⁹ the first combat aircraft designed on the basis of RCS needs, not aerodynamic or flight performance requirements.²⁰

In November 1988 the USAF brought the F-117A stealth fighter out of the black world and introduced its distinctive appearance, but not its sophisticated technology, to public view.²¹ It first flew in June 1981, and the service took deliv-

18. McCarthy and Allison, *Linebacker II*, p. 101.

19. See Hallion, *Storm Over Iraq*, pp. 293–294, for a thumbnail sketch of the stealth fighter's development.

20. Lockheed had experience in this field. In the 1960s the design of the SR-71 strategic reconnaissance aircraft, built at Lockheed's "skunk works," gave considerable attention to reduction of its radar image. In the 1970s Lockheed built the Have Blue technology demonstrator, the first aircraft designed and built for stealth.

21. DoD, *Conduct of the Persian Gulf Conflict: An Interim Report to Congress* (Washington, D.C.: DoD, Jul 1991), p. 6-2.

On Target

ery of the last of the fifty-nine aircraft contracted for in June 1990. Given the aircraft's impact on future technology, its potential against enemy air defenses, and its effectiveness as a bombing platform, the USAF received a bargain, especially when compared to the USAF's investment in the B-1, B-2, and C-17 aircraft or such specialty aircraft as the Joint Surveillance Target Attack Radar System (JSTARS), all of which cost far in excess of \$100 million per unit. In 1991 dollars, the total F-117 program cost a relatively modest \$8.2 billion overall, with a unit flyaway cost (airframe, engines [installed], electronics, ordnance, and armament) of \$52.5 million.²² The F-111F had a unit flyaway cost of \$10.9 million in 1973 currency²³ (roughly equal to \$45 million in 1991), but it required a supporting package of electronics-jamming aircraft and aircraft capable of suppressing enemy air defenses to reach its target. The F-117 needed no support other than tanker refueling, thus saving the large costs (fuel, weapons, refueling, and maintenance, not to mention possible loss of aircraft and personnel) associated with escorts. To minimize financial risk and expense and to speed the F-117's development, Lockheed used parts from both the F/A-18 and F-16 fighters as well as adapted existing attack, computer, and electronics systems. The F-16's fly-by-wire digital flight-control system proved particularly beneficial in controlling the dynamically unstable F-117 aircraft. Computer modeling, at levels far exceeding those available to previous designers, greatly assisted development.

Stealth technology evolved during World War II with the introduction of the British Mosquito light bomber, constructed of plywood for a low radar return, and with later models of the German U-boat snorkel,²⁴ relatively small devices coated with a radar-absorbent material. Stealth technology uses surface shaping to eliminate direct returns, minimize dwell, and produce deceptive returns and uses radar-absorbent materials to reduce RCS. RCS has no direct relationship to the aircraft's physical cross section. Stealth was not intended to make an aircraft invisible; rather, the intent was to make an aircraft difficult to detect and virtually impossible to track and engage. Stealth works against all types of radars. A powerful ground search radar may get a weakened return, but less powerful SAM and AAA tracking radars or airborne fighter-interceptor radars will not get a image suitable for lock-on of their weapons system and thus be unable to engage the stealth aircraft. To reduce the chance of being sighted, the F-117 attacks only at night, and since visual tracking is eliminated, only a very lucky random shot

22. Brgf Slide, "F-117 Program," Air Force Stealth Technology Review, June 10-14, 1991, Checkmate, Desert Storm Files, F-117.

23. Marcelle Size Knaack, *Post-World War II Fighters, 1945-1973*, USAF Reference Series (Washington, D.C.: Office of Air Force History, 1986), p. 259 n. 113.

24. The snorkel was a captive buoy with an air hose attached. It allowed a submarine to stay below the surface, avoiding detection, and still use its air-breathing diesel engines and conserve or recharge its electric drives. Use of the more powerful diesel engines doubled a submarine's speed. However, improved radar permitted the Allies to locate even the snorkel. Hence the Germans countered with radar-absorbent material.

The Kuwait Crisis and the Decision to Intervene

will bring the aircraft down. With stealth, it can operate in areas closed to other attacking planes and can threaten high-value targets.²⁵

The USAF scored a unique technological triumph with the F-117A. Like Great Britain in 1905–1906 when it introduced the dreadnought all-big-gun battleship, the United States, with stealth, deployed a weapons technology of dramatic political, military, and even economic impact. Just as the dreadnought invalidated the battle fleets of Britain's enemies, stealth aircraft nullified the standing air defenses of the Soviet Union and other states. The tremendous Soviet investment in comprehensive and redundant radar warning networks and air defenses now required upgrading with a technological counter to stealth, if such could be developed, and at staggering expense. Unlike Wilhelmine Germany, the Soviet Union, in the throes of a profound societal and economic crisis, had little choice but to accept, for the time being, a U.S. monopoly on stealth and its own vulnerability to these aircraft.

Other newly deployed technological devices from satellites to the secure facsimile (fax) machine aided air operations in matters both great and small. Space-based systems proved invaluable. Three satellites of the Defense Support System, originally designed to warn of a Soviet ballistic missile attack against the United States, scanned Iraq for the exhaust glow from SRBM, or Scud, launches.²⁶ The Navstar GPS satellite network revolutionized air and surface navigation. Hand-held receivers and other more accurate receivers in aircraft, vehicles, ships, and weapons allowed Coalition forces to locate their positions to within sixty feet instead of within eight miles, as had been the case with older ground-based navigation systems. Three satellites of the Defense Meteorological Satellite Program and three commercial weather satellites provided accurate weather updates in as little as ninety minutes and sometimes allowed near real-time retargeting of missions. The Defense Communications Satellite System provided thousands of secure circuits, while intelligence satellites, including the commercial Landsat system, ferreted out enemy surface dispositions. The secure fax and telephone systems of the U.S. military concealed information from the enemy and allowed unprecedented direct access between lower echelon staffs in the United States and in the theater of operations.²⁷

U.S. military war plans and planners, however, had not fully assimilated the import of these changes in aeronautical, munitions, and satellite technology. In fact, deployment planning, not integrated warfighting, dominated the attention of

25. Public Lecture, Richard P. Hallion, "The Stealth Revolution," Smithsonian Institution, Washington, D.C., April 4, 1992. While assigned to the Air Force Systems Command in the 1980s, Dr. Hallion served as an Air Force historian with responsibility for the F-117A and other programs.

26. Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey Summary Report* (Washington, D.C.: GPO, 1993), p. 194.

27. See the *Gulf War Air Power Survey (GWAPS)*, Vol. 4, pt. 2, *Space Operations* (1st ed.), for a detailed survey of satellite contributions.

On Target

the staffs of both the U.S. Combined Theater Commanders in Chief (CINCs) and their subordinate service component commanders.

In the beginning of 1990, the AOR of the United States Central Command (CENTCOM) covered a broad region comprising much of the Muslim world. Within its purview fell the following nations: Egypt, the Sudan, Ethiopia, Kenya, Somalia, Djibouti, the Yemen Arab Republic, the Democratic Republic of Yemen, Oman, Saudi Arabia, the United Arab Emirates, Bahrain, Qatar, Kuwait, Jordan, Iraq, Iran, Afghanistan, and Pakistan. The AOR further included the Red Sea, the Persian Gulf, the Gulf of Aden, and the Gulf of Oman.

The USAF Ninth Air Force, headquartered at Shaw AFB, South Carolina, provided the initial air combat units and the air command and staff elements of the U.S. Air Force Component, Central Command (CENTAF). The commander of the Ninth Air Force, Lt. Gen. Charles A. Horner, USAF, served as the Air Component Commander of USAF units in the AOR and as the Commander of the Central Command Air Forces (COMCENTAF). He also held the post of Joint



Lt. Gen. Charles A. Horner

Force Air Component Commander (JFACC) with responsibility for limited control, planning, and coordination with the air elements of the other services at the direction of the Commander in Chief, Central Command (CINCCENT).

Several factors combined to make the Ninth Air Force/CENTAF headquarters staff an unusually cohesive and homogeneous body. In the mid-1980s, the USAF entered a period of continuing fiscal constraints when the Reagan administration's defense buildup ceased and defense funding no longer kept pace with inflation. As one of its reactions to this situation, the service introduced a policy to limit the frequency of costly permanent change of station (PCS) moves for its personnel. The reduction of PCS moves had a completely unplanned, but beneficial, effect on the Ninth Air Force. By the summer of 1990, many members of the staff had worked together for four, five, six, or more years. With the staff free of the periodic turnover of personnel, which usually meant that at any one time, one-third of all officers had not yet learned their jobs, the Ninth Air Force had

The Kuwait Crisis and the Decision to Intervene

the luxury of time with which to examine and attempt to solve the problems of the AOR and to learn to know and trust one another.

In the years before the summer of 1990, the Ninth Air Force staff participated in Blue Flag staff exercises and other types of exercises dealing with command and organization problems in the Persian Gulf. In the Blue Flag of early 1990 and in Exercise Internal Look of July 1990, the CENTAF staff explored its possible responses to Iraqi aggression against Saudi Arabia. During these and earlier exercises, the CENTAF staff worked to hammer out the bumps in one of its principal air control tools, the air tasking order (ATO).²⁸ In theory, the daily ATO scheduled all aircraft flights of all services and nations within an AOR. The ATO also served to coordinate with air defense forces and prevent aircraft from entering all types of restricted areas.²⁹ A complicated daily ATO could reach telephone-book size; hence units received only the portions covering themselves and their supporting organizations. In the period before the present crisis, the CENTAF staff had made substantial progress in working up a flyable, or executable, ATO. In doing so, they had discovered that experience mattered greatly in the preparation of an ATO, an art form almost as much as a mechanical process.³⁰ Because of the large distances in the AOR between likely bases and likely targets, most strikes would require air-to-air refueling of aircraft: no tankers, no strikes. Therefore, coordination and scheduling of tankers assumed primary importance, so the CENTAF staff decided before the conflict to reverse the normal ATO planning process which treated tankers as an afterthought to strike planning, and to build the ATO around the tankers by initially creating an optimal schedule for them, and then adding the combat and other missions to it. However, during Desert Shield and Desert Storm, the Strategic Air Command (SAC) tanker planners, who controlled the tanker inputs to the theater ATO, insisted on a less radical solution. They agreed to amend the normal process that treated tankers as an afterthought to strike planning and to build the ATO in conjunction with the tanker plan. This meant that the strike planners built their plans within the constraints of the tankers, rather than having the tankers attempting to match their availability to preplanned strikes.

The Achilles' heel of the ATO lay in the comprehensiveness of its attempt to control almost every aspect of operations. The unraveling of a single thread, such as a last-minute tanker air abort or a unit misreading its assignment, could cause a cascade of changes throughout the ATO as the planners scrambled to rearrange schedules. The initial change might mean 10 or 15 other changes down the line. Furthermore, as the number of missions incorporated into a single ATO increased arithmetically, the number of associated deconfliction, identifica-

28. *GWAPS*, Vol. 1, pt. 1, *Planning* (2d ed.: Washington, D.C.: GPO, 1993), pp. 41–54.

29. *GWAPS*, Vol. 1, pt. 2, *Command and Control* (2d ed.), pp. 13–21, 144–154.

30. Intvw, Lt. Col. David L. Waterstreet, Chief, Combat Plans Automation Branch, DCS/Ops, 9AF, with Drs. Richard G. Davis, Center for Air Force History (CAFH), and Barry Barlow, 9AF History Office (9AF/HO), at Shaw AFB, S.C., Mar 6, 1992.

On Target

tion–friend-or-foe (IFF), tanker, and other calculations seemed to increase exponentially.³¹ This made a large ATO unwieldy and, in theory, liable to fail of its own weight, especially if forced into numerous rapid changes in response to enemy counterpressure. Once the aircraft controlled by the ATO approached enemy territory, the plan provided for some flexibility in that controllers on the Airborne Warning and Control System (AWACS) aircraft could divert strikes to other targets if necessary. In fact, officers who prepared the ATO, as a matter of policy, regularly flew on the AWACS to oversee the execution of the ATOs they had written. Having to correct their own mistakes and problems helped the ATO writers produce more finished products.

The Ninth Air Force's precrisis exercises and preparations refined the ATO, but they do not seem to have had the same effect on its Directorate of Intelligence. The exercises did not, and could not, allow for some of the difficulties intelligence would encounter. They could not accurately simulate the day-to-day interface with the national intelligence agencies, which during the campaign would prove more time-consuming than imagined. Nor could they anticipate the bottleneck that CENTCOM J-2 would become because of its stunted size. Also, the rehearsed nature of the exercises allowed for rapid retrieval of preplanned or anticipated intelligence data and for fully functioning specialized intelligence communications links. The exercises further gave USAF planners and operators unrealistic expectations as to the quality, quantity, and speed of distribution of intelligence material. In short, failure to accurately simulate wartime conditions would leave both the intelligence and the regular staffs scrambling to remedy the problems of timely dissemination and the required configuration of intelligence data. As the CENTAF staff members would discover to their dismay, near-real-time intelligence might have meant almost instantaneous collection, but analysis and delivery to the field might take many hours, if not days.

The long service times shared among CENTAF staff members and the focus of the CENTAF operations and planning sections on the ATO had a potential drawback. Cohesion can also become group-think, and even the professional officers of the CENTAF staff might, without realizing it, become overly committed to their own point of view. For example, their concentration on the ATO, in some respects necessary because of its complexity, might tend to blind the staff members to other methods of approaching questions of targeting and direction.

The insularity of the Ninth Air Force meant that the command, from top to bottom, suffered from a lack of knowledge of and practical experience with the F-117A stealth fighter and with the use, effects, and implications of PGMs and their delivery systems. The F-117As had only recently emerged from the super-secret black world of highly security-classified military projects, and the service had assigned them to a fighter wing in the Twelfth Air Force. Likewise, the Ninth Air Force lacked experience with the service's most effective non-stealth, PGM-

31. Ibid.

The Kuwait Crisis and the Decision to Intervene

F-15E Strike Eagle



capable aircraft, the F-111F, assigned to the 48th TFW of the Third Air Force in Great Britain. The Ninth Air Force's sole peacetime PGM-capable wing, the 4th TFW stationed at Seymour Johnson AFB, North Carolina, was in the process of replacing its Vietnam-era F-4Es—the USAF's oldest PGM-capable aircraft equipped with the least-modern delivery system—with the brand-new F-15E Strike Eagle. However, the first squadron of F-15Es did not enter service until shortly before the crisis began and had not yet qualified to carry PGM munitions. In addition, that squadron began operations only with its low-altitude navigation and targeting infrared for night (LANTIRN) navigation pods, not its targeting pods. The targeting pods which equipped the second squadron (which remained in the United States until December 1990) did not begin to arrive until September 1990. Those factors combined to keep Ninth Air Force planning and operations personnel almost totally unfamiliar with the new weapons system. The possible failure to fully appreciate the opportunities offered by stealth aircraft and PGMs might, at some point, handicap the Ninth Air Force's ability to plan a full-scale air campaign. These possible shortcomings, however, should not obscure the advantages possessed by the CENTAF staff, particularly its extensive knowledge of and experience in the theater of operations.

For more than forty years the CENTCOM theater of operations had served as one of the arenas of the Cold War between the United States and the Soviet Union. After the end of the Second World War, the globe's two superpowers competed for influence in every geographic region. The struggle touched the nations surrounding the Persian Gulf, which possessed 57 percent of the world's total proven petroleum reserves. Soviet control of that resource would greatly expand their influence, especially in Western Europe and Japan which relied heavily on oil from the region. As a consequence, U.S. planning focused on countering possible Soviet actions. However by the late 1980s, the Soviet Union appeared to have entered a prolonged period of internal difficulties that gravely weakened its internal cohesion and control of its satellites in Eastern Europe. In effect, the Soviets conceded the Cold War, and although their military capacity

On Target

remained great, their willingness to employ it beyond their own borders seemed minimal. The diminution of the Soviet threat in the Persian Gulf did not eliminate the danger of that area's control by a power inimical to the United States. Would-be regional hegemony unfriendly to the West, such as Iran and Iraq, had the potential to dominate the other, weaker Gulf states. Iran's August 1988 defeat by Iraq left Iraq as the region's most militarily powerful country. With its highly centralized leadership, secular regime, large military machine, and advanced programs in NBC weapons of mass destruction, Iraq posed an immediate short-term threat to the stability of the region. Iran, with a population more than twice that of Iraq's and led by Muslim fundamentalists who had a broad appeal in the Gulf, also had an atomic weapons program under way but needed, perhaps, a decade to rebuild itself after ten years of revolution and war. Iran, if and when it recovered, represented the long-term and possibly more serious strategic threat to the region. However, CENTCOM's planning did not immediately recognize this changed strategic landscape.

When General H. Norman Schwarzkopf, U.S. Army (USA), assumed command of CENTCOM in November 1988, he found his two principal war plans outdated. He ordered CENTCOM's plans changed to reflect the results of the Iran-Iraq War. The resulting CENTCOM plan, Operation Plan (OPLAN) 1002–90, mirrored the new strategic realities. One important feature of this new plan greatly increased the strength of U.S. forces scheduled to deploy to the area in the event of conflict. This expanded deployment amply illustrated how the overall lessening of the Soviet threat, which shrank the United States' need to commit large forces to directly counter that diminished irritation, freed U.S. forces for use in other sensitive areas of interest. OPLAN 1002–90's main scenario centered on an Iraqi threat against Persian Gulf oil fields.³² It specified a call-up of U.S. reserves if conflict broke out. National policy decisions taken in the 1970s and 1980s to transfer important combat and support functions to the ready reserves and the National Guard made this call-up mandatory. To perform effectively in prolonged combat, all three services required the activation of selected reserve formations. Also intended by this policy was that the call-up of thousands of reservists from their homes and jobs would tend to ensure that the executive branch of the Federal government (i.e. the president) could not commit large forces to an overseas conflict without involving all sections and segments of the citizenry, not just members of the all-volunteer professional military. In theory, the necessity to activate the reserves placed a brake on a president's desire to indulge in frivolous overseas or ill-considered military adventurism—he would use his call-up authority sparingly to avoid domestic political implications like a loss of popularity. Obversely, when serious foreign events did force a military call-up, the entire populace, not just the families of military men and women, would tend to support successful prosecution of the conflict. Politicians oppos-

32. *GWAPS*, Vol. 1, pt. 1, *Planning* (2d ed.), pp. 27–35.

The Kuwait Crisis and the Decision to Intervene

ing a president gained a check on his options, while the U.S. military, perhaps, avoided the situation of the Vietnam War when it fought with a divided nation behind it.

The plan divided operations into three phases. In Phase I, major force deployments would demonstrate U.S. resolve and position forces to execute the combat phases of the plan. By August 1990, CENTCOM headquarters' planners had not completely finished with some crucial nuts and bolts of this plan. In particular, the plan had no approved time-phased force and deployment data (TPFDD), a computer-generated data base that supplied much of the information necessary for sequencing the overall deployment for the plan, delineated the type of actual unit required by the plan, and indicated points of origin and departure and exact routing of units and equipment. The TPFDD also contained vital data on non-unit-related cargo and personnel movements conducted concurrently with deployment, as well as detailed estimates of transportation requirements to be filled by common-user lift resources and by theater resources. When the movement to Saudi Arabia began in August, the lack of a TPFDD would force the deployment planners to resort to on-the-fly and ad hoc calculations. Constant changes in deployment schedules and equipment requirements would further aggravate management of the flood of men and machines into Saudi Arabia, producing a situation that increased both the stress and confusion experienced by CENTCOM and its component staffs and commanders.³³

In Phase II the planners apparently envisioned a modest and limited assault on Iraq. This meshed with the assumption that Phase II would begin as a reaction to an Iraqi land attack and that the main priority of air would be to slow and attrit Iraqi ground forces, not to strike deep into Iraq. Phase II targets were selected to establish local air superiority, keep the IZAF out of the ground war, and damage Iraq's oil export industry.³⁴

In Phase III, when the Americans and their allies began a counteroffensive, the targeting strategy sent aircraft to Baghdad and beyond. Scud targets had top priority, followed by chemical weapons (CW) production and storage facilities. Then came the Baghdad nuclear power plant and research facility and the pump stations on the northern Iraqi pipelines. The powerhouse of Iraq's largest electrical generating plant, Ajaji Bayji, and Iraq's largest petroleum refinery, both near Baghdad, had lesser priority. Iraqi command and control (C²) targets had the lowest, but still important, priority. The C² targets consisted of strictly military facilities—four in Baghdad and three in southern Iraq. Phase III targeting strategy increased the punishment of Iraq's oil industry and hit important missile, CW, and nuclear research targets as well as military C². It was an extremely conserv-

33. See William T. Y'Blood, *The Eagle and the Scorpion: The USAF and the Desert Shield First-Phase Deployment, 7 August–8 November 1990* (Washington, D.C.: Center for Air Force History, 1992), pp. 72–73, for a discussion of the difficulties caused by the absence of a completed TPFDD.

34. *GWAPS*, Vol. 1, pt. 1, *Planning* (2d ed.), pp. 35–38.

On Target

ative, solid piece of planning, in part because its designers had purposely limited themselves to targets on which they had sufficient intelligence information.³⁵ Rather than indulge in speculation, Ninth Air Force planners chose to limit themselves to what they knew they could accomplish. The Ninth Air Force targeting strategy reflected judgments that heavily influenced CENTAF defensive planning throughout the initial phase of the crisis. Future CENTAF D-day plans assumed that the effort to counter an Iraqi ground assault would absorb a large percentage of USAF assets and that the intent of any bombing deep into Iraq would be to inflict military and economic punishment.

As part of its preparations for OPLAN 1002–90, Ninth Air Force intelligence officers began in March 1990 to assemble targeting information of potential targets in Iraq.³⁶ Although the Ninth Air Force’s planning and targeting efforts would be superseded by a radically different and unrelated Air Staff conceived plan (see Chapter 3), they offer a view of the likeliest alternative to the plan employed. They further demonstrate the direction toward which the Ninth Air Force directed its efforts throughout August 1990. In fact, CENTAF’s so-called D-day Plan—a reaction plan for an Iraqi ground assault into Saudi Arabia for which CENTAF prepared ATOs until well into November 1990—descended directly from this early work.

OPLAN 1002–90, like all of CENTCOM’s deployment plans, rested on the logistical bedrock of munitions and supplies prepositioned in the Gulf, in Diego Garcia, or in military bases in the continental United States, such as Holloman AFB in New Mexico. The Afloat Positioning Force—twelve civilian-manned vessels at Diego Garcia—carried ammunition, fuel, refrigerated and dry cargo, airfield construction equipment, and supplies for all three services. USAF supplies filled three of the ships, the last of which had not reached its station and was off the French Mediterranean coast. In the event of a deployment, all three ships would head for designated ports to unload. Within the theater, the USAF had a large land-based prepositioning program, Harvest Falcon, for its own needs.³⁷

The magnificent air base infrastructure of Saudi Arabia provided CENTAF with a superb foundation for deployment. Without these bases, the USAF would have lacked the ability to effectively perform its mission against Iraq. One cannot overstate the importance of their contribution to the operation’s success. Harvest Falcon assets could provide a tent city in a few days, but only the host nation could provide the runways suitable for USAF aircraft. Either from pride or foresight or both, the Saudis endowed the Royal Saudi Air Force (RSAF) with a series of large new air bases able to accommodate a much larger force than the

35. [Brfg], “OPLAN 1002–90 Targeting Strategy,” n.d. [ca. late summer 1990], [File: Colonel Christopher Christon, 9AF DCS/IN].

36. Msg, 121428Z Mar 90, 9TIS to TACOPS, Langley AFB, Subj: ATTG Request, [File No. 9TIS: Colonel Christopher Christon 9AF, DCS/IN].

37. William T. Y’Blood, “The Eagle and the Scorpion: The USAF in Desert Shield, the Deployment Phase,” draft, December 1991, pp. 37–38.

The Kuwait Crisis and the Decision to Intervene

host unit. With the possible exception of the Iraqis, the Saudis built some of the most physically impressive bases in the world. They greatly exceeded NATO standards and possessed features such as long runways and taxiways, hardened aircraft shelters (HASSs) with air pressurization systems to combat attack with CW and biological weapons (BW), and sunken ramps from the shelters to the taxiways. The Saudis sited their bases to confront a series of different eventualities. Tabuk Air Base (AB), adjacent to Jordan, placed Saudi aircraft within range of Israel, to threaten that country and demonstrate solidarity with Arab confrontation states. Taif AB, a brand-new base, not yet even occupied by the RSAF, guarded the Holy City of Mecca and projected Saudi air power into the Red Sea and the coasts of the Sudan and Ethiopia. Khamis Mushait AB, another spanking new base in southeastern Saudi Arabia near Yemen, covered the Bab al Mandab, where the Red Sea joins the Indian Ocean, and provided support for operations involving the two Yemens, sources of disquiet for the Saudis. The Saudis placed King Khalid Military City approximately forty miles south of the Iraqi–Kuwaiti–Saudi Arabian tristate border. From there it supplied potential coverage of Kuwait; of Iraq, especially the Iraqi-Iranian battlefields around Basra; and of the Al Faw Peninsula, Abadan, and other important parts of Iran. Dhahran AB, near the Saudi coast at the midpoint of the Persian Gulf, covered Gulf shipping and the oil fields; confronted Iran and, to a lesser extent, Iraq; and provided some coverage of Qatar and the United Arab Emirates (UAE). Al Kharj AB and Riyadh AB covered the oil fields and the center of the country. Unlike other bases, Al Kharj AB consisted of little more than a large runway in the sand. It required much American and local effort to make it serviceable, and it did not become fully operational until December. Large Saudi commercial fields such as King Fahd International, near Dhahran; King Khalid International, near Riyadh; and Jeddah could further support incoming USAF air units. Other Gulf countries, in particular the UAE, supplied almost a dozen other bases.

The Saudis may have overbuilt their bases for several reasons. They faced widely separated threats with a relatively efficient but small air force. Instead of spending inordinate sums on maintaining large forces at each corner of their country to ward off the unlikely event of trouble everywhere at the same time, it seemed more sensible, more economical, and less threatening to the monarchy to have smaller forces that could move to reinforce trouble spots when the need arose. An extra-large base could obviously prove most efficient in handling a rapid influx of augmenting units drawn from elsewhere in the country. Many Saudi bases seemed designed to house a large percentage of the RSAF, if the need arose. The Saudis further had the advantages of prolific funding, abundant labor, and nearly unlimited space in which to expand. Circumstances enabled them to build not just for the current force, but for the future. Also, Arab culture tends to take the long view, which some Americans mistake for inordinate slowness. In the case of their airfields, the Saudis, who see themselves as a growing regional power, may well have based their construction schemes on the prospect

On Target

of a greatly expanded force structure. A large investment in current capital improvements might well pay handsome dividends in years to come, and a lavish physical plant kept its utility far longer and aged far less rapidly than modern combat aircraft. In this connection, the Saudis' Strategic Reserve Program is an excellent example. In that ongoing program, the Saudis have given up to \$4 billion to Swedish contractors to build hardened underground oil and refined-product storage caverns connected by extensive pipelines. It shows an unusual foresight for the holder of the world's largest oil fields to spend billions for a strategic reserve.³⁸

An additional, widely accepted theory for the Saudis' overbuilt bases rests on conjecture, unsupported by firm documentary evidence. The Saudis may have anticipated an eventuality when an outside power, almost assuredly the United States, would send air units to their country. Those who support this theory point to the oversight of the U.S. Army Corps of Engineers in the design and construction of the bases. At the time they purchased modern U.S. fighter aircraft—F-5s and F-15s—the Saudis simultaneously requested the construction of modern bases;³⁹ available funds allowed the Corps to accommodate them, meeting or exceeding all U.S. standards. Given the politics of the region, it seems unlikely that the Saudi government would have ever committed itself to U.S. basing in advance of an event, but for whatever reason, when CENTAF needed the space, the Saudis could supply much of it.

The U.S. government had little choice but to adopt a relatively passive policy in the Persian Gulf. As the Bush administration examined the American position in the Gulf, particularly toward Iraq, in April 1989 it faced three options—coercion, containment, or co-option. None among America's Gulf friends, the international situation, nor American public opinion would support an expanded military presence in the region, let alone confrontation with potential Iraqi aggression. Containment of Iraq—in the face of Soviet, French, and British desire to pursue massive arms sales and of U.S. farmers' equally intent pursuit of agricultural sales—also foundered from lack of support. Since the United States could hardly ignore the strongest military power in the world's greatest oil-producing region, it, perforce, selected the third option, that of attempting to bring Iraq and Saddam Hussein into the community of nations.⁴⁰ Although the selected policy may seem supine in retrospect, at the time it fitted the political resources available. Its dangers lay in bureaucratic ossification or self-delusion

38. Douglas F. Graham, *Saudi Arabia Unveiled* (Dubuque, Iowa: Kendall/Hunt Publishing Company, 1991), p. 49. This cite refers only to the information on the Strategic Reserve.

39. Telecon, Personnel of Saudi Branch (SAF/IARS) of the Deputy Under Secretary of the Air Force (International Affairs), May 4, 1992. A search of this office's files revealed no record of any formal agreement with the Saudis on USAF contingency use of RSAF bases. However, examination of the earliest Foreign Military Sales (FMS) Letters of Agreement (LOA) concerning fighter sales to Saudi Arabia disclosed the fact that the Saudis consistently purchased bases as well as aircraft.

40. James A. Baker III with Thomas M. DeFrank, *The Politics of Diplomacy: Revolution, War and Peace, 1989–1992* (New York: G.P. Putnam's Sons, 1995), pp. 262–263.

The Kuwait Crisis and the Decision to Intervene

(the inability or unwillingness of U.S. officials to reexamine the policy in light of changed circumstances) and in the timing of when to replace the carrot (good relations or credit, for example) with the stick (loss of credit, severe restrictions on weapons technology, and so forth).

Iraq had emerged from the Iran-Iraq War saddled with debts of \$80 billion, including a \$30 billion short-term hard-currency debt owed the United States, Japan, and European nations.⁴¹ In the two years following its victory over Iran, Iraq made little effort to repay this debt or to scale back its armed forces, which it retained close to their wartime establishments of 1 million, or to cut back on extensive public projects and subsidies. Iraq further pursued aggressive and expensive military research and development (R&D) programs in NBC weapons; exotic arms, such as the massive cannons designed by Canadian ordnance expert Gerald Bull; and in short- and medium-range ballistic missiles. The government also built extensive munitions and small- and heavy-arms plants. Saddam refused to renegotiate or reschedule his foreign debt, in part because that would have meant opening his nation's financial books to foreign bankers, and in part because he hoped to find other ways out of his fiscal dilemma. The fall of world oil prices in late 1989 and early 1990 reduced the hard-currency earnings of Iraq's most valuable export and placed increased pressure on its credit and economy. Lack of additional credit might bankrupt the regime, costing it prestige and denying it the ability to make large purchases abroad. Other alternatives such as cutting back on internal subsidies and improvement projects might cause popular unrest, while demobilizing portions of the armed forces could weaken Iraq's strong position in the region's power politics. Since he would not reduce expenses, Saddam attempted to expand income, notably by obtaining an increase in the price of oil. He could force the price upward either by convincing OPEC to support a higher oil price or by exerting direct or indirect control over the other militarily weak oil producers in the Gulf. Saddam's degree of financial desperation would serve as the measure of the amount of intimidation and force he would apply to his neighbors.

At an Arab League summit meeting in Baghdad on May 30, 1990, Saddam complained to a group of Arab heads of state about Kuwait's "economic warfare" against Iraq. The same meeting may also have produced a sharp personal confrontation between Saddam and the Emir of Kuwait, who rejected out of hand Saddam's demands for territorial concessions and debt forgiveness.⁴² Almost seven weeks later, on July 17, in his National Day speech to the nation, Saddam accused Kuwait and the UAE of conspiring with the United States to lower world oil prices and weaken Iraq. He threatened direct action against the Gulf states unless they discontinued their policy of oil overproduction, which lowered the world market price and cost Iraq billions of dollars of lost revenue. The next day

41. Don Oberdorfer, "Missed Signals in the Middle East," *Washington Post Magazine*, March 17, 1991, p. 23.

42. *Ibid.*, p. 36.

On Target

the Iraqi media published a letter from Iraq to the Arab League that accused the Kuwaitis of stealing billions of dollars worth of Iraqi oil from the Rumaila oil field that underlies both countries, of building military installations on Iraqi territory, and of refusing to forgive massive Kuwaiti loans to Iraq during the Iran-Iraq War. The Kuwaitis denied the charges and put their armed forces on full alert on July 18. The following day, U.S. intelligence detected the movement of Republican Guard forces from the Baghdad area toward the Kuwaiti border.⁴³ In the meantime, Saddam tightened his grip on Iraq, possibly to forestall objections to the initiatives he intended to undertake in the near future, by having himself proclaimed President for Life.

Even as Iraqi forces flowed toward Kuwait, the State Department issued new instructions to American embassies in the Middle East. A brief cable supplied policy guidance on the Iraq-Kuwait dispute. In all contacts with Arab counterparts U.S. diplomats were to stress two points:

disputes should be settled by peaceful means, not intimidation and threats of force. Second, the United States takes no position on the substance of bilateral issues concerning Iraq and Kuwait. However, U.S. policy is unchanged. We remain committed to ensure the free flow of oil from the Gulf and to support the sovereignty and integrity of the Gulf states...we will continue to defend our vital interests in the Gulf.⁴⁴

On July 21, the situation went from name-calling to bona fide crisis. On that day, U.S. photographic imagery confirmed reports from Western military attachés that two Iraqi armored divisions had moved south toward the Kuwaiti border. In addition, the UAE, alarmed at the possibility of Iraqi air attacks on its offshore oil facilities, planned to begin a 24-hour CAP. The UAE requested two USAF KC-135 tankers for aerial refueling, and the U.S. Embassy in Abu Dhabi warned it suspected that the UAE regarded this request as a test of U.S. desire to respond to a crisis in the Gulf. According to General Schwarzkopf, the State Department opposed this initial request, which caused him to appeal for its approval directly to the Chairman of the Joint Chiefs of Staff (CJCS), General Colin L. Powell, USA, and to Secretary of Defense Richard B. Cheney.⁴⁵ Secretary of State James A. Baker III overruled his department's Near Eastern Bureau and supported the request, which President Bush approved on July 23.⁴⁶

The U.S. ambassador to Iraq, April Glaspie, met with Saddam on July 25. Although she had taken up her post in August 1988, Ambassador Glaspie, a career Foreign Service Officer known for her wide contacts in and accurate political judgments of the Arab world, had never before privately met the Iraqi dicta-

43. DoD, *Conduct of the Persian Gulf War: Final Report to Congress* (2d ed., Washington, D.C.: DoD, April 1992), p. 334.

44. Baker and DeFrank, *Politics of Diplomacy*, p. 271.

45. Gen. H. Norman Schwarzkopf and Peter Petre, *The Autobiography: It Doesn't Take a Hero* (New York: Bantam Books, 1992), pp. 292–293.

46. Baker and DeFrank, *Politics of Diplomacy*, p. 271.

The Kuwait Crisis and the Decision to Intervene

tor. The meeting occurred in somewhat unusual circumstances. An official of the Iraqi Foreign Ministry asked to see Ambassador Glaspie in his office. When she arrived, he unexpectedly escorted her to a car, which took her to see Saddam. Ambassador Glaspie had no prior warning that she would see Saddam, and no American aides accompanied her. When the ambassador entered Saddam's office at approximately noon, she also found Foreign Minister Tariq Aziz, the president's office director, two note-takers, and an Iraqi interpreter present. According to Ambassador Glaspie, this meeting was unique. In the memory of the current diplomatic corps in Baghdad, Saddam had never summoned an ambassador before.⁴⁷ Saddam held in his hands two official American statements delivered by Glaspie to the Foreign Ministry earlier that morning, with a request that the ministry pass them to Saddam. One announced the UAE-U.S. refueling exercise, and the other, an official transcript, detailed the remarks that the official U.S. State Department spokesman, Margaret Tutwiler, had made the previous day.

Tutwiler seemingly sent a mixed message. The United States, she stated, believes that "Iraq and others know that there is no place for coercion and intimidation in a civilized world." But, in response to questions, she admitted the United States did not have "any defense treaties with Kuwait and there are no special defense or security commitments to Kuwait."⁴⁸ While hardly comparable to Secretary of State Dean Acheson's public exclusion of South Korea from U.S. defense obligations in early 1950, which many commentators interpret as a factor in the eventual North Korean attack, Tutwiler's remarks must have puzzled Saddam, who had absolutely no experience with an open press, let alone an official American press conference where reporters' questions not only do not have prior government approval, but are confrontational, if not hostile. The refueling exercise also perturbed Saddam. He correctly evaluated it as U.S. muscle-flexing and pressure on behalf of Kuwait and the UAE. He may also have seen the presence of U.S. forces at bases in the Arabian Peninsula as an entering wedge for a much greater U.S. commitment, if such proved necessary. Finally, he suspected the move preceded a U.S. "decision to take sides."⁴⁹

The exact contents of Ambassador Glaspie's and Saddam's two-hour talk have become shrouded in controversy. Because the ambassador had no entourage with her, no official U.S. transcript exists. The publicly released Iraqi transcript contains important unacknowledged lacunae. This description relies on Ambassador Glaspie's after-the-fact report to her superiors. Saddam began with a short review of U.S.-Iraqi relations. Then, in a revealing scrap of analysis, Saddam explained why the United States had not intervened directly in the Iran-

47. Msg, 251246Z Jul 90, AMEMB Baghdad to SECSTATE #04237, Subj: Saddam's Message of Friendship to President Bush, cited in Capt. Steven B. Michael, comp., *Operation Desert Shield: A Chronology of the Deployment to the Persian Gulf* (Washington, D.C.: Office of the Air Force Historian, Air Staff Historical Study, 1991), p. 6.

48. Oberdorfer, "Missed Signals in the Middle East," p. 39.

49. Msg, 251246Z Jul 90, AMEMB Baghdad to SECSTATE, Subj: Saddam's Message of Friendship to President Bush, cited in Michael, *Desert Shield Chronology*, p. 6.

On Target

Iraq War: “public opinion in the U.S. Government, to say nothing of geography, would have made it impossible for the Americans to accept 10,000 dead in a single battle, as IRAQ did.” The United States’ support for its friends in the Gulf could only indicate a “flagrant bias” against Iraq, and U.S. maneuvers with the UAE and Kuwait (the United States had no military maneuvers with Kuwait) “encouraged them in their ungenerous policies.” The United States had a right to friends in the Gulf, but why did it encourage them to oppose Iraq’s interests? He believed that the United States wanted peace, but why did it use such “arm-twisting”? His people’s pride, claimed Saddam, would force him to respond to the United States’ forceful methods, even though he realized that U.S. aircraft and missiles could hurt Iraq deeply. He asked “that the U.S. Government not force IRAQ to the point of humiliation at which logic must be disregarded.” He also asked the United States not to assume any particular role in intra-Arab disputes. After questioning Secretary of Defense Richard Cheney’s inflammatory statements and the United States’ invitation to high-level Israeli officials to visit Washington, he repeated an earlier theme, warning that the Iraqis knew the nature of war and wanted no more of it, but “do not push us to it; do not make it the only option left with which we can protect our dignity.” After an expression of support for the Palestinians, Saddam concluded by reiterating his hope for better relations: “although we will not pant for it, we will do our part as friends.”⁵⁰

Once the Iraqi strongman ran down, the ambassador began her reply. Apparently she remained subject to the directions of National Security Directive (NSD) 26, which encouraged a somewhat pro-Iraqi stance, and to the new guidance of July 19. She reassured Saddam that President Bush had instructed her to broaden and deepen relations with Iraq and that President Bush would control the anti-Iraqi circles in the U.S. government but that he could not control the U.S. media. Saddam said he understood. Ambassador Glaspie pointed out that President Bush had demonstrated his desire for improved relations by opposing sanction legislation. Saddam laughed and noted that Congress had already prohibited everything but wheat, and no doubt it would soon declare even that a dual-use item. The ambassador spoke of President Bush’s concern for peace. Next she asked if it was unreasonable, in light of Saddam’s and Aziz’s threatening statements that Kuwait’s actions equaled military aggression and the move of the Republican Guard to the border, for the United States to ask what did Saddam intend? Saddam acknowledged the reasonableness of her question and granted the United States’ concern for, and indeed its duty as a superpower to seek, peace in the region. Then he returned to his economic problems, appealing to the ambassador, “but how can we make them (KUWAIT and UAE) understand how deeply we are suffering?” He added that the financial situation would soon make it necessary to cut the pensions of widows and orphans. At this point, the proceedings became Chaplinesque as the interpreter and one of the note-takers broke down and wept.

50. Ibid.

The Kuwait Crisis and the Decision to Intervene

When his entourage regained its composure, Saddam claimed that he had tried virtually every means to reach an accommodation with Kuwait and the UAE, only to fail because of their dishonesty. Then he left the room to take an urgent call from the President of Egypt, Hosni Mubarak. When Saddam returned, Ambassador Glaspie asked if the two Arab leaders had made any progress in defusing the dispute. Saddam replied that the Kuwaitis had agreed to negotiate. The Kuwaiti Crown Prince/Prime Minister would meet in Riyadh with Saddam's number-two man. Next, the Kuwaitis would come to Baghdad on Saturday, Sunday, or, at the latest, on Monday, July 30. (In actuality no meetings in Baghdad ever occurred.) Saddam stated, "I told Mubarak nothing would happen until the meeting" and nothing would happen after the meeting if the Kuwaitis "give us some hope." This news "delighted" the ambassador. In a specific reference to the Kuwaiti-Iraqi dispute over their border, demarcated by the British in 1961 when they established an independent Kuwait, the ambassador observed that she had served in Kuwait twenty years earlier and "then, as now, we took no position on these Arab affairs." Critics of U.S. policy have seized on this statement of the ambassador as an example of the U.S. government's failure to convey to Saddam its determination to resist aggression against Kuwait. But Ambassador Glaspie had merely restated standard U.S. and State Department policy. The U.S. government routinely refuses to take positions on border disputes. Given the number of international boundary disputes and conflicting territorial and ethnic claims as well as the number of countries involved in them, if the U.S. government expressed definite opinions on changing current maps, it would soon find itself embroiled in quarrels with half the nations of the earth. The meeting closed with Saddam's request that Ambassador Glaspie convey his warm greetings and his message to President Bush.⁵¹

In a congressional hearing after the war, in March 1991, Congressman Lee Hamilton asked Ambassador Glaspie, "But you never said to him, 'Mr. President, if you go across the line with your forces into Kuwait, we will fight'?" Glaspie replied, "Absolutely not. I did not need to say that. If I felt I needed to say that, I would have asked the President after the meeting for permission to say that. I had no doubt in my mind that he knew that we meant business."⁵²

The significance of the only Saddam-Glaspie talk lay less in its diplomatic import than in its revelation of Saddam's thought process and of the image he sought to convey to the United States. Certainly, Saddam had so mastered the arts of deviousness, dissimulation, and propaganda that he calculated almost all of his public utterances, not to mention his private ones, with one aim—to advance his personal goals. However, the fact that an objective listener may detect falsehoods or obvious mistakes in Saddam's statements does not mean that Saddam, himself, knew he had lied or erred. It was more than possible, perhaps likely, that

51. Ibid.

52. U.S. House of Representatives Foreign Affairs Subcommittee on Europe and the Middle East, *United States-Iraq Relations*, 102d Cong., 1st sess., Mar 21, 1991, pp. 10-11.

On Target

Saddam actually believed in a great many of the stereotypes and in the conspiratorial behavior he attributed to others. Therefore, although many of the dictator's remarks in these talks appeared publicly in other forums, the Saddam-Glaspie talk, in which Saddam spoke in the idiom of his stereotypes, fears, and prejudices, gave a relatively accurate picture of his motivations for invading Kuwait and of many of his subsequent actions. Saddam admitted that a huge international debt placed his country in an economic bind and that he required higher oil prices to escape it. However, the UAE and Kuwait, two countries he protected from the Iranians, had adopted "miserly and selfish" policies, thwarting any oil price increase. They refused all Iraqi overtures to alter their policies, consequently deepening the Iraqi financial crisis. If they pressed Iraq to the wall, Saddam would take military action. He expressed a contradictory opinion of the United States. He acknowledged not only its superpower status, but its status as the major power in the Middle East, and he admitted its right to concern itself with the peace of the Gulf. He feared that it had decided to take sides with Iraq's opponents. He also feared that the United States might push him into a corner, and, if it did, he would have no choice but to fight, whatever the repercussions for Iraq. Yet he doubted both the United States' will and its ability to intervene, referring to U.S. public opinion against heavy casualties and to the United States' geographic distance from the Gulf. This last belief combined fixed attitudes and ignorance. Saddam may well have assumed correctly that the American public would not countenance 10,000 dead, but he miscalculated his ability to inflict such casualties. Second, the USAF's air transport fleet would give the lie to Saddam's assumption of relative safety through geographic distance. Saddam did not believe the United States would fight. As long as he maintained that conviction, he would act as if he had a free hand in the Gulf. Misjudgment of this magnitude has preceded many catastrophes.

Ambassador Glaspie emerged from this meeting somewhat encouraged, but subsequent events proved her optimism unfounded. Much of the rest of the U.S. intelligence and diplomatic community seems to have shared her self-deception. To what extent her conversation affected Saddam's judgment, only he could say. But one must wonder how the workings of the State Department's personnel system designated a female for such a posting. April Glaspie was the first female ever assigned as a U.S. ambassador to an Arab country, and only the second woman ever assigned as head of mission to a Muslim country.⁵³ The U.S. government may have intended her assignment to demonstrate to Saddam the egalitarian and nonsexist nature of American society. However, this gesture might well have severely limited the ability of the two nations to communicate. Quite possibly, Saddam regarded the appointment of a woman as an insult; in any case,

53. See U.S. Department of State, *Principal Officers of the Department of State and United States Chiefs of Mission, 1778-1990*, Dept. State Pub. No. 9825 (Washington, D.C.: GPO, Jan 1991). From August 11, 1981, to August 3, 1984, Jane C. Coon served as American Ambassador to Bangladesh.

The Kuwait Crisis and the Decision to Intervene

as an Arab male he would have found it extremely difficult either to take Ambassador Glaspie seriously or to give credence to any generalized warnings she might deliver. Of course, given the dictator's mindset, he would probably have discounted any message delivered by any American, but the presence of a female ambassador, no matter how well qualified otherwise, minimized the possibility of a successful exchange. Furthermore, the U.S. policy expressed in NSD-26, of attempting to draw Saddam Hussein into the community of nations rather than to coerce him into more peaceful paths, tied the Ambassador's hands and made her appear even weaker to her hosts.

The 87th session of OPEC began on July 26 in Geneva. Within twenty-four hours, the oil ministers agreed to an overall 22.5-million-barrel per day production ceiling and to raise the benchmark price for oil for the first time in four years—from \$18 to \$20 a barrel. Prompted the next day by Saudi Arabia and Venezuela, the ministers set the target price per barrel at \$21. Despite Kuwait's and the UAE's agreement to abide by OPEC's new arrangements, the session did not fulfill Saddam's expectations. The Iraqis had lobbied for a price of \$25 per barrel. Their failure to achieve it promised further shortages of revenue and heightened Saddam's fiscal difficulties. Alarmed at Saddam's human-rights record and the escalating shrillness of his foreign policy, the U.S. Congress, over the opposition of President Bush, imposed economic sanctions on Iraq on July 27, 1990. The sanctions canceled \$700 million in agricultural loan guarantees and prohibited the transfer of militarily useful technology. The same day, CENTCOM and the Defense Intelligence Agency (DIA) sent intelligence officers to Kuwait, and the DIA received an exception from the National Disclosure Policy from Secretary Cheney, which allowed it to begin sharing intelligence information with Kuwait, Saudi Arabia, and the UAE.⁵⁴ As the end of the month neared, some U.S. intelligence assessments became more gloomy. The day after the congressional action, the State Department ordered Ambassador Glaspie to Washington for a high-level review of the situation. She postponed her departure for two days to determine whether the Iraqis actually left for the Jeddah negotiations.⁵⁵ On July 29, in spite of assurances by Egyptian President Hosni Mubarak that Saddam would not invade Kuwait, the Central Intelligence Agency (CIA) warned of an imminent Iraqi invasion. The UAE requested an extension of Ivory Justice, the joint refueling exercise that was initiated as a response to the UAE request for aerial refueling, the same day. On July 30, Ambassador Glaspie returned to Washington; apparently she used a previously planned vacation trip to avoid the appearance of a diplomatic break.⁵⁶ U.S. intelligence confirmed that

54. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 334.

55. Haley, "Saddam Surprises the United States," p. 182 n. 43.

56. The State Department's Historical Office confirms that Ambassador Glaspie's trip was a private trip and not an official recall for consultation or other type of formal diplomatic maneuver. However, the ambassador had provided the Iraqi government with thirty days' notice of her intention to leave the country in order to secure necessary care for her aged mother. Within the State Department, high-level officials apparently discussed the consequences of canceling

On Target

Iraq had massed most of the Republican Guard and other troops—for a total of 120,000 men, 750 tanks, 500 armored vehicles, and 700 artillery pieces—on the Kuwaiti border. It noted that these forces continued to make limited preparations for military action. This force outnumbered the Kuwaiti armed forces by a 6 to 1 ratio.

Finally, on July 31, under the mediation of King Fahd of Saudi Arabia, Iraqi and Kuwaiti representatives met in Jeddah to negotiate an end to the crisis. After having thoroughly frightened the Kuwaitis for two weeks, Saddam sent a high-level delegation headed by his number-two man in the Baath Party and in the Revolutionary Command Council, Izzat Ibrahim; his Deputy Prime Minister, Sadun Hammadi; and his cousin and Minister of Local Government, Ali Hasan Al-Majid to demonstrate that he meant to negotiate seriously. The Kuwaitis, either from courage or miscalculation, signaled that they did not intend to tamely submit by sending a much lower level delegation, not headed by the Emir.⁵⁷

That same day, all eight divisions of the Republican Guard completed their deployment on the Kuwaiti border, with the two armored divisions arrayed offensively. On the morning of August 1, both the CIA and the DIA issued warnings that the Iraqis would attack within as little as twenty-four hours.⁵⁸ In the “tank,” the war room of Joint Chiefs of Staff (JCS) at the Pentagon, General Schwarzkopf informed the Chiefs and Secretary Cheney of the CENTCOM options should shooting begin. The general predicted that Saddam would seize Kuwait down to the 30th parallel. In response, he presented “detailed plans” for air and sea strikes which included military headquarters, power plants, and factories “that we could quickly destroy.”⁵⁹ Although delivered immediately, these carrier-mounted blows would have little weight behind them. At this point, it seems CENTCOM still thought of air power for punishment or retaliation rather than as a strategic weapon. Even as the agencies made their predictions, the talks in Jeddah collapsed. The Kuwaitis, unaware that Saddam had cocked the pistol aimed at their heads and under the misapprehension that they had come to bargain rather than to surrender, refused to pay the stiff protection fee demanded by the Iraqis: forgiveness of \$10 billion in war debts, reparations for the \$2.4 billion in oil stolen from the Rumaila oil field, and territorial concessions. The two parties scheduled no further sessions.⁶⁰

Glaspie’s trip and keeping her in place. They decided that postponing her scheduled departure would send the wrong signal (over concern with Saddam’s demands) and allowed her to leave the country.

57. Michael, *Desert Shield Chronology*, pp. 7–10; Oberdorfer, “Missing Signals in the Middle East,” p. 40; Congressional Research Service (CRS), *Iraq-Kuwait Crisis: A Chronology of Events, July 17, 1990–March 3, 1991*, pp. CRS-63–CRS-65.

58. Bob Woodward, *The Commanders* (New York: Simon & Schuster, 1991), pp. 218–219.

59. Schwarzkopf, *It Doesn’t Take a Hero*, p. 295.

60. CRS, *Iraq-Kuwait Crisis: Chronology*, p. CRS-63. One can only wonder what would have been the effect in Munich in October 1938 had a Czech delegation arrived and stated that it intended to defend all its territory no matter what the French and English intended to give the

The Kuwait Crisis and the Decision to Intervene

The Decision to Intervene

The instant when and the exact reasons why Saddam decided to invade Kuwait may never be known. Nonetheless, by the evening of August 1, Baghdad time, Saddam apparently saw no acceptable peaceful options for solving his financial problems. OPEC had raised prices by only 10 percent, hardly enough to cover expected inflation, and the Kuwaitis, unlike the Saudis, had balked at forgiving his debts or making other financial concessions. With intimidation having failed and no immediate prospect of an increase in oil revenue to cover expenses, Saddam resorted to force and allowed his tanks to roll into Kuwait in the early morning of August 2. Within hours, the Iraqis occupied all of Kuwait and installed a revolutionary government to replace the Al-Sabah dynasty. The Emir of Kuwait fled to Saudi Arabia, where he established a government-in-exile. DIA analysts evaluated the Iraqi forces as more than sufficient to conduct an attack into Saudi Arabia's Eastern Province.⁶¹

The Iraqi invasion of Kuwait differed in two important respects from their invasion of Iran ten years earlier. Against Iran, Saddam had timed the blow somewhat favorably, striking a diplomatically isolated nation, in internal turmoil, with disorganized armed forces. But the Iraqis botched the execution of their offensive by moving too slowly and hesitantly. The reverse occurred in Kuwait. The Iraqis overwhelmed the Kuwaiti armed forces, many of whom fled to Saudi Arabia, including the bulk of the Kuwaiti Air Force, but they could not have chosen a less favorable time. Saddam, of course, targeted Kuwait for several reasons: historical claims to its territory; its supposed cheating on OPEC oil quotas; and the fact that his forces lacked strategic mobility, which limited them to assaults on next-door neighbors. Two other factors must have entered Saddam's calculations: First, no Gulf state could successfully oppose him militarily without massive assistance from the United States. Second, the Kuwaitis had an additional vulnerability—most of the Arab world seemed to have a visceral dislike for them. The Kuwaitis, with the highest per capita income in the world, imported hundreds of thousands of foreign workers from the Arab world, including many Palestinians, and from places such as India, Pakistan, and the Philippines, to supply manual labor and to perform boring and repetitive clerical jobs in their economy. Although the Kuwaitis paid the outside workers well by ordinary Third World standards, they naturally paid themselves better and reserved the top jobs for themselves. Abuse of foreign workers, who could hope for little redress from the Kuwaiti courts, and of the workers' contracts added to their unhappiness. Within Kuwait, many had reason to detest their employers. When the workers returned or wrote letters home, their dissatisfaction spread. Many Arabs in impoverished countries contrasted their own lot with that of the Kuwaitis and

Germans. The European powers could have been no more flummoxed than the Iraqis and Saudis.

61. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 334.

On Target

envied them. Even as late as July 30, 1990, the Omanis indicated privately to the United States that they sympathized with many of the Iraqi complaints about the Kuwaitis' greed.⁶² Saddam may have convinced himself that other Arab nations might greet his actions against the Kuwaitis with neutrality, if not approval. In Kuwait as in Iran, he misjudged the determination of his opponents to resist his aggression.

The Iraqi invasion of Kuwait differed markedly from the Iraqi invasion of Iran. As early as February 12, 1990, Saddam had indicated in a personal conversation in Baghdad with the senior American diplomat dealing with the Gulf, John Kelly, Assistant Secretary of State for Near East and South Asian Affairs, that he realized the Soviets were "finished as a world power" and that the United States now had a "free hand" in the international arena.⁶³ Saddam assessed the chances of Soviet intervention as nil. He grasped the fact that the United States had the capability to intervene in the Gulf or elsewhere, but he assumed that the Americans lacked the will to act. Critics of prewar American policy toward Iraq make this supposed assumption of the dictator the key to their case that the United States failed to convince Saddam that it would oppose him and therefore, because of that failure, bears much responsibility for his subsequent actions. These critics point to statements by U.S. officials—such as the statement of Ambassador Glaspie contained in the Iraqi transcript of her talk with Saddam that "we have no opinion on the Arab-Arab conflicts like your border disagreement with Kuwait"—as evidence that the United States sent a confusing message to the Iraqis. However, when one examines the entire tenor of U.S. actions and communications to Iraq for the period shortly before the invasion of Kuwait, one can see that the Americans staked out a strong position opposing any Iraqi military action. But what the Americans may have done with some of their more ambiguous communications was to give Saddam the message he wanted to hear, while not realizing that he was not internalizing the message they meant to convey. All this discussion credits Saddam with a rational thought process. Given his consistently brutal treatment of all who dared oppose him, the Iraqi dictator may have acted completely emotionally and simply lost his patience and decided to extinguish Kuwait because Kuwait had what he wanted and wouldn't give it to him.

Although the Iraqi conquest of Kuwait seemed to emerge from a relatively short crisis, most observers could not help but regard it as serious step toward the fulfillment of Saddam's long-held dream of domination of the Persian Gulf, the Arab world, and the international oil market. Not only did ownership of Iraq's and Kuwait's oil supplies give Saddam direct control of approximately 15 percent of the world's known petroleum reserves, the presence of his elite Republican Guard armored divisions disposed offensively in Kuwait pointed a

62. Msg, 300654Z July 90, AMEMB Muscat to SECSTATE, Subj: Omani Reaction to Iraq-Kuwait Confrontation, cited in Michael, *Desert Shield Chronology*, p. 9

63. Oberdorfer, "Missed Signals in the Middle East," p. 20.

The Kuwait Crisis and the Decision to Intervene

sword directly at the heart of Saudi Arabia, the possessor of at least 25 percent of the world's known oil reserves. The bulk of these reserves lay in the Saudi Eastern Province, which borders Kuwait.⁶⁴ Even if Saddam refrained from over-running Saudi Arabia at this juncture, as a master of force and intimidation he would surely use his new position to blackmail the Saudis into ratcheting the oil price upward.

The international community promptly took action. Fourteen of the fifteen members of the Security Council of the United Nations (UN), including Cuba, passed Resolution 660 (1990), which demanded that Iraq withdraw immediately and unconditionally, and it called upon the two parties to begin intensive negotiations. Only Yemen, a consistent supporter of Iraq, abstained from this vote.

On August 2, General Schwarzkopf briefed President Bush at a meeting of the National Security Council in the White House. At General Powell's urging, the CINCCENT confined himself to describing how immediately available sea power and air power moves could "demonstrate U.S. determination and, if necessary, punish Iraq."⁶⁵ He did not expound on OPLAN 1002-90's deployment plans to Saudi Arabia. Since the USAF had not yet sent aircraft to the theater, it would seem that General Schwarzkopf envisioned the initial riposte to consist of strikes from USN carriers and Tomahawk land-attack missiles (TLAMs). The extremely accurate TLAM could make a mess of any number of appropriate soft targets in Iraq. By the end of the meeting, less than fourteen hours after the invasion, President Bush indicated his intention to fight if the Iraqis made hostages of the U.S. embassy personnel in Kuwait and indicated he would consider an Iraqi assault on Saudi Arabia as a *casus belli* between the United States and Iraq.⁶⁶ On August 3, President Bush banned imports from Iraq and froze its assets in the United States. The Iraqis responded to U.S. and Western European criticism by seizing 4,000 Westerners as hostages. The following day, Saturday, the president held a meeting at Camp David with his key national security and military advisors to discuss American options concerning the use of force in the crisis. Those present included Vice President J. Danforth Quayle; Secretary of State Baker; Secretary of Defense Cheney; National Security Advisor Brent Scowcroft; Director of the CIA, Judge William H. Webster; General Powell; the presidential Chief of Staff, John H. Sununu; the president's Press Secretary, Marlin Fitzwater; the Under Secretary of Defense for Policy, Paul Wolfowitz; General Schwarzkopf; and General Horner.

The air planning for the briefing presented on August 4 rested solely on the targeting work done by the Ninth Air Force staff at earlier exercises like Internal Look in 1990 and during the first three days of August. At this point, General Schwarzkopf still operated within the confines of OPLAN 1002-90, which did

64. Msg, 281618Z Jul 90, State to SORAX, Subj: Secretary's Morning Summary/Intelligence Roundup, cited in Michael, *Desert Shield Chronology*, p. 7.

65. Schwarzkopf, *It Doesn't Take a Hero*, pp. 297-298.

66. *Ibid.*, p. 298.

On Target

not envision an offensive air campaign directed at Iraq but, as he stated, did provide for a retaliatory campaign if needed. At this early stage in the crisis, General Schwarzkopf feared that Saddam might do something “heinous” with the American embassy personnel in Kuwait, as the Iranians had done in Tehran. General Schwarzkopf wanted a plan that provided for retaliation or punishment should such an event occur.⁶⁷ General Powell recommended that if the president ordered the plan executed, he also call up 200,000 reservists and activate the Civil Reserve Air Fleet. Secretary Cheney asked if the air campaign would achieve its goals and observed that in the past air power had not fulfilled its promises. General Horner responded that four favorable factors made this a different situation: the open terrain made for a target-rich environment; Iraq had no experience in operating under air attack; the USAF had large numbers of PGMs; and air attack could adversely affect the morale of Iraqi rear echelons, which had never undergone air attack before.⁶⁸ This answer temporarily mollified Secretary Cheney.

In the end, the single most significant fact to emerge from the session at Camp David was that *the president and his principal national security advisors never appeared to question the basic premise that the United States would send military forces to Saudi Arabia* to assist it against Iraqi pressure, provided the Saudis would accept them. The meeting instead revolved around an examination of the practical aspects of mounting the expeditionary force.

Later on August 4, King Fahd and President Bush agreed that the a high-level U.S. military delegation should come to Jeddah to inform the king of U.S. capabilities and plans and to share sensitive intelligence on Iraqi dispositions with him. The next day, the two countries decided to have the delegation leave at once. On the White House lawn, the president made a strong public statement, possibly meant to give Saddam pause and the Saudis encouragement. He noted that talks with U.S. allies had revealed a consensus not “to accept anything less than the total withdrawal from Kuwait of Iraqi forces, and no puppet regime.” When reporters asked the president about military action, he responded, “watch and learn,” and he added, “I view very seriously our determination to reverse out this aggression.... This will not stand. This will not stand, this aggression against Kuwait.” At 1430 EDT Secretary Cheney; Robert Gates, the Deputy National Security Advisor; General Schwarzkopf; Under Secretary Wolfowitz; General Horner; Lt. Gen. John J. Yeosock, USA, Commander, U.S. Army Component, CENTCOM (ARCENT);⁶⁹ Maj. Gen. Donald L. Kaufman, USAF, head of the

67. Telecon, Gen. H. Norman Schwarzkopf, USA (Ret.), with Dr. Diane Putney, CAFH, Bolling AFB, May 5, 1992.

68. MR, Col. Douglas Roach, USAF, Dep Asst Dir Joint and NSC Matters, Air Staff, DCS/O&P, Subj: Camp David Discussions Re: Iraq, Saturday, 4 Aug 90, Aug 4, 1990 [File No. CK/DS/JCS]. Also see Woodward, *Commanders*, pp. 247–252. Woodward has a fairly complete account of this meeting based on access to more detailed information or notes.

69. General Yeosock’s position corresponded in some respects to General Horner’s. As Commanding General of the U.S. Third Army, he provided the army forces assigned to CENT-

The Kuwait Crisis and the Decision to Intervene

U.S. training mission to Saudi Arabia; and Charles W. Freeman, Jr., Ambassador to Saudi Arabia, took off from Andrews AFB, Maryland, stopped for refueling in the Azores, and landed, after a sixteen-hour flight, in Jeddah at approximately 1300 local time (1300L), Monday, August 6. A few hours later, in another action affecting the crisis, the UN Security Council, with Yemen and Cuba abstaining, passed Resolution 661 (1990) which banned all but humanitarian imports and exports from and to Iraq and Kuwait and imposed other fiscal and economic sanctions.

That evening, the Saudis brought the American party to the royal family's private council room at the summer palace. The principals met King Fahd, Crown Prince Abd Allah, the Foreign Minister, the Deputy Defense Minister, and others. Ambassador Prince Bandar translated for both sides. According to Bob Woodward, Secretary Cheney had already briefed OPLAN 1002-90 to Prince Bandar, who wholeheartedly supported it.⁷⁰ They discussed available intelligence, diplomatic developments, the military situation in the Gulf, and President Bush's efforts to organize international economic and political sanctions against Iraq, and they provided the Saudis with a detailed rundown of U.S. military capabilities. King Fahd listened to the briefings and to Secretary Cheney. King Fahd and Prince Abd Allah asked questions. King Fahd held a brief family council with the Royal Princes at the meeting. Almost to a man, they advised caution. Then King Fahd turned to Secretary Cheney and said simply in English, "Okay." The deployment of U.S. forces to Saudi Arabia began almost immediately.⁷¹

Apparently, the king had already overcome one of the obstacles that had made the Saudis appear to waffle in their response to the crisis—the possible objection of the ulama, or Wahhabi-Muslim religious hierarchy. It might seem curious to secularized Americans, raised in an atmosphere that assumes a separation between church and state as a matter of course, that with the enemy at the door, a head of state would have to obtain the consent of his country's religious authorities to call in friendly outside troops. Such a situation existed in Saudi Arabia, where religious and civil authority inextricably intermingled. King Fahd's decision to consult the ulama was more than a courtesy and less than an obligation. Twenty years of intensive modernization had weakened some of the religious party's grip on the population, but vestiges of the wave of Islamic fun-

COM. As Commanding General of Army Forces Central Command (ARCENT), he served as commander of all army forces under General Schwarzkopf. However, whereas General Horner also served as Theater Air Component Commander and the JFACC with some responsibilities for all USAF, USN, USMC, and Army air, General Yeosock did not serve as the Ground Component Commander with some responsibility and command functions over the USMC ground forces. General Schwarzkopf served as his own land component commander, possibly to prevent Army-Marine Corps friction or possibly to place an Army four-star over a Marine Corps three-star, making for a clearer chain of command.

70. Woodward, *Commanders*, pp. 244, 266.

71. News Brg, SecDef Cheney, Wednesday, August 8, 1990, 1:00 P.M. [CK/DS/ SEC-DEF]; Schwarzkopf, *It Doesn't Take a Hero*, p. 305.

On Target

damentalism that in 1979 had swept the Shah of Iran from power had also washed ashore in Saudi Arabia. Many of the lesser clergy had come to criticize the ulama for compromising too readily with the state. In any case, at some point before the meeting with the American delegation, King Fahd had ascertained that the ulama would allow the presence of tens of thousands of infidel soldiers in Saudi Arabia. If the ulama had withheld their consent, popular resentment within the country might have made U.S. deployment difficult, but probably not impossible.

Secretary Cheney promptly telephoned President Bush, told him of the king's request, and obtained his authorization to begin sending U.S. forces into the country. General Schwarzkopf turned to General Horner and said, "Chuck start them moving."⁷² Early on August 7, Secretary Cheney issued formal instructions to Generals Powell and Schwarzkopf to begin the buildup of forces, thus making that date C-day, the date on which the movement of troops, cargo, and weapons systems from their place of origin commences. This decision inaugurated the first stage of the deployment of U.S. forces into Saudi Arabia. The U.S. government intended to provide almost 200,000 men and women from all four services to create a force capable of defending their ally against any Iraqi military threat. In accordance with General Horner's August 4 briefing to the president, if hostilities broke out, the USAF contingent of this force, CENTAF, would gain air superiority within the AOR, disrupt or harass any attacking ground forces, interdict their supply lines, and if the Iraqis used CW or other weapons of mass destruction, make retaliatory strikes on appropriate targets in Iraq proper.

The decision of the U.S. government to send a large expeditionary force to Saudi Arabia and the Saudis' decision to accept it should have given Saddam Hussein pause. But as the greatest victim of his own stereotypes, Saddam was convinced that the will of the American nation would break before his own. In 212 B.C., Archimedes of Syracuse, who invented some of the precision weapons of his time, said he could move the world if he possessed a long enough lever. Two thousand years afterward, Saddam felt that he had in his hands the lever to move a nation—casualties, or the threat of them. America would not absorb the number of bodies needed to subdue his forces. He would respond to each increment of American forces with more forces of his own to keep the body-bag toll too high for his enemy.

72. Schwarzkopf, *It Doesn't Take a Hero*, p. 305.

Chapter Two

The Initial Deployment

The decision to send ground, air, and naval forces to the Persian Gulf initiated a vast movement of cargo ships, aircraft, combat units, and support personnel to Saudi Arabia. Because of air's ability to rapidly span the globe, the aircraft of the USAF played a crucial role in the beginning of the American buildup. The first ground troops and equipment arrived via air. USAF combat aircraft came early, and their numbers increased rapidly. During August and much of September 1990 they would have shouldered the burden of defending Saudi Arabia while the ground forces fought a delaying action. The early days set the organizational and administrative foundations for many later actions as prepositioned supplies and equipment kept the readiness of the lightly supported incoming units high. This chapter addresses the hurried and harried days from the arrival of the 1st TFW's F-15Cs to the appearance of the heavy tanks of the 24th Infantry Division (Mechanized), when CENTCOM at last felt able to stop any Iraqi drive.

When General Schwarzkopf departed Jeddah on the morning of August 7, the day the Turkish government shut off the pipelines carrying Iraqi oil through its territory, he left General Horner behind as Commander, CENTCOM (COMCENTCOM) Forward with instructions to establish a headquarters in Saudi Arabia and to oversee the initial stages of the U.S. buildup. Because the early stages of force deployment consisted of many air units and depended heavily on airlift, General Schwarzkopf left General Horner behind to organize the reception of the force. General Schwarzkopf returned to the United States to help prepare the dispatch of the ground and logistics forces, which involved far more personnel and heavy equipment than the first echelons did. This unexpected delegation to General Horner indicated the CINCCENT's faith in him, but it introduced one of the first hitches into CENTAF's deployment: no one had anticipated the detailing of the commanding officer to a different position at the start of move-

On Target

ment. General Horner promptly left Jeddah, located on the Red Sea about 50 miles from Mecca and far from the scene of potential conflict, for Saudi Arabia's capital city, Riyadh, approximately 300 miles by air from the Saudi-Kuwaiti border. This move put the major U.S. and Saudi military headquarters in close proximity, almost literally cheek-to-cheek. It also introduced another dislocation in the projected deployment, in that U.S. forces had no support infrastructure in Riyadh because the original plans had assumed the establishment of an American headquarters in Muscat, Oman.¹ Once in Riyadh, Generals Horner and Yeosock and their logistics staffs moved into office space in the building of the Saudi Ministry of Defense and Aviation (MODA). General Horner's CENTAF staff arrived in Riyadh on August 8 and established itself in the RSAF Headquarters (RSAF HQ) building. By the following day it had already set up a rudimentary Tactical Air Control Center (TACC) and prepared a preliminary ATO.² Maj. Gen. Thomas R. Olsen, USAF, General Horner's deputy, became the COMCENTAF Forward. Also on August 9, General Powell sent General Schwarzkopf his formal mission statement:

USCINCENT forces will deploy to the AOR and take actions in concert with host nation forces, friendly regional forces, and other allies to defend against an Iraqi attack on Saudi Arabia. Be prepared to conduct other operations as directed.

SWA [Southwest Asia] Operations are hereby designated Operation Desert Shield.³

General Schwarzkopf followed this up by issuing a definitive operation order (OPORD) for Desert Shield; a portion of it defined the command relationships and the responsibilities of each of CENTCOM's component commanders. General Horner received detailed direction on his roles as the JFACC and as the COMCENTAF. In theory, the USAF views the JFACC as the instrument ensuring unity of command, or at least of direction, for all theater air assets including those belonging to the USN, U.S. Marine Corps (USMC), USA, USAF, and associated allied forces. This is a key point of USAF doctrine that insists on unity of command within a theater of all air assets by an experienced air officer, usually but not always a member of the USAF. Command of all air by a knowledgeable airman would prevent the wasting of air power by parceling it out into small non-self-supporting packets tied to individual ground units with their individual objectives. An overall air leader, working under the theater commander, could focus large amounts of air at decisive points and have the flexibility to switch

1. Intvw, Maj. Gen. Thomas R. Olsen, USAF (Ret.), with Drs. Richard G. Davis and Perry D. Jamieson, CAFH, and Barry Barlow, 9AF/HO, at Shaw AFB, S.C., Mar 5, 1992.

2. Intvw, Lt. Col. Jeffrey S. Feinstein, 9AF Chief of Plans and Exercise Div (DOXE), with Drs. Richard G. Davis and Perry Jamieson, CAFH, and Barry Barlow, 9AF/HO, at Shaw AFB, S.C., Mar 3, 1992.

3. Audio Transcript, General Horner Comments, n.d. [April 1991], pp. 3-4; Msg, 091332Z Aug 90, CJCS to USCINCENT, Subj: Operation Desert Shield.

The Initial Deployment

forces to handle any new situations. The service first gained partial recognition of this principle in 1943 with the issuance of Field Manual 100–20, and it has continued to hold this tenet as sacrosanct. However, the USAF has failed to impose this viewpoint on the other services, in large part because USAF officers do not serve as Unified CINCs. The army and naval officers who do serve as CINCs have different conceptions of the JFACC's role. General Schwarzkopf, in many respects a supporter if not an advocate of air power, proved no exception. On August 10 in his OPOD, General Schwarzkopf directed his 26th tasking assignment to COMCENTAF, requiring him in part to

Serve as the [JFACC] to ensure unity of effort for the conduct of theater air operations. JFACC responsibilities include:

Planning, coordinating, allocating, and tasking based on USCINCCENT apportionment decisions. The JFACC has OPCON [operational control] over Air Force assigned or attached aircraft units/assets with the exception of SOF [Special Operations Forces] and SAC tanker aircraft. The JFACC will exercise TACON [tactical control] of SAC tanker sorties supporting JFACC air operations and will exercise TACON of Navy and Marine sorties provided in accordance with sub paragraphs below.

Recommending to USCINCCENT apportionment of theater air sorties to various missions or geographic areas in coordination with COMUSARCENT [Commander, U.S. Army Component, CENTCOM], COMUSMARCENT [Commander, U.S. Marine Forces, CENTCOM], COMUSNAVCENT [Commander, U.S. Naval Component, CENTCOM], COMSOCCENT [Commander, Special Operations Command, CENTCOM], and other commanders supporting USCENTCOM, as appropriate. This does not preclude the forwarding of apportionment recommendations by any component commander directly to USCINCCENT.⁴

The above grant of authority did not make the JFACC a man with unquestioned responsibility for direction of air power within the theater. It seemed to make him little more than the CINCCENT's operations officer for air. The JFACC would base his planning, coordination, and allocation decisions on the CINCCENT's apportionment decisions. Though the JFACC could recommend apportionment of sorties, he had to do so by coordinating with, not by directing, the other component commanders. The JFACC had no power to compel their obedience. If the other component commanders disagreed with the JFACC, they could forward their recommendations directly to the CINC, eliminating the USAF from the process all together. This restriction exceeded even the official JCS definition of the JFACC's duties.⁵ Whereas the USAF may have envisioned the JFACC as something akin to a powerful overall air leader, in the war in Southwest Asia the

4. Msg, 101100Z Aug 90, USCINCCENT to COMUSCENTAF et al., Subj: Desert Shield OPOD.

5. See *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1–02, s.v. “joint force air component commander” for the approved definition of the JFACC.

On Target

JFACC numbered only first among equals. The JFACC in CENTCOM would have only as much freedom as the CINCCENT permitted. On the other hand, General Schwarzkopf had given the JFACC a defined authority which exceeded that granted in earlier operations. Air power enthusiasts, such as some members of Checkmate, applauded the CENTCOM JFACC authorizations as a step forward.⁶

General Schwarzkopf may have circumscribed the functions of General Horner the JFACC, perhaps to guard his own prerogatives as a Joint Force Commander, but he gave General Horner the air component commander the full and traditional measures of responsibility. He charged his air component commander with the following tasks:

Supporting or implementing deterrent measures as required,

Directing coordination with the other component commanders and supporting forces to ensure integration of air operations within the CINC's concept of operations,

Integrating supporting maritime air resources through COMJTFME [Commander, Joint Task Force Middle East]. Naval forces in support of CENTCOM will make available to COMCENTAF all sorties in excess of those required for Naval warfare tasks.

In accordance with JCS agreements, General Schwarzkopf granted a large exception to the USMC. The Marine Commander retained operational control of his organic aircraft, and those aircraft had the primary mission of supporting USMC ground elements. In joint operations, USMC aircraft would normally support the USMC mission. The Marine Commander would make sorties available to the CINCCENT for direction by the air component commander to provide air defense, long-range interdiction, and long-range reconnaissance. The Marine Commander would follow the same procedure for those sorties in excess of the USMC's support requirements, which would allow the air component commander to direct the excess sorties to the support of other portions of the theater's forces. But General Schwarzkopf limited the USMC's exception when it came to his own prerogatives. He added:

Nothing herein shall infringe on the authority of the theater or Joint Force Commander, in the exercise of operational control, to assign missions, redirect efforts (e.g., the reapportionment and/or reallocation of any MAGTF [Marine Air-Ground Task Force] tactical air sorties when it has been determined by the Joint Force Commander that they are required for higher priority missions), and direct coordination among his subordinate commanders to insure unity of effort in accomplishment of his overall mission, or to maintain integrity of the force.

The Desert Shield OPORD gave the COMCENTAF several other duties. It required him to serve as the Area Air Defense Commander (AADC) with author-

6. Intvw, Lt. Col. Bernard E. Harvey, Dep Directorate of Warfighting Concepts (XOXW), with Drs. Richard G. Davis and Diane T. Putney, CAFH, at CAFH Offices, Bolling AFB, D.C., Jan 14, 1993.

The Initial Deployment

ity to establish a combined integrated air defense and airspace control system in coordination with other component, supporting, and friendly forces. It appointed him the Airspace Control Authority (ACA) in order to increase operational flexibility by promoting the safe, efficient, and flexible use of air space. The ACA had responsibility for the establishment of procedures to facilitate routing and recognition of friendly aircraft and for the establishment of identification and weapons engagement zones. Furthermore, it directed the COMCENTAF to act as the coordinating authority for CENTCOM interdiction operations, with responsibility for coordinating interdiction planning in operations involving forces of two or more services or two or more forces of the same service. In that capacity, COMCENTAF had the authority to require consultation between the agencies involved, but he had no authority to compel agreement. If the parties could not obtain essential agreement, they should refer the matter to the CINCCENT. General Schwarzkopf charged his air component commander to conduct counterair, CAS, and interdiction operations and to assume responsibility for combat search and rescue (CSAR), theater aeromedical evacuation, coordination of B-52 operations and strategic reconnaissance missions, preparation for aerial refueling support, and augmenting the Saudi Arabian reconnaissance and surveillance capability.⁷ Nowhere in the CINCCENT's Desert Shield operations order did he instruct CENTAF to develop a plan for, or prepare for, or in any way undertake offensive air operations against Iraq.

What General Schwarzkopf would not grant to the JFACC, he did not give to the air component commander, who also did not have the authority to force the agreement of other components in multiservice arrangements. The USMC obtained a strong, but in some aspects hazy, exemption from much of the air component commander's coordination. The requirement for the USMC and USN to hand over excess sorties depended entirely on those services' desire to cooperate. However, the power to determine the rules of engagement (ROE), IFF procedures, air defense zones, control of tanker assets, deconfliction, and so on—many of which operated through the mechanism of the ATO—gave the air component commander the power, when used judiciously, to have an inordinately large voice in not only who would fly, but when and where. Furthermore, the ATO, which reflected the air component commander's tactical control of USN, USMC, and friendly aircraft, would prove a useful tool in pushing the other services in the direction the air component commander wished. The air component commander lacked the legal power to coerce cooperation, but with the subtle, or not so subtle, manipulation of his secondary powers he could, in practice, greatly increase his control of air operations. As General Horner acknowledged one year after war, "the ATO is the JFACC."⁸

7. Msg, 101100Z Aug 90, USCINCENT to COMUSCENTAF et al., Subj: Desert Shield OPOD. The message has been slightly paraphrased to delete repetitious phrasing.

8. Intvw, Lt. Gen. Charles A. Horner with Drs. Richard G. Davis, CAFH, Perry D. Jamieson, CAFH, and Barry Barlow, 9AF/HO, at Shaw AFB, Mar 4, 1992.

On Target

Not only the other services, but also a portion of the USAF objected to coming under the control of General Horner as JFACC. Organizationally a Unified CINC, the CINC of the Special Operations Command (CINCSOC) commanded the USAF components of the Special Operations Forces (SOF). Within CENTCOM, the SOF had their own component, Central Command Special Operations Command (SOCCENT), which in theory had a coequal status with CENTAF, ARCENT, NAVCENT, and MARCENT. In practice, its commander, a full colonel, had far less influence than the other three-star component commanders. Nonetheless, the SOCCENT commander and his Air Component Commander (AFSOCCENT) represented a distinct and virtually separate community within the U.S. armed services. Once in the SOF community, men and equipment tend to lose their service identities and adopt that of the special forces. By their very loyalty to one another, their specialized combined training, and their unique doctrine and equipment, members of the SOF community form cohesive, dedicated, and highly motivated units. The bulk of the helicopters in the USAF inventory belong to USAF SOF units; those helicopters had specialized capabilities that allowed them to penetrate enemy territory by night or day and to insert or pick up SOF ground teams. All USAF AC-130 gunships were also associated with the SOF forces. The U.S. Army Special Forces had come into being in the early 1960s as part a renewed interest in counterinsurgency, and by the 1980s, the Special Forces had become closely associated with theories of low-intensity conflict, which went beyond counterinsurgency. In any case, the SOF mission assumed operations in a theater or area relatively free of both heavy enemy air defenses and of large numbers of friendly aircraft. Neither factor held true for the CENTCOM AOR.

Both the integrated Coalition air defense system, based on RSAF-CENTAF arrangements, and the Saudi government had extreme sensitivity to Coalition flights over Saudi territory. This meant the ATO had to schedule Army SOCCENT flights, but the SOF commanders objected that this compromised the security of their missions and possibly made them subject to unsuitable mission assignments conceived by unqualified headquarters personnel. In addition, the gunships, without the defenses to fly over Iraq, lacked a mission within the theater. Furthermore, the theater had no organization capable of CSAR, of locating and retrieving shot-down or crashed air crews. The SOF helicopters in the AOR—eight MH-53s and eight MH-60s with penetrating capability and trained crews—seemed to offer the solution to this problem, but the SOF commanders pointed out that their personnel had no training for CSAR, their helicopters were intended solely for the support of SOF operations, and that the CSAR mission for the AOR would consume far too much of their specialized resources and effort.

General Horner sought to resolve these matters by having the AFSOCCENT transferred to CENTAF, where he could assign tasks as he willed. Apparently, General Schwarzkopf disapproved this, but he did allow General Horner to assume operational control of the gunships, which received the mission of assist-

The Initial Deployment

ing the air base ground defense forces. In addition, the AFSOCENT forces had to participate in the ATO process and to accept the CSAR mission. Although General Horner had not brought the AFSOCENT assets into CENTAF, he had once again subordinated another air element to the air control processes which he defined and controlled.

One further consideration bears on the amount of influence exercised by the COMCENTAF: his personal relationship with the CINCCENT. If General Schwarzkopf and General Horner had disliked one another or if General Schwarzkopf had failed to respect General Horner's professional abilities, then General Horner and his service would have retreated to the last rank of the CINCCENT's advisors. Under the stress of war and wide responsibility, commanders turn toward those they trust. Norm Schwarzkopf trusted Chuck Horner.

At this hurried time in the second week of August, General Horner made the acquaintance of His Royal Highness Lieutenant General Khalid bin Sultan bin Abd al-Aziz of the RSAF. Prince Khalid—an intensely ambitious 41-year-old officer educated at the British Royal Military Academy at Sandhurst and in U.S. military staff schools, and with twenty-one years of military experience—served as commander of the Saudi Air Defense System.⁹ His older brother, Bandar bin Sultan, served as the Saudi Ambassador to the United States. His father, Prince Sultan Abd al-Aziz, the Minister of Defense and Aviation, a full brother to King Fahd, was the third in line to the Saudi throne. General Prince Khalid's grandfather was Abd al-Aziz, the first king of Saudi Arabia. At this instant, however, General Prince Khalid found himself with reduced responsibilities; the crisis situation had caused the air defense system to come directly under the RSAF, eliminating many of his duties. But he loyally supported the policies of his father and uncle who had approved the American presence in their country. Therefore, he used his considerable influence to aid General Horner in establishing headquarters sites in Riyadh. General Horner spoke of Prince Khalid's aggressiveness in solving problems and of his helpfulness. In one instance, the Prince, with a telephone call to his father, secured the future site of CENTCOM headquarters in the basement of the MODA headquarters building, which contained a two-story C² center, considerable floor space, and several big amphitheatres, all unused by the Saudis.¹⁰

Eventually the Prince, a handsome man with a distinguished military bearing, became Commander of the Joint Islamic-Arab Forces, a position that made him the Saudi opposite to General Schwarzkopf and placed under his command all the Saudi armed forces and the armed contingents contributed by the Syrians, Egyptians, Moroccans, and French, among others, many of whom would have found it politically inexpedient to serve directly under American command. This new and visible post may also have served to elevate Prince Khalid's position

9. Caryle Murphy, "'Glass Ceiling' in House of Saud: Princes Find Few Jobs at Top," *Washington Post*, March 15, 1992, p. A25.

10. Audio Transcript, General Horner Comments, n.d. [Apr 1991], pp. 3–4.

On Target



*General Schwarzkopf and
Prince Khalid bin Sultan*

within the Royal family, giving him additional status as a warrior and war hero. The sons of Abd al-Aziz eligible for the crown had reached their late 60s or early 70s, so in the not-too-distant future, Prince Khalid's generation might offer viable candidates for a throne that always stayed in the Saud family but that did not always have to pass from father to eldest son. In fact, Prince Khalid, who did not have his brother Bandar's easy relationship with the king, may have overplayed his hand. In September 1991, King Fahd promoted him to general and accepted his resignation from the service.¹¹

On C-day, strategic airlift operations began with the flight of a C-141 from Charleston AFB, South Carolina. At Langley AFB, Virginia, F-15Cs of the 1st TFW's 71st Tactical Fighter Squadron (TFS) left for Saudi Arabia within eighteen hours of the deployment order. After refueling seven times in flight, all twenty-four of the squadron's fully armed aircraft arrived in Dhahran, Saudi Arabia, within thirty-four hours after receipt of the deployment order. However, the honor of being the first deploying aircraft to land in Saudi Arabia belongs to one of five E-3 AWACS aircraft from Tinker AFB, Oklahoma. It landed in Riyadh a half-hour before the first F-15C. These two units comprised the first USAF aircraft to take station within the AOR in support of operations. Other aircraft followed rapidly. On August 9, another of the 1st TFW's squadrons arrived, bringing the total of F-15Cs to forty-five plus sixteen support aircraft.¹² Simple logic demanded that the first USAF combat aircraft in the AOR be F-15Cs, the service's most advanced air-to-air fighter. If combat occurred immediately, they would assist the RSAF against the IZAF and fight to ensure the skies stayed in allied control so that additional allied air and ground units could enter Saudi Arabia in safety. Allied control of the air would also keep the IZAF from aiding its ground forces. That same day, all the members of the UN Security Council voided the Iraqi annexation of Kuwait, announced the previous day, by passing Resolution 662 (1990).

11. Murphy, "'Glass Ceiling' in House of Saud," p. A25.

12. Michael, *Desert Shield Chronology*, pp. 12-17.

The Initial Deployment

USN aircraft from the decks of the USS *Eisenhower*, in the eastern Mediterranean Sea on August 8, and from the USS *Independence*, which took up station in the North Arabian Sea at 1600L August 9, could aid in the conflict. Each carrier possessed a composite wing of fighter, strike, and specialized aircraft including approximately twenty F-14 air-to-air fighters, an aircraft equivalent to the F-15C. With organic refueling assets, carriers could provide support for strike packages of moderate range. For operations encompassing virtually all naval air strikes from the Red Sea as well as many from the Persian Gulf, USN aircraft required refuelings from USAF tankers to reach the combat area and return; their ability to fly missions over the area of conflict was restricted because of the longer flight times required. In addition, refueling not only required USAF tankers, but it required those tankers to carry the less-volatile and less-powerful USN standard JP-5 jet fuel rather than the USAF standard JP-4 jet fuel. When mixed, a small amount of JP-4 would contaminate the JP-5. Tankers could switch fuels only with difficulty because their systems had to be completely flushed to change fuel. The two fuels had wildly contrasting flash points: -20°Celsius (approximately 25° Fahrenheit) for JP-4 versus JP-5's 65° Celsius (approximately 300° Fahrenheit). As little as 10 percent of JP-4 mixed with JP-5 lowered the latter's flash point to 30° Celsius (185° F). Carrier safety required the higher flash point. USAF and USN aircraft also used different refueling hardware (the USAF boom versus the NATO-standard USN baskets) which made reconfiguring tankers time-consuming. In short, once USAF tankers began to service USN aircraft, those tankers became, in practice, dedicated to the USN and unavailable for the USAF inventory. After the Persian Gulf War, the USN acknowledged that available tankerage (USN and USAF) had proved insufficient "to employ most efficiently and effectively six aircraft carriers"; it suggested that the USAF agree to allocate specific tankers and fuel to each carrier battle group to "preclude Navy pursuit of dedicated organic or land-based tankers in a constrained fiscal environment."¹³ The F-14s, provided their lack of compatible IFF equipment could be overcome, would naturally have made a powerful contribution to any air battle, but at a much greater expense than a lesser number of F-15Cs.

On August 10, 19 F-15Es and 24 F-16s reached the AOR. The F-15Es went to Oman and the F-16s took station in the UAE. The basing of these units directly involved and committed Gulf Cooperation Council (GCC) nations early in the crisis. The first 7 B-52Gs arrived at Diego Garcia on August 13; the first 24 A-10s and 3 EC-130s closed on Saudi Arabia on August 19; and the initial 20 F-4G Wild Weasels and 18 F-117A Stealth fighters flew into Bahraini and Saudi fields on August 21. By this date USAF airlift operations had delivered a total of 25,150 tons of cargo and 33,864 passengers and had raised sortie totals

13. Navy Annex (NODM 11-91: Ser 602G/1S609350) to the Joint Assessment Report (SJS 2571/618-02), pp. B-5, B-6, Subj: Tanker Support to the Navy [File No. CK/DS/Lessons- JCS/CINCS].

On Target

in and out of Saudi Arabia to 89 for C-5s and to 195 for C-141s. By August 16, Desert Shield had placed an unprecedented strain on the military airlift fleet. For the first time in history, the United States had committed its entire strategic airlift capability worldwide. The next day, Commander in Chief, U.S. Transportation Command (CINCTRANSCOM) General Hansford T. Johnson activated for the first time ever the Civil Reserve Air Fleet, adding 17 aircraft capable of carrying 1,920 passengers per day and 21 aircraft with a cargo airlift capacity of 490 tons per day. This action increased airlift, but it did not fully meet projected requirements. In addition to the airlift, the first “afloat” prepositioned ship dedicated to USAF logistics, *Advantage*, arrived in Saudi Arabia carrying B-52 ammunition and air base assets. CENTAF continued to grow: 8 EF-111As arrived on August 25 and 18 F-111Fs came in the next day. By September 4, 1990 (C+28 days), CENTAF had grown to a force of 23,854 personnel, including 1,243 women. CENTCOM personnel in the AOR totaled 104,304 (2,494 women). CENTAF air assets consisted of the following 619 aircraft:¹⁴

Combat Aircraft		Support Aircraft	
A-10	96	C-20	1
B-52G	20	C-21	4
EC-130	7	C-130	70
EF-111A	10	AWACS	6
F-4G	24	EC-130E	6
F-15C	72	HC-130	4
F-15E	24	KC-135	79
F-16	120	MC-130	4
F-111F	32	MH-53	8
F-117A	18	RC-135	4
		RF-4C	6
		TR-1	2
		U-2	2
Total	423	Total	196

This rapid buildup of air power demonstrated several of the advantages the United States gained by having a complete or integrated air force, as opposed to one devoted almost exclusively to combat aircraft. Every USAF combat aircraft flew into the theater with the assistance of multiple air-to-air refuelings provided by USAF jet tanker aircraft. Other tankers stationed within the AOR gave U.S. and allied aircraft based in the UAE and at remote Saudi bases the ability to operate over the potential zone of conflict. Without USAF tankers, USN carrier battle groups would have had to enter the narrow, shallow, and easily mined Persian Gulf to mount their limited strikes on Iraqi targets. The necessity for self-

14. Michael, *Desert Shield Chronology*, pp. 18-44. Aircraft numbers cited were taken from the USCINCCENT Sitreps.

The Initial Deployment



TR-1 reconnaissance aircraft

KC-10 tanker aircraft



protection would have further limited the striking force of the carrier battle groups. USAF strategic airlift not only brought in enough logistical items and munitions to make its combat aircraft nearly self-supporting, it also flew in most of the Army's personnel and all of its initial combat units, such as the combat-ready brigade of the 82d Airborne Division. While C-5s and C-141s made the long hauls from the continental United States and Germany, the many smaller C-130s trucked vital items throughout the AOR. Without strategic and tactical airlift, the United States' extension of aid to the Gulf, or indeed to any area more than 100 miles from the continental United States, either could not have been undertaken at all or could have been undertaken only by time-consuming and cumbersome sealift, making prompt reaction to the crisis impossible.

The speedy influx of USAF assets into the AOR obviously had immediate tactical and strategic implications. The service followed up the air-to-air-dedicated F-15Cs with hundreds of combat aircraft capable of air-to-ground attack. The A-10, an aircraft designed from the ground up as a tank killer, and the F-16, a dual-purpose aircraft with a primary role as a strike aircraft and a distinctly secondary role as an air-to-air interceptor, could perform interdiction and CAS missions to directly aid allied ground forces against enemy ground attack. The F-15Es deployed in the AOR did not yet have their LANTIRN targeting pods and could not use PGMs. They would fly deep interdiction raids. The F-111Fs and the F-117As with their self-designating laser-directed bombs, many of which had the ability to penetrate several feet of steel-reinforced concrete, could

On Target

strike hardened aircraft shelters; military command, control, and communications (C³) centers; BW and CW munitions storage facilities; and other targets requiring PGMs. The USN possessed no penetrating munitions, which would have made it impossible for naval air to get at the IZAF in its hardened aircraft shelters.

During the first four weeks of Desert Shield, if not longer, the work of bedding down new forces, scheduling additional units, creating a logistical infrastructure to support the current and future forces, setting up training and familiarization periods, and planning to repel any Iraqi assault went on in a pressure-cooker atmosphere that mixed too much stress with too little time. Most personnel worked 18 to 20 hours a day, while on the Kuwaiti border a handful of ground forces confronted more than 100,000 Iraqis. The Saudis had deployed much of their army on the Omani and Yemeni borders, and it took some time to redeploy it. On August 8, when General Horner met with the Saudi Chiefs of Staff, he found them polite but noncommittal, and he suspected that they had not yet received official word in Jeddah of King Fahd's decisions.¹⁵ The Saudi military had no clear idea of the threat opposing them. General Horner noted that the Americans soon provided detailed overhead photography that greatly aided the Saudis in making decisions concerning their country's defense.¹⁶

From the moment of their arrival on August 8, CENTAF staff members plunged into the tasks confronting them. Two basic decisions influenced the deployment. The first was that General Schwarzkopf did not order the implementation of a specific deployment order, such as the drafts prepared for OPLAN 1002-90. This left the units and planners unsure as to the ultimate basing assignments and the supporting arrangements for the bases. It also confused personnel and left them unsure as to what items to bring with them. In at least two instances, this had potentially serious consequences. Lack of a specific deployment order apparently prompted someone in personnel to apply the full weight of existing regulation to the standard individual deployment orders which resulted in the insertion of a clause, in some orders, requiring officers to bring sidearms to Saudi Arabia. Since some officers could not obtain standard-issue service weapons, they brought their own nonstandard weapons. This caused some difficulty with the Saudis and permitted dozens of untrained personnel to have access to deadly weapons. Some members of the Air Security Police feared that if the USAF personnel within the RSAF HQ building ever panicked, friendly fire alone could leave the interior of the building looking like the aftermath of the gunfight at the O.K. Corral. Happily, the excess sidearms produced no significant incidents.¹⁷

15. Intvw, Lt. Gen. Horner, Mar 4, 1992.

16. Audio Transcript, General Horner Comments, n.d. [Apr 1991], p. 6.

17. General Horner, contradicting the Ninth Air Force security police, has told the author that USAF officers in the RSAF HQ did not carry firearms. See Ltr, Gen. Charles A. Horner, CINC, North American Aerospace Defense Comd, to Dr. Richard P. Hallion, Jr., AF Historian, Subj: Review/Comments on Draft Manuscript "The Offensive Air Campaign Against Iraq," Dec

The Initial Deployment

As an appropriate comment on the modern American way of war, a deployment mixup over electronic gizmos caused more difficulties than the one caused by guns and bullets. In the continental United States, Ninth Air Force officers deployed to exercises with their service-issue personal computers (PCs). In fact, some of the PCs used in the just-completed Internal Look at the end of July remained at Shaw AFB, still packed on pallets. However, when the crisis forced officers to report to Saudi Arabia, the absence of a deployment order specifically authorizing them to bring their PCs caused many officers to leave this piece of equipment behind. An immediate, severe, and unplanned shortage of computing power resulted.¹⁸ While the mental image of staff officers scurrying about trying to cope with a PC famine provokes a certain amount of grim humor, the computing shortage had potentially serious consequences. In the last half of the 1980s the USAF had encouraged the almost universal application of minicomputers for word, data, and graphics processing in completing nearly all the day-to-day staff work. So well had this initiative succeeded that by August 1990 the CENTAF staff, and every other USAF staff, had come to rely heavily on the PC, some standard straight-from-the-box commercial software, and several modified commercial or uniquely USAF-created programs. Lack of this necessary support greatly increased the workload and increased the possibility of errors in logistics and the ATO. Trying to manage an entire numbered air force's logistics, especially one in the process of deploying more than 10,000 miles away from its home bases, with only one PC quickly gave the CENTAF staff a new appreciation of the definition of bottleneck. If the old army marched on its stomach, then the modern air force flies on its keyboard. It would appear that the deployment difficulties may have forced the CENTAF staff to fall back on a de facto implementation of OPLAN 1002-90. One officer, who brought his copy of the plan, testified that it immediately became a best-seller with other officers desperate to impose a coherent scheme on the movement.¹⁹

In a second crucial decision, General Schwarzkopf directed the components to give first priority to the shipping of combat units and combat support personnel at the expense of communications, intelligence, and less-critical personnel and equipment.²⁰ The lack of communications forced CENTAF and its subordinate wings to fall back on the Saudi commercial telephone system and secure fax machines in the possession of RSAF base host units.²¹ During this initial phase,

8, 1992. Anecdotal evidence suggests it is quite possible that General Horner did not initially realize the prevalence of sidearms within his command. However, an egregious discharge of weapons during an inspection in the field convinced him to drastically curtail their use—an order his headquarters staff may have taken seriously indeed.

18. Intvw, Lt. Col. Waterstreet, Mar 6, 1992.

19. Intvw, Lt. Col. Feinstein, Mar 3, 1992.

20. Schwarzkopf, *It Doesn't Take a Hero*, p. 311.

21. Intvw, Col. James C. Crigger, Jr., with Dr. Richard G. Davis, Mar 5, 1992. Colonel Crigger recalls this decision but could not identify the commander who made it. Either General Schwarzkopf or, perhaps, General Horner could have made this decision on priorities.

On Target

CENTAF Forward had only one international telephone line for all business with the continental United States, and the Saudis held General Olsen personally responsible for the thousands of dollars worth of calls billed to that phone. Also in this phase, the need for personnel expert in secure communications and the specialized communications links required by its somewhat exotic systems severely hampered the ability of the CENTAF Directorate of Intelligence (CENTAF/IN) to perform its mission. At this precise moment, with all personnel involved suffering from frayed tempers due to excessive workloads, the planners, operations officers, and combat units felt an overriding need for intelligence just as CENTAF/IN was experiencing its lowest capabilities. This mismatch of need and capability contributed to a not always warranted exasperation with intelligence within CENTAF for the remainder of the campaign.²²

As the fighter and supporting wings and squadrons deployed to the AOR, basing became an almost first-come, first-served affair. CENTAF began with only a notional plan for bed-down and with no written basing agreements with Saudi Arabia or any of the GCC countries. It founded its initial planning on an assumption of fifteen bases, and it ended up requiring twenty-two. Some units had their basing changed in flight. The 4th TFW's F-15Es left the United States headed for Seeb, on the Gulf of Oman. The aircraft diverted to Dhahran in Saudi Arabia, and, while literally on the ramps, the 4th TFW received permission from the Omanis to base at Thumrait, in southern Oman, 1,100 miles one-way from Baghdad. They moved forward to Al Kharj in November 1990. The F-117As of the 37th TFW found their home-away-from-home at Khamis Mushait, in the southern corner of Saudi Arabia, near Yemen, and they ended up almost as far from Baghdad as the 4th TFW's F-15Es. However, method more than chance dictated this move. The remote location of the base would give the still security-sensitive F-117A aircraft additional protection from prying eyes, would help to prevent surprise attacks, and would ensure against capture by enemy ground forces. In addition, the base had enough hardened aircraft shelters to house the 37th TFW's aircraft, and its altitude and physical location mimicked the 37th TFW's home base at Tonopah Test Range, Nevada.²³ Since the 37th TFW's prime mission would require it to attack heavily defended targets deep in Iraq, its location on the Yemeni border would place additional strain on the AOR tanker fleet.

The basing of the 1st TFW at Dhahran, which was approximately 250 miles from Kuwait City, allowed it, in conjunction with the RSAF, to cover the oil fields, the vital northern Saudi ports, the AWACS aircraft, and the direct land route from Kuwait into Saudi Arabia. If necessary, the 1st TFW could provide escort for the A-10s of the 23d and 354th TFWs based at nearby King Fahd International Airport while they attacked invading Iraqis. The 35th TFW's F-4G

22. Much anecdotal information also states that clashes of personality between ranking intelligence officers and heads of outside organizations also contributed to the differences between intelligence, operations, and planners.

23. Intvw, Col. Crigger, Mar 5, 1992.

The Initial Deployment

Wild Weasels operating from Shaikh Isa in Bahrain, also close to Dhahran, could support the A-10s and F-15Cs or the F-16s flying in from Doha, Qatar, and from Al Minhad in northern Oman. The F-16s, with their relatively short range and somewhat distant bases, would require large-scale tanker support. In northwestern Saudi Arabia, the F-15Cs of the 33d TFW anchored the other end of the Saudi-Iraqi border and could provide escort for aircraft attacking Scud sites and airfields in western Iraq. The EF-111As and F-111Fs occupied Taif, near Mecca, where they could strike north to Baghdad and beyond. However, the USAF could not strike into the northernmost regions of Iraq from its southern operating bases unless the aircraft refueled over Iraq itself, a risky procedure. This circumstance made it desirable to obtain the use of bases in Turkey in order to attack targets in northern Iraq. Close examination of the basing pattern again reveals the dependence of the force on tankers. Whereas in Europe and South Korea, the tactical air forces contend with short distances and optimistically assume the availability of functional air bases close to the front for refueling and rearming, CENTAF encountered the opposite. As the CENTAF Director of Operations stated a year after the conflict, "Tankers were the long pole in the tent," the most difficult single factor to contend with.²⁴

The rapid force buildup placed a great strain on logistics and made the presence of the Harvest Falcon prepositioned base assets and munitions of inestimable value. Both Generals Horner and Olsen spoke of the key contribution made by the Harvest Falcon program and expressed satisfaction with the work of the contractor who had maintained the matériel.²⁵

As one section of the CENTAF staff struggled with bed-down, another, consisting in the beginning of ten to twenty officers, began to prepare a plan for defensive operations. These defensive plans rested heavily on the targeting and planning work done earlier in the summer by the Ninth Air Force in preparing for OPLAN 1002-90. Like virtually every other American serviceman and woman in Saudi Arabia, the defensive planners shared the expectation that Saddam might send his armored forces south at any moment to seize the oil fields. Although their fears would subside with the continuing reinforcement of American soldiers, initially they worked with the grim awareness that unless air power could perform a miracle, success for the men of the 82d Airborne Division and the Marine Expeditionary Brigade (MEB) could quickly become a forlorn hope. The first plan did not even provide for forward ground air controllers; it merely sought to keep the pressure on the Iraqis with attacks by a steady flow of aircraft. As the plan matured, it added forward ground air controllers and additional missions.²⁶ Because of its hasty preparation and the expected critical situation of the ground forces, the plan apparently did not contemplate an extended air offensive into Iraq.

24. Ibid.

25. Intvw, Lt. Gen. Horner, March 4, 1992; Intvw, Maj. Gen. Olsen, Mar 5, 1992.

26. Intvw, Col. Crigger, Mar 5, 1992.

On Target

The presence of American aircraft in Saudi Arabia necessitated control of those aircraft and coordination of their activities with the Saudis and the USN—in other words, CENTAF needed a functioning ATO. Although the initial lack of computing power made the first ATOs somewhat sketchy, the relatively small number of aircraft involved allowed the planners to fall back on the stubby-pencil method—preparation by hand. The first CENTAF ATOs succeeded in establishing the precedent that the theater ATO controlled virtually all flying. From their beginning, these ATOs coordinated flights with the Saudi air defense system; this entering wedge allowed CENTAF to mesh the emerging CENTCOM air defense system with the Saudi system and enabled General Horner to prevent the establishment of an independent air defense system by the USMC, whose flights had to be included in the Saudi-CENTCOM system instead.²⁷ General Olsen recounted that similar reasoning forced the USN into the RSAF-CENTCOM air defense system. He visited each of the carrier battle groups and convinced their commanders of the necessity of a single, integrated theater air defense system. To their credit, the admirals, who had become habituated to supplying their own independent air defense for their battle groups, agreed.²⁸ The USN had the responsibility of passing the ATO to other Coalition naval units. Since the ATO contained the daily information on coordination with the air defense system, USMC and USN aircraft soon found themselves obliged to become part of the ATO system. Only the battle group self-protection missions, taking place solely over water, did not come under the ATO. However, integration into the ATO did not necessarily mean that USN and USMC simply handed over their aircraft to USAF planners. In many instances, the other two services explained the missions they wished to fly, and the USAF either wrote the ATO to satisfy them or negotiated the changes. As General Horner had observed, the ATO became the JFACC.

The RSAF approached the early ATOs gingerly. As the body responsible for Saudi input to the ATO, RSAF HQ gained the power to force all RSAF units to conform to its orders if they wished to fly. The ATO also gave RSAF HQ an additional measure of control over the foreign air forces in its territory. The Saudis' grasped that ATO restrictions would allow them a much greater control of their airspace, and they insisted that all aircraft of whatever origin become part of it. The Saudis also continued their commercial air operations, which supplied another reason for thoroughly planned and controlled air operations so that accidents and disruption of commercial service would be prevented. For CENTAF, bringing the Saudis into the ATO not only simplified the practical problems of handling RSAF aircraft, it brought the RSAF into the planning process and familiarized the RSAF with the complexities of large-scale operations. Heretofore, RSAF wings had operated on a day-to-day basis, with little thought of or need to consider the effect that their operations would have on other air units.

27. Intvw, Lt. Gen. Horner, Mar 4, 1992.

28. Intvw, Maj. Gen. Olsen, Mar 5, 1992.

The Initial Deployment

Within a few days, the American-Saudi alliance became a multinational Coalition. On August 8, Great Britain announced it would send armed forces to Saudi Arabia. Two days later, the Arab League (twelve of twenty-three members voting in favor) agreed to send military forces to protect the Persian Gulf states from an Iraqi attack. Egyptian troops arrived on August 11, Moroccan troops on August 14, and Syrian troops on August 15. French combat helicopters landed in Saudi Arabia on August 27. That same day all members of the GCC (Saudi Arabia, Bahrain, the UAE, and Oman) agreed to make their facilities available to foreign troops, which increased the number of air bases available for the bed-down of USAF aircraft. Eventually, the Syrian contingent would include the 9th Syrian Armored Division and a special forces unit—in all, numbering almost 40,000 men—while the Egyptians would send two divisions and a special forces regiment—for a force of nearly 70,000 men, the third-largest contingent after the Americans and the Saudis. For this help, the Egyptians received as one of their considerations the forgiveness of a \$7.1 billion military debt to the United States, making each Egyptian soldier worth approximately \$100,000 for his country's treasury. Because the Egyptians had little prospect of ever paying this debt, its forgiveness represented a gesture of more symbolic than practical significance. The states of the Arabian Peninsula reached the same pragmatic conclusion. By October 24, Kuwait, Saudi Arabia, the UAE, and Qatar had topped the Americans by canceling \$8.3 billion in Egyptian debts. Each Egyptian soldier may not have been worth his weight in gold, but each was worth approximately 40 pounds of the yellow metal to his nation's treasury. These moves helped Egypt's international balance sheets, but they probably had little effect on its overall credit rating. The Egyptians may have placed greater value on the chance to become once again a full-fledged member of the Arab community, a status they had forfeited by making peace with the Israelis. The Syrians, too, hoped to gain acceptance and legitimacy in both the Arab and Western worlds. The Syrian's superpower patron of three decades, the Soviet Union, had become impotent, making it necessary for them to repair their relations with the conservative Arab states and the West.

The ghost of Task Force Smith haunted the American commanders facing the Iraqis. The first American ground unit to participate in the conflict in South Korea, Task Force Smith, a less than battalion-sized unit of approximately 560 men from the 24th Infantry Division, encountered on July 5, 1950, the onrushing North Korean 4th Infantry Division and an attached armored regiment. The poorly trained, incompletely equipped, out-of-condition men and officers of Task Force Smith, fresh from undemanding occupation duty in Japan, stood for six hours until they exhausted their ammunition before retreating in disarray, abandoning their wounded, their heavy weapons, and their artillery, after imposing minimal delay on the enemy and suffering approximately 175 casualties at the hands of the North Korean People's Army.²⁹

29. James F. Schnabel, *Policy and Direction: The First Year*, United States Army in the

On Target

The American commanders in Saudi Arabia, whose forces had a far higher state of readiness than the ragtag collection of soldiers hastily assembled for Task Force Smith, still wished to avoid having to commit their men to such a one-sided and hopeless confrontation. The 2,300-man ready brigade of the 82d Airborne Division and perhaps a like number of Saudis faced odds of 25 to 1 in terms of raw numbers of bodies. They also confronted hundreds of medium tanks and armored personnel carriers with only light antitank weapons. Little wonder that the soldiers of the 82d Division joked that if war should come, their mission was to act as speed bumps for Iraqi tanks. In fact, only Saudi troops faced the Iraqis on the border. CINCCENT's OPOD 1 for Desert Shield made the first task of the initial Army combat units the assumption of defensive positions around the "critical oil and port facilities" near Dhahran, almost 200 miles from the Kuwaiti-Saudi border.³⁰ The immediate follow-on American ground units, most of the remaining units of the 82d Airborne Division plus the aviation brigade task force of the 101st Air Assault Division, and an MEB, all of which had arrived by August 20, experienced the same drawback of relatively light armament. These lightly equipped units could react rapidly and were easily transportable by air or sea, but they sacrificed heavy weapons because their bulk and the weight of their supporting equipment would have consumed too much airlift capacity. The weight and bulk limitations on airlift placed a premium on prepositioning heavy equipment either within a possible combat theater or on cargo ships stationed within relatively rapid sailing time of a potential conflict.

Seaborne heavy equipment took time to arrive. Helicopters and other heavy items belonging to the 101st Air Assault Division averaged 20 to 25 days in transit from the U.S. East Coast port of Jacksonville, Florida, and the last of the division's ships did not arrive until October 5.³¹ Transit times did not include time for loading and unloading or time for travel to and from ports. Only the mid-September arrival of the last division of the USA's XVIII Corps—the 24th Infantry Division (Mechanized), which had only two of its three brigades—would begin to redress the balance. However, much of the 24th Division's heavy equipment—especially its advanced M1A1 tanks which outclassed anything in the Iraqi inventory—would have to come by sealift. As a consequence, the USAF placed heavy emphasis on bringing in air-to-ground munitions, especially antitank varieties; nearly all the USAF munitions on prepositioned ships were of the air-to-ground type. By August 23 (C+16), the move to the Persian Gulf had

Korean War (Washington, D.C.: Office of the Chief of Military History (OCMH), GPO, 1972), pp. 81–82; Roy E. Appleman, *South to the Naktong, North to the Yalu (June–November 1950)*, United States Army in the Korean War (Washington, D.C.: OCMH, GPO, 1961), pp. 60–76.

30. Msg, 101100Z Aug 90, CINCCENT to JCS et al., Subject: Operation Desert Shield. [File No. CK/DS/CENTCOM]

31. Brfg Slide, Lt. Gen. J. H. Binford Peay III, USA, DCS Ops & Plans (formerly CG, 101st Air Assault Div), "On the Power Projection of the 101st Division," Washington Strategy Seminar, Series on Air Power and the New American Security Environment, Rayburn House Office Building, Washington, D.C., Mar 13, 1992.

The Initial Deployment

put such strains on the services' active-duty manpower that the Secretary Cheney authorized a call-up of 49,703 reservists by October 1.³² General Horner summed up the first three weeks of the crisis: "Every night we say, 'What if they attack tonight? What do we do?'" He added, "These three weeks have seemed like three years."³³ Meanwhile, the UN Security Council continued to tighten the screws on Saddam. On August 25, with Cuba and Yemen abstaining, Resolution 665 (1990) established a maritime force in the Persian Gulf to inspect all Gulf shipping to ensure that it comply with the embargo against Iraq. This enlarged NAVCENT's responsibilities.

A CENTCOM briefing given on August 20 to a conference between General Powell and the CINCs of the Unified and Specified Commands projected (as it turned out, somewhat optimistically) the arrival dates of U.S. forces. CENTCOM did not expect to attain a "high confidence defense" until September 25.³⁴ In fact, by September 12, General Schwarzkopf admitted to the *Washington Post* that the completion date for the ground buildup had slipped six weeks to mid-November, delayed in part by the breakdown of ships carrying heavy equipment and by a drop in daily airlift flights owing to maintenance issues.³⁵ The movement to Saudi Arabia strained the USAF airlift fleet and the eighty-one cargo and freight ships dedicated to U.S. military requirements. Some of those dedicated ships even had to undergo the time-consuming task of unloading their normal commercial cargoes and then sailing to a military embarkation port to load, but the services managed to meet their sealift requirement without preemptive requisitions. If Saddam had chosen to fight earlier and force the U.S. forces in the AOR to consume heavy equipment and munitions at a far faster rate, the U.S. military's air and sealift capability might have fallen short of requirements. A post-war JCS Mobility Study recognized this potential shortfall. It recommended a long-term program to raise the number of prepositioned ships worldwide from 21 to 32, to augment the two-division surge sealift from 8 to 19 ships, and to increase the number of Department of Defense (DoD) dedicated ships from 81 to 104, including an increase in the specialized vehicle-carrying, quick-loading, roll-on roll-off ships.³⁶

The Iraqis responded to the growing array of Coalition forces in Saudi Arabia. They withdrew the Republican Guard divisions that had staged the inva-

32. Patrick Tyler, "Cheney Authorizes Mobilization of 49,703 Reservists," *Washington Post*, Aug 24, 1990, p. A1.

33. Molly Moore, "Saudi Ground Defenses Still Mirage Thin," *Washington Post*, Aug 30, 1990, pp. A1, A34.

34. Brfg Slides, CENTCOM, "Desert Shield Current Closure Estimate" and "USCENTCOM Troop Strength: Deployment of Forces to Saudi Arabia," CJCS and CINC's Conference, National Defense University, Washington, D.C., Aug 20-21, 1990 [CK/DS/CENTCOM-Plans].

35. Molly Moore, "Buildup in Gulf Reported Behind," *Washington Post*, p. A1.

36. Brfg Slide, Lt. Gen. Henry Viccellio, Jr., USAF, Dir Joint Staff, JCS, "The JCS Mobility Study," Washington Strategy Seminar, Series on Air Power and the New American Security Environment, Rayburn House Office Building, Washington, D.C., Mar 13, 1992.

On Target

sion to southern Iraq, where they would serve as a mobile reserve. They also replaced their Republican Guards with lesser quality regular divisions, doubling the manpower available for action in Kuwait. On August 22, the IZAF twice violated Saudi airspace in a possible test of Coalition alert and response procedures. A week earlier, in an act of cynicism, ruthless calculation, expediency, and brazen boldness coupled with impudent assurance and insolence, Saddam on August 15 made Iran a peace offer it could not refuse—withdrawal of all Iraqi troops from Iranian soil, recognition of the disputed prewar borders (including the Shatt-al-Arab), and release of all prisoners of war. Iran immediately accepted Saddam's offer to return the fruits of his eight-year war against it. However, the Iranians could not in a day or even a year rebuild their shattered armed forces. They could mount no dangerous military threat to Saddam. The Iranian-Iraqi peace would allow the Iraqis, over the course of three or four months, to add an additional 25 infantry divisions, 2 armored divisions, and 1 mechanized division (200,000–250,000 men) to the like number already in and about Kuwait. It would give Saddam the option, if he so desired, to extend his defenses from the Wadi al Batin on the Iraqi-Kuwaiti border to the Iraqi-Saudi border, toward Jordan. Furthermore, Iraqi military engineers had the ability to create strong defenses for the new infantry forces to occupy. This large new increment of force also threatened to give the Iraqis the ability to launch a major attack southward.³⁷ A little more than three weeks later, on September 9, Iraqi Foreign Minister Aziz became the first high-ranking Iraqi official to visit Iran in ten years when he flew to Teheran to appeal for help in circumventing the UN embargo. Three days later, Iran's chief cleric, Ayatollah Khomeini, announced that an Islamic holy war against the United States and its troops in the Gulf was justified. By October 14, the two countries had reopened their embassies and resumed normal diplomatic ties.

While events on the Iranian front may have given Saddam cheer, those of the international oil market must have proved frustrating indeed. By invading Kuwait and pressuring Saudi Arabia, Saddam must have hoped to corner the world oil market and drive up the price of petroleum. He succeeded. On August 3 the spot price of oil rose \$3.49 a barrel to \$24.49, rose again to \$28.05 on August 6, fell three days later to \$26.00, climbed on August 22 to a five-year high of \$31.22, by September 17 reached \$33.73, on September 24 went up to \$38.35, and by October 11 surpassed \$40.00 per barrel, nearly double the precrisis price. Then the price broke. By October 18 it had fallen to \$37, but by the following day it was \$28 per barrel, still a 33-percent increase over the precrisis price. In addition, OPEC thumbed its nose at Iraq by authorizing larger production quotas for its members, including up to 2 million barrels a day for Saudi Arabia. Saddam had driven up the price, but none of the revenue flowed into his

37. Msg, 222044Z Aug 90, DIA Washington to DIACURINTEL, Subj: Iraq—Military Impact of Rapprochement with Iran [File No. T/HO/2/DIA].

The Initial Deployment

coffers; instead, his enemies enriched themselves at his expense. On October 18, reduced to offering oil at the old \$21 per barrel price, he found no takers. The next day, in a move subsequently suspended, the Iraqi Oil Ministry announced the rationing of motor oil and gasoline because of a shortage of refining additives.³⁸

On August 20 President Bush signed National Security Directive 45 (NSD-45), “U.S. Policy in Response to the Iraqi Invasion of Kuwait,” that retroactively approved several decisions already taken and laid out a coordinated scheme of U.S. diplomatic, economic, and military responses to the crisis.³⁹ The president stated in the directive that the United States had “interests in the Persian Gulf vital to national security” including access to oil and the stability and security of “key friendly states in the region.” He further stated his intention to defend those interests with military force “if necessary and appropriate.” Next came a restatement of the President’s four major objectives in the Gulf:

Immediate, unconditional, and complete withdrawal of all Iraqi forces from Kuwait,
Restoration of Kuwait’s legitimate government,
Maintenance of the security and stability of the Persian Gulf, and
Protection of the lives of American citizens abroad.⁴⁰

The directive outlined a coordinated diplomatic, economic, and military strategy. NSD-45 called for diplomatic efforts to maximize worldwide support for the U.S. position. In the economic sense, it supported tight sanctions against Iraq and directed the appropriate U.S. governmental agencies to encourage world oil producers to increase output and investigate a coordinated drawdown of strategic petroleum reserves with other nations. As for military action, the directive gave U.S. forces in the region a mission to “deter and defend” and instructed them to prepare to enforce Chapter 7, Article 57 of the UN charter and its resolutions related to the crisis. NSD-45 envisioned U.S. armed forces joining two multinational forces: one to deter aggression against Saudi Arabia; the other to free Kuwait by enforcing economic sanctions. As part of the enforcement of economic sanctions, the president authorized U.S. forces to establish a blockade of Iraqi seaborne commerce. Finally, NSD-45 indicated a U.S. willingness to accept a UN-led military effort, but only if U.S. commanders found the UN command arrangements acceptable and if the UN had an adequate command structure in place and operating.

NSD-45 illustrated that at this early stage of the crisis the Bush administration had not yet adopted a policy of applying military force directly against Iraq.

38. CRS, *Iraq-Kuwait Crisis: Chronology*.

39. NSD-45, “U.S. Policy in Response to the Iraqi Invasion of Kuwait,” Aug 20, 1990.

40. The Bush administration had stated these or very similar goals as early as August 8, 1990. At that time USAF planners in the Pentagon included such a statement of four “President’s Objectives” in their initial planning assumptions. See Msg. 100145Z Aug 90, TACOPS, Langley AFB, to CENTCOM FWD, Lt Gen Horner, Subj: “Air Campaign Briefing” [File No. TAC/HO].

On Target

U.S. armed forces would defend Saudi Arabia and deter further Iraqi aggression; they would not attack Iraq nor Iraqi forces in Kuwait. The United States would attempt to build and maintain an international Coalition against Iraq and would even consider serving in a UN command. It is inconceivable that such a command would not have paralleled the arrangements for the police action in Korea in which U.S. commanders held the major decision-making positions. The administration showed little interest in Soviet military assistance and preferred to keep the Soviets from gaining prestige and influence in the Gulf. Nor could one accurately gauge the Soviet's attitude, or at least the attitude of the Soviet military, toward their former client in Baghdad. As with the Trojan horse, the Soviets were best left outside the Coalition's gates. But NSD-45 also testified to the president's determination to pursue measures designed to bring about an Iraqi withdrawal from Kuwait. The establishment of a sea blockade ran the risk of allowing the Iraqis to stage a series of provocations and tests of will, which might weaken the Coalition and turn U.S. public opinion. Likewise, an ineffective blockade would send Saddam a signal that his foes lacked the determination to face him down. The president's implementation of a blockade to enforce the sanctions and the U.S. execution of it kept Saddam economically isolated while it weakened his ability to wage war.

In this early period, CENTCOM planning remained essentially reactive. It did not envision launching a major attack on the Iraqis. In both OPOD 1 of August 10 and OPOD 3 of September 7 it retained the three-phased operation laid out in OPLAN 1002-90: Phase I emphasized deterrence and training; Phase II moved U.S. ground forces north to defend the critical oil stabilization and distribution facilities at Abqaiq (near Dhahran), with USAF and RSAF aircraft flying counterair, interdiction, and CAS missions designed to delay and disrupt the Iraqi advance; and Phase III, after the Iraqis had suffered sufficient attrition, would have U.S. forces counterattack to regain lost facilities and "restore the integrity of the Saudi Arabian border." Neither OPOD spoke of ground attacks into Iraq or Kuwait. However, in the only reference to actions directly against Iraq proper in either order, OPOD 3 instructed the USN to prepare to execute replanned TLAM strikes against "targets in Iraq" during Phase II.

The weakness of the land forces meant that in the first few weeks of the crisis, air power had the primary responsibility for stopping an assault, not to mention preserving allied ground units. This obliged CENTAF to focus on defensive planning and the bed-down and training of current and expected forces. CENTAF's concentration on the immediate situation and the lack of any requirement for an offensive air campaign in the precrisis OPLANs discouraged it from developing such a plan in the early phases of the crisis. Furthermore, CENTAF/Ninth Air Force, like its parent USAF command, the Tactical Air Command (TAC), may have been unable to distance itself from its firm commitment to USA cooperation, as expressed in the Joint AirLand Battle espoused by TAC and the Army's Training and Doctrine Command. It is possible that this focus on air-

The Initial Deployment

ground cooperation predisposed CENTAF to conform to the ground scheme of operations and reactions at the expense of the independent operations that characterize an offensive air campaign.

In the initial deployment, CENTCOM accomplished its primary mission: deter further Iraqi aggression and defend Saudi Arabia. CENTAF found appropriate bases for most of its forces, established an integrated Coalition air defense network, and brought the bulk of Coalition and other U.S. aviation into the rubric of the ATO. With hard work and sensitivity, CENTAF built upon the harmonious relations with the RSAF, created in part by previous training exercises and foreign military sales. The ability of the two air forces to cooperate withstood the crisis and the ensuing conflict without a single major incident. Finally, the first-stage deployments served as the springboard for other moves. The U.S. government would have to decide if it would continue to defend or if it would give itself the option to initiate military action against Saddam. A decision to go after the Iraqis would require an offensive plan and more force. The following chapters will discuss the evolution of an offensive plan, in which the strategic air and the air-ground support phases would form the centerpiece, and the method by which the U.S. government arrived at the decision to give itself the offensive option.

Chapter Three

The Offensive Air Campaign Plan

Psychological operations are inherent to this operation and will be as important as strike operations. Every mission will have critical political and psychological overtones; every bomb will have a psychological impact as well.

COMUSCENTAF, OPORD Offensive Campaign
September 2, 1990

The development of the offensive air plan for the Kuwait crisis quickly became a contest between the radical air power ideas espoused by a small group of unorthodox air theoreticians on the Air Staff in the Pentagon and the more conventional, but not necessarily less valid, thinking that dominated CENTAF and other portions of the service. This chapter will show that at crucial times, singularly strong-minded, properly placed individuals—such as Col. John A. Warden III, USAF, Lt. Col. David A. Deptula, USAF, and Brig. Gen. Buster C. Glosson, USAF—can grasp the flow of events, if for an instant, and permanently redirect them, only to merge back into the crowd when the predestined moment has passed. This chapter will also follow the process by which an unproven idea works its way through a large bureaucracy, and how a unique formulation sometimes requires a familiar facade for acceptance.

The Genesis of the Strategic Air Plan

The creation of an offensive air campaign plan for CENTAF came from an agency outside CENTAF and CENTCOM. The USAF Air Staff began official work on such a plan on August 8, 1990. Its involvement in this effort came as the direct result of a request for assistance from General Schwarzkopf to the Chief of Staff of the Air Force (CSAF). When General Schwarzkopf left Jeddah on

On Target

August 7, General Horner stated that General Schwarzkopf informed him he intended to ask the Joint Staff in the Pentagon for assistance in preparing an air plan.¹ At some point during the journey to Saudi Arabia, probably as a result of the Camp David meeting and discussions of August 4, Secretary Cheney instructed the CJCS and the CINCCENT

to develop an offensive option that would be available to the President in case Saddam Hussein chose to engage in further aggression or other unacceptable behavior, such as killing Kuwaiti citizens or foreign nationals in Kuwait or Iraq.²

As the CINCCENT realized, the development of such an option required more detailed planning and heavier raids than what he himself termed the “symbolic air strikes” for punishment and retaliation that CENTCOM had heretofore submitted to the president.³ Upon arrival at HQ CENTCOM at MacDill AFB, Florida, General Schwarzkopf telephoned General Powell. Both generals understood that for the next few weeks, during the period of ground force weakness, air would have to carry the burden of any offensive. During his conversation with the CJCS, General Schwarzkopf realized that the Joint Staff did not have the capability to prepare the large-scale air plan he required. With the Ninth Air Force staff already fully occupied and with the necessity to keep any air strike plans against Iraq under close hold for security and diplomatic purposes, the Air Staff seemed the most appropriate planning agency. General Schwarzkopf told General Powell, “I’d like to ask the Air Staff [for help].” In spite of his request, Schwarzkopf worried that by bringing in Washington he might be repeating the mistakes of Vietnam. However, both he and General Powell agreed they needed a plan to “retaliate” against Iraq if it did something heinous, such as harming hostages. General Powell alerted the CSAF, General Michael J. Dugan, who had left the Pentagon on a trip to Boston, and General Schwarzkopf called the USAF planners.⁴ The Vice Chief of Staff of the Air Force, General John M. Loh, took General Schwarzkopf’s call. General Schwarzkopf explained that given their present overloads the CENTCOM and CENTAF staffs could not spare the resources to do yet more planning, so he needed Air Staff assistance to formulate a retaliation air plan for use against Iraq. He asked for the plan as soon as possible. General Loh did not hesitate to accept the task. He knew that a portion of the Air Staff had already begun to explore the possibilities of an attack on Saddam and his country.

The CINCCENT asked for a plan to strike deep into Iraq to damage or destroy targets valued by the Iraqis. He must certainly have had in mind the Iraqi NBC warfare capabilities, and he probably had in mind military, industrial, and

1. Intvw, Lt. Gen. Horner, Mar 4, 1992.

2. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 65.

3. Schwarzkopf, *It Doesn't Take a Hero*, p. 313.

4. Telecon, Gen. Schwarzkopf, May 5, 1992.

The Offensive Air Campaign Plan

Lt. Gen. Charles A. Horner with General Michael J. Dugan, Chief of Staff of the USAF when he visited Riyadh early in the campaign.



communications systems as targets of “punishment” or “retaliation.” But when an air officer hears instructions to go deep into the enemy homeland and hit sensitive targets, he thinks not of retaliation missions, but of strategic strikes. General Schwarzkopf asked for one thing. He would get another. By the time his requested plan had been returned to him, it had mutated from vengeance to a concept for a full-blown strategic air campaign accompanied by some operational planning explaining it.

General Schwarzkopf’s appeal quickly ended up on the desk of the Director of Plans, Maj. Gen. R. Minter Alexander. Of necessity, it bypassed the Deputy Chief of Staff (DCS), Plans and Operations, Lt. Gen. Jimmie V. Adams, who was out of the Washington area on temporary duty. In his turn, General Alexander sent for his Deputy Director for Warfighting Concepts, Colonel Warden. The two officers then met with General Loh in his office.⁵ At that point, to paraphrase Shakespeare, the man and the moment met and jumped as one.

Colonel Warden, a career fighter pilot, had come to the Air Staff more than two years earlier after finishing an abbreviated tour of duty as commander of the 36th TFW at Bitburg, Germany. Under the then-DCS of Plans and Operations, Lt. Gen. Harley Hughes, Colonel Warden had led the Air Staff section concerned with Exercise Constant Demo, an exercise to study the effects of battle damage and possible defensive measures on a single NATO air base. As conceived, the

5. Intvw, Lt. Col. David A. Deptula, Chief Air Planner, CENTAF Special Planning Group, with TSgt. Theodore J. Turner, CENTAF/HO, Riyadh, Saudi Arabia, Nov 1, 1990, p. 2. The sequence of events presented in this paragraph is somewhat conjectural. There are some questions as to what exactly General Schwarzkopf asked for, as to what he actually intended to deliver, and as to exactly how the request got from General Loh to Colonel Warden. I believe I have given the explanation most consistent with the known circumstances.

On Target

exercise repeated many of the features of Exercise Salty Demo undertaken in 1985. Colonel Warden proposed to increase the utility of the exercise by enlarging Constant Demo to a Seventeenth Air Force exercise to include several bases and to study the air campaign from an operational basis. His energy and ideas impressed General Hughes's successor, Lt. Gen. Michael J. Dugan, who served in the post from March 1, 1988, to April 30, 1989, and the Director of Plans, Office of the DCS, Plans and Operations, Maj. Gen. Charles G. Boyd, who served in that position from May 22, 1988, to August 14, 1989.⁶ Early in his posting, General Dugan asked Colonel Warden to prepare a paper on the operational art of war. The colonel suggested that the USAF ought to prepare a coherent air strategy, like the USN's maritime strategy and the U.S. Army's AirLand Battle, which would give service members an overarching concept of their mission. To accomplish this, he suggested that a new deputy directorate be established within the Directorate of Plans. General Boyd implemented this suggestion soon after assuming his post. Dugan, Boyd, and Warden wished to reinvigorate service thinking about the operational art of war, air strategy, and the independent uses and functions of air power. They agreed that the USAF had lost its bearings and had become too subordinate to the Army and Navy. Colonel Warden became the Deputy Director for Warfighting Concepts Development, later shortened to Warfighting Concepts. By July 1988, the Concepts Division, the Doctrine Division, the Long-Range Planning Division, and the Strategy Division had all become part of Warfighting Concepts. Sometime in late 1989, this deputation acquired the Checkmate Division, so-called because it specialized in Red (usually Soviet) and Blue (U.S. and allied) analysis of warfighting problems and scenarios.⁷

Colonel Warden found his milieu in this deputy directorate. He had read widely and pondered deeply about the role of air power in modern warfare. He had literally written the book about air campaign planning: *The Air Campaign: Planning for Combat*.⁸ Once established as Deputy Director, he encouraged other intelligent and thoughtful officers to join his organization. A powerful and determined thinker himself, Colonel Warden tolerated dissent and promoted fresh and innovative thinking about air power. Sheltered by his superiors from other portions of the USAF's establishment and encouraged by their approval of his organization's work, Colonel Warden and his subordinates began to examine some of the service's basic doctrines.⁹

6. Intvw, Col. John A. Warden III, Special Advisor to the Vice President for Policy Studies and National Security Affairs, with Drs. Diane T. Putney, Richard G. Davis, and Perry D. Jamieson, CAFH, at the Office of the Air Force Historian, Bolling AFB, D.C., Feb 6, 1992.

7. Intvw, Col. John A. Warden III, Comdr, Air Command and Staff College (ACSC), with Dr. Richard G. Davis, CAFH, at Col. Warden's Offices, Spaatz Building, ASC, Maxwell AFB, Ala., Mar 2, 1993.

8. John A. Warden III, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988).

9. Audiotape Intvw, Col. David R. Tretler, Deputy Air Force Historian, with Dr. Richard G. Davis, CAFH, Jan 14, 1992. Colonel Tretler served in the Deputy Directorate for Warfighting Concepts in 1988 and 1989.

The Offensive Air Campaign Plan

The approximately eighty officers who comprised the Deputy Directorate for Warfighting Concepts numbered within their ranks officers from each of the USAF major commands (MAJCOMs). This helped to discourage parochialism in the directorate's approach. However, one major community within the service with expertise essential for the development of plans and warfighting knowledge had little or no representation in Colonel Warden's group of officers—intelligence. Security compartmentalization kept intelligence personnel in their own stove-piped career patterns, separate from the service as a whole. If the Warden group had immersed itself in intelligence, it would have become enmeshed in security restrictions, which would have defeated its *raison d'être*: the promulgation of new thought and ideas. Yet this failure to form a solid connection between the new planning and the old intelligence contained the seeds of future problems. Neither party was fluent in the other's language, and during the crisis in the Gulf they would lose much time in asking the wrong questions or in preparing the wrong answers.

The thinking within the deputy directorate quickly distanced itself from the U.S. Army's AirLand Battle concepts that had gained wide acceptance in the USAF's TAC. In brief, the AirLand Battle pictured USAF elements working largely in support of Army forces over a front several hundred miles deep as well as wide, in a central European battlefield, against numerically superior Warsaw Pact mechanized forces supported by numerous reinforcing units. As recently as 1986, General Charles A. Gabriel, then CSAF, had enthusiastically supported AirLand Battle.¹⁰ The creation, sponsorship, and direction of a new organization within the Air Staff to develop warfighting concepts was a reaction to this vision, which tied the tactical air forces so tightly to the needs of the ground forces. In Colonel Warden's opinion, tying the USAF to Army support would allow the Army to call the tune and make the USAF conform to the Army plan of action. Instead of an air campaign, one would have an Army ATO.¹¹

Using principles derived both from Colonel Warden's thinking (most clearly revealed in his previously mentioned book) and from critiques and analyses of USAF doctrine and selected examples of past operations, members of the deputy directorate began to develop warfighting concepts in keeping with their charter. The Warden group's ideas seemed to possess a rare combination of uncluttered elegance, economy, and rationality. One could explain them quickly and in simple terms, yet when applied to past or current situations, they cut to the heart of matters and seemed to solve complex problems. As with most intellectually based activities, group members never attained absolute consensus on the exact method of conducting an air campaign, but, as their thinking matured, much coalesced around a set of conceptions at once theoretical and practical.

10. For a description of AirLand Battle concepts and of General Gabriel's backing of them, see Richard G. Davis, *The 31 Initiatives: A Study in Air Force-Army Cooperation* (Washington, D.C.: Office of Air Force History, Air Staff Historical Study, 1987).

11. Intvw, Col. Warden, Feb 6, 1992.

On Target

While many of the following concepts restate classic air power and military axioms, and indeed in many respects the ideas of the Warden group return to the classic air power theories of the 1930s, the emphasis of the individual group members on basic practical considerations of planning, rather than on rote formulation, make them unique and valuable to their service. They defined an air campaign as a series of connected, coherent operations that when combined would lead to the achievement of the assigned objective. They accepted the air power truism that a single air commander must control all air operations within the AOR. They began to conceive of an air campaign as being waged through some combination of independent, parallel, and supporting air operations. Independent air operations could, in and of themselves, lead directly to the attainment of strategic- or operational-level objectives. Such operations would generally occur during periods of no or of only light surface actions. Parallel air operations worked separately though in conjunction with concurrent surface operations to achieve a broad common objective. Supporting operations were efforts tied directly and immediately to the operations of surface forces. However, the Warden group did not think of these roles as straitjackets or as mutually exclusive. The inherent and unparalleled flexibility of air power would allow it to switch back and forth between independent, parallel, and supporting roles at will, depending on the needs of the situation, or would allow it to conduct all three types of operations simultaneously. Of course, having conceded air power's flexibility, group members acknowledged that air power produced the most military return when used in either independent or parallel operations. Supporting operations generally offered a much more limited range of effects and exposed air forces to the heavy AAA and mobile missile air defenses accompanying surface forces.¹²

Believing in the indivisibility of air power, the Warden group resisted compartmentalizing or parceling air forces among various mission or aircraft types. Thus they energetically supported the notion of using fighter aircraft to carry out "strategic" operations when appropriate. This led them to an intentional recrudescence of much of the classical pre-World War II strategic thought. But while framers of the Air War Plans Division's Plan No. 1 were forced when contemplating a non-nuclear strategic campaign to employ overoptimistic assumptions as to the bombing accuracy and destructive capacity of their B-17 and B-24 bomber weapons systems, the Warden group enjoyed the luxury of technology that could match their theory.

When they envisioned the planning of an air campaign to achieve the objectives specified by a theater CINC, the Warden group believed that the air planner should first determine the enemy's center or centers of gravity, i.e. those characteristics, capabilities, or localities from which an enemy derives its freedom of action, physical strength, or will to fight. Planners discovered these cen-

12. Intvw, Col. Tretler, Jan 14, 1992.

The Offensive Air Campaign Plan

ters of gravity by analyzing key elements of the enemy's strength and situation and then by locating the critical vulnerabilities that, when attacked, would most unbalance him. Centers of gravity might not always equate to specific target systems because critical vulnerabilities might cut across several target systems. The key center of gravity in any conflict, according to Colonel Warden, was the enemy's leadership—its survival, its continued resistance to your will, and its military forces and other elements of national power. This stress upon leadership as a target would prove a key consideration in the initial offensive air plan that Colonel Warden and his subordinates developed against Iraq. The planner's function did not cease with identification of the centers of gravity. Many factors, such as weather, air defenses, and the overall friendly and enemy situation, affect the campaign. The planner must consider these as well as the stated objectives and the forces at his disposal. Then, all the while accounting for the previous factors, he can ponder the best means for employing his forces coherently and cohesively.¹³

The rewards gained by the attainment of air superiority—like freedom of friendly air and ground movement—and the corresponding penalties on the enemy—like the loss of mobility and increased difficulty of resupply—normally made its achievement a necessity and the first mission of the air campaign planner. The Warden group accepted this time-honored air principle unreservedly. Next they accepted the concept of force packages as a requirement in mission planning. Force packaging, or the assignment of different aircraft types with different specialized functions to cooperate as an integrated group in a single attack on a specific target, had its infancy in World War II when the U.S. Army Air Forces (USAAF), faced with a strong air-to-air threat, routinely assigned long-range fighters to escort heavy bombers to and from their targets. The practice flowered during the war in Southeast Asia and has since become standard in the USAF. The multilayered Warsaw Pact air defenses and the need for bombing accuracy necessitated aircraft that specialized in the many tasks needed to survive and complete the mission.

The Warden group also began to challenge USAF planning orthodoxy by subtly shifting the emphasis with respect to the desired result of air operations. Too often in the past, traditional mission planning sought to achieve a desired level of destruction of the target. Target work sheets, photographic imagery and interpretation, and force packaging revolved around the assignment of sufficient weapons to achieve the desired level of destruction. In an invaluable insight, Colonel Warden insisted on the need to abandon the line of thought that the object of a given mission was simply to destroy or to blow up as much as possible. Instead, he argued for missions planned in combinations designed to produce a desired effect on the enemy. Blasting an atomic research facility to dust might have less effect on forcing the enemy to quit than would a series of limited

13. Ibid.

On Target

attacks against various elements of the enemy's leadership structure. Emphasis on effect had a wider implication, in that it encouraged the planner to concentrate less on discrete target systems and to look for tactical, operational, and strategic points within a center of gravity, to search for interconnections between target systems, and to seek means for achieving the larger political objectives by using innovative targeting.

In August 1988 Colonel Warden circulated within the deputy directorate a paper that attempted to use graphic representations to codify his targeting and strategic ideas.¹⁴ The model incorporated graphics to demonstrate the relative importance of the strategic targets contained within a nation-state. His visualization consisted of five concentric rings that resembled an archery target. Each ring contained specific strategic target sets, ranked by the effect their loss would have on the nation's government. The innermost ring, or bull's-eye, contained the nation's leadership and its connections to the population and armed forces. The ring adjacent to the bull's-eye contained the nation's key production, such as energy, advanced research facilities, and bottleneck industries. The third ring encompassed the nation's infrastructure, such as transportation systems. The nation's population constituted the fourth ring. In considering population as a target set, Colonel Warden did not intend that an attacker conduct operations meant to physically destroy the inhabitants; rather he intended the attacker should conduct strategic psychological operations (PSYOP) designed to break the morale of the populace and/or lower its support of the war effort and the ruling regime. The outermost ring contained the most difficult and costly targets to destroy—the nation's fielded military forces. Although the air offensive must penetrate the hard rind of the fifth ring to reach the softer, interior rings, a sustained attack on targets in the fifth ring would consume resources more effectively used elsewhere.

The ordering of the five rings also delineated their relative vulnerability to attack. The outermost ring of fielded military forces consisted of numerous dispersed targets, all of which had the capacity to shoot back (i.e. many targets, difficult to destroy), while the fourth ring of population presented an extremely diffuse target, both physically and psychologically. Its destruction, even on a minor percentage basis, contradicted U.S. policy and would produce worldwide ill will (i.e. many targets, hard to influence). The third ring, infrastructure, offered a large number of targets of differing degrees of difficulty. Individually, they might be vulnerable, but in their totality they would consume much effort and perhaps yield substantial results (i.e. many targets, good return). The second ring offered a far more vulnerable target. Hitting a few vital spots in key plants could crash entire sectors of the enemy's war economy and its ability to continue the conflict (i.e. few targets, high return). Finally, an attacker would find the enemy leadership the most vulnerable target of all. Theoretically, knocking out a handful of

14. Audiotape, Col. John A. Warden III, Commandant, ACSC, "Review and Comments on Draft Manuscript," Mar 2, 1993.

The Offensive Air Campaign Plan

superhardened bunkers beheaded a nation's decision-makers in a single raid (i.e. very few and difficult targets, very high return). The members of the deputy directorate soon adopted this model, which Colonel Warden has continued to develop,¹⁵ and often used its methodology in their planning.

Ironically, many of the warfighting concepts developed in the deputy directorate, dominated by TAC officers, echoed those developed earlier in SAC. This was less a case of reinventing the wheel than of confronting variations of the same problem—attack planning. Heretofore, TAC and the Unified Commands had fixed their attention on readying forces and deploying them to the area of crisis and had spent much less time on considering precisely what to do with the forces when they arrived. However, SAC, for at least the past three decades (when it no longer had to forward deploy and recover its shorter ranged B-47s or even its older B-29s and B-50s to foreign bases), always maintained, in effect, a force almost 100-percent deployed. Once freed from deployment problems and given a force ready for instant mission assignment and carrying weapons guaranteed to destroy a target for each weapon successfully delivered, SAC planners could address the issues of target systems, centers of gravity, overall effect, and strike sequencing. The nature of the conflict forced SAC planners to expend the bulk of their efforts on the first few hours of war. After the force completed the first mission or two, one could hardly imagine what conditions would confront it, or even if any coherent force or enemy remained. SAC planners integrated their ideas into one constantly updated master attack plan (MAP), the single integrated operations plan. Of course, a huge difference in scale separated SAC from the Warden group. SAC planners had the resources, time, and an ultimate responsibility magnitudes of order greater than the level of responsibility held by the Deputy directorate. Yet in a sense, both groups accomplished their missions: SAC, because it never used its plan; the Deputy directorate, because a plan based on its concepts led the USAF to victory over Iraq.

Because of the Warden group's emphasis on offensive air operations, targeting, and planning, its members tended to approach some of the more mundane aspects of day-to-day operations as having secondary importance. Although they acknowledged that an ATO was necessary, that operations required it, and that the tactical air forces regarded it as crucial for specific tasking, they implicitly and explicitly thought of the ATO as only a "processing mechanism" or an "administrative vehicle" for planned operations. This had validity as a philosophical construct, but in practice it led the group to display a somewhat condescending attitude toward the ATO and those who prepared it, whom they sometimes referred to as "scribes." This attitude, which sometimes masked their realization of the ATO's importance, proved germinal to future conflict.¹⁶

15. Paper/Speech, John A. Warden, "Strategic Warfare: The Enemy as a System," Jan 3, 1993. This paper contains Colonel Warden's expansion of the five rings and his analysis of the Persian Gulf War in terms of the rings.

16. Members of the Warden group take strong exception to this paragraph. However, in

On Target

As the concepts within the deputy directorate matured, Colonel Warden oversaw the planning exercises that tested them. For example, in the spring of 1990, under the aegis of Checkmate, the deputy directorate explored an interdiction campaign against a large-scale but limited non-nuclear Soviet offensive in Central Europe. This study identified a center of gravity affecting the Soviet offensive and further identified centers of gravity (usually specific key targets) within that target system. In a day or two, the offensive froze in its tracks. Colonel Warden increased the value and effectiveness of these straw-man exercises by having all the officers within the deputate critique the exercise plans en masse. This tactic not only elucidated the weaknesses and strengths of the plans but it exposed all his officers to the new concepts and their still-embryonic planning methodology. Because of the decline of the Soviet Union, Colonel Warden had begun to consider non-Soviet scenarios, including some in the Middle East.¹⁷ Thus, when Colonel Warden entered General Loh's office and received from him the directive to assist General Schwarzkopf in planning an offensive air campaign, he was truly the right man, in the right place, at the right time.

Instant Thunder

In fact Colonel Warden had already begun an informal examination of the offensive air planning for Desert Shield. For the next two days after he ended a vacation cruise on Saturday, August 4, the colonel had worked on a notional plan for action. He did so even though he knew that the Goldwater-Nichols DoD Reform Act of 1986 did not give service staffs authority to plan operations independent of a Unified CINC. Colonel Warden informed General Alexander of his effort, and General Alexander may have informed General Loh. For two hours on August 7, Colonel Warden and Colonel Deptula of the Secretary of the Air Force's Staff Group and formerly of the Deputy Directorate for Warfighting Concepts discussed the planned flow of aircraft to the theater. Colonel Deptula had gleaned that information from message traffic in the Pentagon message center, which he had followed throughout the day.¹⁸ Both officers criticized the establishment of an overly defensive force posture apparently under way in Saudi Arabia. They questioned the decision to send F-111Es, which had no PGM

several interviews with CENTAF and Warden group personnel, the author detected the attitude described above, as had the CENTAF officers who prepared the ATO. That the members of the Deputy directorate are unaware of the effect their attitude has on others does not make it any less real.

17. Intvw, Col. Tretler, Jan 14, 1992.

18. Intvw, Lt. Col. David A. Deptula, CC/58th FTS, Eglin AFB, Fla., with Drs. Richard G. Davis and Diane T. Putney, CAFH, at Bolling AFB, D.C., Dec 12, 1992. Also see Brfg, "U.S. Air Campaign," n.d., fax annotated, "USCENTCOM, MacDill AFB, CCJ-6CB, FRI 04 AUG 90, 03:13" [File No. Colonel James Crigger, 9AF DCS/OPS]. This briefing gives the Ninth Air Force plan in detail.

Several members of the Ninth Air Force Staff insisted to the author that the Ninth had sent a copy of its preliminary planning slides to the Air Staff before August 7. In the above interview, Colonel Deptula stated he had never seen the briefing before.

The Offensive Air Campaign Plan

*Loaders guide a GBU-10
onto an F-111.*



capability, instead of PGM-capable F-111Fs, and wondered at the lack of B-52Gs stationed at Diego Garcia. However, they concluded that the Air Staff could do little to influence the CINCCENT's mission. Still intrigued with the problem, Warden invited Deptula to return the next day to do some brainstorming with other deputate stalwarts on how air power could most effectively cause Saddam to evacuate Kuwait.

The next day, August 8, at approximately 0820 EDT, General Schwarzkopf made his call to General Loh, who in turn summoned Colonel Warden. Upon returning to the sub-basement of the Pentagon in the Checkmate area, Colonel Warden called in three, possibly five, other USAF officers from his deputy directorate: Lt. Col. Ronald Stanfill, who had helped plan the 1986 attack on Libya, Operation El Dorado Canyon; Lt. Col. Bernard E. Harvey, who had assisted in the strategic planning leading to Operation Just Cause against Panama; and Colonel Deptula.¹⁹ These men identified the centers of gravity in Iraq most critical for Saddam. They sought the quickest way to force Saddam out of Kuwait and the surest means to achieve their other objective—the denial of any significant offensive power to the Iraqi military. This preliminary work became the germ for an offensive air campaign named Instant Thunder.²⁰ Checkmate chose the name purposely to contrast its intended quick and decisive blow against Iraqi centers of gravity with the sprawling, interminable Rolling Thunder bombing campaign against North Vietnam.

Members of Colonel Warden's Deputy directorate worked frantically to assemble a briefing describing their concepts. As was, is, and assuredly will be the norm for rush staff projects, the group labored around the clock, requisition-

19. Intvw, Lt. Col. Bernard E. Harvey, USAF, Assistant Chief, Strategy Division, Deputy Directorate for Warfighting Concepts (XOXWS), with Drs. Richard G. Davis and Diane T. Putney, CAFH, at Bolling AFB, D.C., Dec 7, 1992. See Intvw, Lt. Col. Deptula, Nov 1, 1990, who recalls that the "brainstorming" session occurred before General Schwarzkopf's telephone call came.

20. Intvw, Lt. Col. Deptula, Nov 1, 1990.

On Target

ing expertise, information, and slides from many other officers on the Air Staff. A dozen intelligence officers, targeteers from Bolling AFB, across the Potomac River in Washington, D.C., joined the group immediately. This indicated Colonel Warden's unusual proclivity for setting up working arrangements between organizations and individuals with special expertise to facilitate his planning. This temporary grouping represented one of the few reasonably harmonious relationships between the offensive air planners and USAF intelligence officers throughout the crisis and the conflict. In addition, Checkmate sent copies of its notional briefing to TAC and SAC and asked for assistance. TAC replied that they would review the product when the Air Staff finished it. SAC promptly sent a half-dozen weapons systems and refueling experts to the Pentagon to assist the effort. On August 9, one week to the day after Saddam's tanks clanked into Kuwait, Colonel Warden presented the Instant Thunder briefing to General Loh. General Loh asked Colonel Warden to upgrade certain types of Iraqi military production facilities to the key target category. That same day, General Loh presented the concepts of the briefing to General Powell who approved it, ordered it fleshed out, and directed its presentation to General Schwarzkopf the next day. However, TAC, in spite of a personal request from General Dugan, continued to refuse to participate in Instant Thunder planning.²¹

On Friday, August 10, Colonel Warden flew to HQ CENTCOM and presented the Instant Thunder briefing to General Schwarzkopf. Fewer than ten officers, including General Alexander, Colonel Warden, and Colonel Harvey, attended. Colonel Warden and his officers recognized the dual opportunity this briefing presented them. If General Schwarzkopf approved it, they would have prepared a significant portion of a CINC's war plan, and one that might be employed. Second, they would have cleared a major bureaucratic hurdle by bringing their concepts from the windowless cellar of the Pentagon, where members of their own service dismissed them, to a position that not only exposed them to the highest professional authorities but also gained their endorsement. Consequently, the air officers took pains to offer the brief in a fashion designed to capture General Schwarzkopf's attention, interest, and approval. For instance, they knew of the general's interest in military history and his wide readings in that field. They further reasoned that the general's and their own educations at the undergraduate service academies gave them a common language and background. Therefore, the briefers decided to employ examples from military history as a form of intellectual shorthand to speed up the complicated brief and ease the transmission of their ideas. In addition, Colonel Warden "was an absolutely brilliant briefer," engaging the principal (the chief recipient of the presentation) by changing the tone or pitch (not the facts) of the brief in the middle of his deliv-

21. Daily Notes, Lt. Col. Bernard E. Harvey, Meeting of Gen. Loh, Maj. Gen. Alexander, Col. Warden, Lt. Col. Stanfill, and Lt. Col. Harvey, 0830 Aug 10, 1990 [GWAPS, Harvey Files].

The Offensive Air Campaign Plan

ery.²² This mode of presentation, based in part on common historical analogies, produced a somewhat bombastic-sounding brief.

Two examples plucked from this session supply the flavor of the offensive air planner's dramaturgy. At one point Colonel Warden promised General Schwarzkopf that the offensive air campaign would be his "Inchon," a reference to the last masterstroke of General of the Army Douglas MacArthur in September 1950 during the Korean War. Both men knew that at Inchon, a South Korean port city to the west of Seoul, General MacArthur had almost driven North Korea from the war by a daring amphibious landing hundreds of miles behind the main North Korean lines, at that time located in the heel of the Korean Peninsula near Pusan. The landing cut North Korean lines of communications (LOCs) and helped produce a disastrous retreat of the enemy's armies from the south. By using the example of Inchon, the colonel made the point that the offensive air campaign would strike far behind Iraqi front lines and might well produce a panic and rout in the Iraqi front-line forces.

The second example had a more ominous connotation. Colonel Warden compared the offensive air plan to the right wing of the von Schlieffen Plan, the basis of the pre-World War I Imperial German war plan. That plan called for the bulk of the German armies to wheel on a wide sweep through Belgium and northern France, with their right flank touching the English Channel, and to trap the French Army against the Franco-German border. The much weaker left-flank German armies would engage and delay the expected French offensive into Alsace-Lorraine. The plan failed for a number of reasons, but popular and self-interested analysis has attributed its unsuccessful result to the Chief of the German General Staff, Colonel-General Helmuth von Moltke (the Younger), who changed the plan before the war to reinforce the left-flank armies, guarding recently developed industries, at the expense of the right-flank armies, which consequently lacked the strength to accomplish their task. In a single phrase, Colonel Warden sketched for the CINC the image of a unstoppable air offensive able crush the Iraqis, but only if too much of its strength was not diverted to other tasks, such as inordinate numbers of ground support missions for U.S. troops. General Schwarzkopf rejected this analogy and instructed Colonel Warden not to use it again,²³ a reasonable indication that General Schwarzkopf, unlike Colonel Warden, considered the strategic air campaign an option, but not the *main* option, for eventual use against Iraq.

22. Intvw, Lt. Col. Harvey, Dec 7, 1992.

During his association with Colonel Warden from the spring of 1990 through summer 1991, Colonel Harvey viewed dozens of briefs delivered by Colonel Warden to general officers and senior civilian officials such as Secretary Cheney. Colonel Harvey also attended nearly all of Colonel Warden's significant Instant Thunder presentations including the ones to General Schwarzkopf on August 10 and 17, to General Powell on August 11, and to General Horner on August 20. He was the only officer to take notes at the August 10 briefing at CENTCOM HQ.

23. Notes, Lt. Col. Bernard E. Harvey, Checkmate, CENTCOM HQ, MacDill AFB, Aug 17, 1990.

On Target

Of course, presentation by example works only so long as both the presenter and the audience draw the same analogy, something supposedly assured by a common military education. Unfortunately, many analogies lend themselves to several interpretations. The two mentioned above may have produced a contrary impression in a diplomatic or political context. In the intoxicating afterglow of Inchon, UN forces overreached themselves by driving far into North Korea and eventually provoking massive intervention by the Chinese Communists, which prolonged the war and expended tens of thousands of lives. Inchon was a brilliant tactical success, but its isolation from the strategic and political context produced a debacle. The von Schlieffen Plan suffered from a similar overconcentration on military considerations at the expense of the diplomatic and political context. No single German action at the start of World War I played a larger role in bringing the British Empire into the fray in support of the Franco-Russian Alliance than German violation of Belgian neutrality. In addition, some have argued that Count von Schlieffen missed the point entirely and should have launched the main German offensive against the Russians in the east, where the bulk of the Austro-Hungarian armies could have supported it. One could say the plan showed that a misdirected offensive could do far more harm than good. The Coalition did not repeat these mistakes.

In any case, the briefing pleased General Schwarzkopf mightily. He remarked enthusiastically, "You have restored my faith in the United States Air Force,"²⁴ and "Do it! You have my approval 100 percent. This is absolutely essential."²⁵ The briefing appealed to him, but he wanted to see the plan in a more fully realized form. He asked Colonel Warden to look at the possibilities of operations from Turkey and of changing the aircraft deployment flow, and he recommended that NBC warfare targets, including storage, have a higher priority. During the brief, General Schwarzkopf made it clear that he respected the defensive ability of the Iraqi forces and sounded a theme he would continue throughout the planning when he stressed the need to avoid U.S. and allied casualties.²⁶ The desire for low casualties reflected both the general's genuine concern for the well-being of the men and women under his command and his calculation that high casualty lists would quickly erode domestic U.S. support for the operation. He instructed Colonel Warden to put some more meat on the concepts, get them to General Powell before Monday, and return to him in a week.

The next morning, August 11, Colonel Warden briefed the CJCS on the results of his presentation at CENTCOM. As he had the previous day with General Schwarzkopf, Colonel Warden drew General Powell's attention to the example of the pre-Normandy invasion air campaign in World War II. At that time, the Supreme Allied Commander, General Dwight D. Eisenhower, had

24. Intvw, Col. Warden, Feb 6, 1992.

25. MemoRec, Subj: Instant Thunder Briefing to USCINCCENT, 10 August/1320-1400/HQ CENTCOM/J3 Office/MacDill AFB, FL, 1830 Aug 10, 1990.

26. Intvw, Col. Warden, Feb 6, 1992.

The Offensive Air Campaign Plan

pulled a significant portion of the bombing effort from strategic targets deep in Germany to conduct a campaign of attrition against the French and Belgian transportation systems. Colonel Warden argued against splitting the bombing effort and advocated that the strategic air assault on Iraq form a discrete phase.²⁷ General Powell approved the brief. In fact, he raised the concern that Instant Thunder might prove so effective that Saddam would withdraw from Kuwait before the United States had the opportunity to smash his ground forces. He wanted to ensure that Saddam did not walk away without penalty and suggested that the Air Force might destroy Iraqi armored units occupying Kuwait. General Powell stated that he wanted to see burnt-out Iraqi tanks as kilometer signposts all the way back to Baghdad.²⁸ Phase III of Desert Storm, the air attack on Iraqi ground units in the Kuwaiti Theater of Operations (KTO), stemmed, in part, from these remarks of the CJCS. He asked for a short version—five slides—to give to higher authorities.²⁹ Powell further indicated, as noted above, that he intended to make Checkmate a joint organization. The chairman reviewed the concept with Secretary Cheney, who approved it.³⁰

When Colonel Warden and the planning group reassembled in the Checkmate area on Saturday, August 11, they found themselves transmogrified. With a simple bit of legerdemain, General Powell had legalized their planning efforts for a Unified Command by making them a planning extension of the Joint Staff's Director J-3 (Operations).³¹ Unlike the Air Staff, the Joint Staff had legislative approval for direct contact to the Unified and Specified CINCs. Forty USMC and USN aviation officers and a handful of Army officers quickly descended upon the planning group, and Colonel Warden observed that "they focused strictly on mechanical work, almost creating a mini-ATO."³² As individuals, the new officers contributed expertise and performed loyally and well, but only on paper did they turn a USAF organization into a joint one.

The next day, August 12, 1990, the group gave the briefing to the DCS, Plans and Operations, General Adams, who had returned to Washington. General Adams's physical absence from the Pentagon during the period between General Schwarzkopf's request for assistance and the first offensive air plan briefing to the CINCCENT had allowed Colonel Warden almost direct access to General Loh. This, given General Adams's vehement personal disapproval of Air Staff involvement in direct planning for a Unified CINC, which was based on logical professional and legal considerations, may have proved significant in the offensive air plan's ultimate acceptance. In the course of the day, General Adams attended a meeting in the tank, or JCS Operations Room, with the operations

27. Brfg, Col. Warden to the Center for Air Force History, "Instant Thunder and the Strategic Air Campaign," Feb 6, 1992.

28. Intvw, Col. Harvey, Dec 7, 1992.

29. Intvw, Col. Warden, Feb 6, 1992.

30. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 65.

31. Intvw, Lt. Col. Deptula, Nov 1, 1990.

32. Intvw, Col. Warden, Feb 6, 1992.

On Target

deputies of the other services. General Powell attended as well. They discussed the requirements for an air campaign. Afterward, the Director, Joint Staff, Lt. Gen. Michael P. C. Carns, USAF, and the Director, J-5 (Strategic Plans and Policy), Lt. Gen. George L. Butler, USAF, asked General Adams to stay and come into the J-3's office. Butler informed Adams that Schwarzkopf needed an air campaign integrated with the Army and the Navy, but the Joint Staff did not have the capability to assemble it. Therefore, to take advantage of the Checkmate planning group's capabilities within a JCS setting, Generals Carns and Butler deputized General Adams as interim J-3 (Operations) for Air.³³ This move further regularized the position of the planning group's status as an official appendage of the Joint Staff. Although not completely convinced of its propriety, General Adams accepted his new joint obligation. He also personally ensured that General Horner knew and was not blind-sided by the moves afoot in the Pentagon.

In addition to the USN and USMC officers joining Checkmate, the Air Staff brought in weapons systems experts from the USAF MAJCOMs and officers from the Tactical Fighter Weapons Center. They joined the SAC officers who had arrived earlier.³⁴ The additional manpower contributed to developing the target lists and devising methods for obtaining the most effective attacks. The B-52Gs, for example, received a large role in hitting CW-capable Iraqi airfields. SAC planners may already have introduced the B-52-carried air-launched cruise missiles (ALCMs), which the planners euphemistically referred to as LRBs (long-range bombs). (This euphemism appeared in the August 10 brief to General Schwarzkopf.) Since only the specially equipped B-52s based at Barksdale AFB, Louisiana, had the capability to carry the ALCMs, this was the germ of a mission flown on the first day of the war. Likewise, USN planners may have brought the TLAMs into the targeteering calculations. As one of those present recalled, the planners, who packed a room, literally ran a target auction, with some calling out "who can hit this target," while others responded by shouting out what weapons system they could put on it.³⁵

During the week, planning group members expanded the briefing to accommodate their own ideas and the suggestions of general officers. They presented the brief to the chiefs of all the services, except the Army's, and to a wide spectrum of other interested officers. The decision to place the plan before a wider audience proved beneficial. The give-and-take of these extended briefings

33. Intvw, Lt. Gen. Jimmie V. Adams, DCS Plans & Ops, HQ USAF, with Jacob Neufeld, Air Staff Historian, Dec 17, 1990.

34. See Intvws, Maj. Michael B. Hoyes, Chief Current Ops, 422d Test & Eval Sq, Nellis AFB, Nev., with Donna Clark, USAF Tactical Fighter Weapons Ctr, Mar 29, 1991; and Lt. Col. J. Thomits, SAC/DOOB, by Dr. Kent M. Beck, May 15, 1991.

35. Intvw, Lt. Col. Daniel T. Kuehl, GWAPS, with Dr. Richard G. Davis, CAFH, at Crystal City, Arlington, Va., 1315-1515 Dec 15, 1992.

Colonel Kuehl served in the doctrine portion of the Deputy Directorate for War Fighting Concepts. During the crisis and conflict he served with the Checkmate planning group.

The Offensive Air Campaign Plan

allowed the planning group the opportunity to refine their thoughts. The briefings also to some degree co-opted the recipients, thereby partially countering the natural tendency of the other services, or constituencies within the services, to reject new ideas because of the not-invented-here syndrome. On August 14 and 15, Colonel Warden briefed Generals Dugan and Loh along with Secretary of the Air Force Donald B. Rice. The two generals expressed their concerns and offered advice on Instant Thunder. General Loh wished to ensure that the plan emphasize the key targets important to Saddam and his infrastructure. He suggested making the plan as detailed as possible and producing one as highly integrated as that used by the Israeli Air Force over Lebanon in 1982. General Dugan suggested developing detailed strike packages and directed the planners to “be bold and imaginative.” He also wanted the planners to consult with the most knowledgeable Iraqi experts available, because Saddam “doesn’t care about military or economic targets but [only] about self, family, mistresses.” He wanted to know “what kind of targets will play on Arab culture, what will really get to” Saddam? General Dugan stressed the importance of the concept of the strategic air campaign, noting that the “army mop up is a tactical thing for the on scene commander.” The general wholeheartedly agreed with the Warden group’s analysis of the von Schlieffen Plan—“keep the emphasis on a strategic attack, don’t allow diversion of effort to operational or tactical concerns about the Iraqi army in Kuwait.” Finally, he directed the “staff to press hard on planning for Instant Thunder.”³⁶ These exhortations from the highest levels apparently had little effect on the strategic air plan; they reinforced the views already held. But the expansive comments of General Dugan and their tenor may well have foreshadowed subsequent events.

As Air Staff planners worked furiously to turn out their plan, on August 14 General Powell flew to MacDill AFB to confer with General Schwarzkopf. The CINCCENT presented his current offensive plans and stated his mission in bullish terms: “when directed, USCINCCENT conducts offensive operations to eject Iraqi forces from Kuwait and restore original Kuwait/Iraq border.” The plan revealed the extent to which the CENTCOM staff had already incorporated the ideas of Instant Thunder into their own work and, just as importantly, indicated that the CINCCENT did not view a strategically oriented air operation as a war-winning stroke in and of itself. Rather, General Schwarzkopf intended to incorporate Instant Thunder into a larger multiphased scheme that included ground operations to drive Iraq from Kuwait. The targeting of Iraqi targets closely followed the Warden group’s recommendations—the electrical grid; C³ and telecommunications (the Checkmate planners applied the term “telecommunica-

36. Msg, 110001Z Sep 90, XOXW, HQ USAF, to USCENTAF FWD HQ [Col. Warden to Brig. Gen. Glosson], Subj: Concerns. Also see Lt. Col. David A. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993. Colonel Deptula recalls both the referenced document and the comments contained in it. He places them as comments made during the above briefings.

On Target

tions” to civilian communications and control to distinguish it from military C³); and strategic offensive and defensive capabilities. At points, the CENTCOM plan even repeated some of the Air Staff phrases such as “Hussein Regime” and “internal oil distribution network.”³⁷

On August 15, during a visit to the Pentagon, President Bush, Secretary Cheney, General Powell, and the Joint Chiefs received a briefing from General Schwarzkopf on Desert Shield and on the Kuwait situation, which probably included the five strategic air campaign slides prepared by Checkmate. The slides predicted that the air campaign would “incapacitate or discredit [the] Hussein regime,” eliminate Iraqi offensive/defensive capability, and create conditions leading to an Iraqi withdrawal from Kuwait. The campaign would target the Hussein regime, not the Iraqi people, and would render the “Hussein regime destroyed or impotent.” After the strategic air campaign, the USAF would begin attacks on the Iraqi army in Kuwait, destroy as many weapons as possible, and “leave Hussein, if still in power, in [a] weakened state.”³⁸

At the same time, General Powell shocked General Schwarzkopf by extracting from him a very preliminary, rudimentary, and risky plan for using American troops to drive the Iraqis from Kuwait, and he presented it to the president for discussion. By mid-August the Bush administration had already begun to think beyond the simple defense of Saudi Arabia. At a speech to Pentagon employees later that day, the president called Saddam a liar and compared him to Adolph Hitler, hardly the rhetoric one would use to promote compromise.³⁹

The JCS sponsor for the Instant Thunder brief, Deputy Director for National Military Command Systems (J-36), Maj. Gen. James W. Meier, USAF, received it on August 16, one day before the scheduled rebrief of CENTCOM. He demanded so many changes that they threatened to delay the process, which forced him to modify his position, as did Colonel Warden’s firm and career-threatening insistence that the brief must not suffer substantial change. General Meier agreed to let the brief go forward with fewer changes, rather than risk a crucial delay. By the time the presenters arrived at HQ CENTCOM on Friday, August 17, they had prepared a more complete scheme that had a notional attack plan for the first twenty-four hours, with sorties, time over targets, mission numbers, types of aircraft, and a complete operations order. The operations order had

37. Brfg Slides, CINCCENT to CJCS, portions annotated, “Aug 14 ‘90 17:56 USCENTCOM-CCJ3-PT(SPEC TECH OPS),” faxed by Lt. Col. Lucyshyn, CENTCOM CCJ3-PT, to Lt. Col. Stanfill, XOXW.

38. Brfg Slides 1-5 (see slides “Campaign Objectives” and “Campaign Results”), annotated, “General Myer [Meier?] took to CJCS, 1030/ 14 Aug 90” [File No. GWAPS/CK/ CHSH/ Folder 5].

I thank my colleague Dr. Diane T. Putney for locating these slides and informing me of their importance. Dr. Putney has discovered a direct reference by President Bush to the air campaign plan briefing he had just received in the transcript of a speech he gave to Pentagon employees in the center courtyard lawn on August 15, 1990.

39. Schwarzkopf, *It Doesn’t Take a Hero*, pp. 315-316.

The Offensive Air Campaign Plan

consumed the work of several individuals for the entire week. It included annexes for PSYOP, rescue, C², logistics, and munitions, among other topics, and a layout for the first day's attacks.⁴⁰ More than fifty officers attended the briefing, half from Checkmate and half from CENTCOM.

Colonel Warden delivered all but the intelligence/targeteering portion of the "Iraqi Air Campaign: Instant Thunder" briefing to General Schwarzkopf and his staff. Colonel Warden defined the air campaign as a "*focused, intense* [emphasis added]" effort designed to incapacitate Iraq's leadership and destroy its key military capability in a "*short* [emphasis added]" time (days not weeks), while leaving Iraq's basic civilian infrastructure intact. It did not provide for a long-term effort designed to give escalation options to counter Iraqi moves. Instant Thunder assumed that time favored Saddam and suggested an air attack against Iraq to avoid prolonged ground combat and heavy losses and to provide friendly Arab states the ability to conduct follow-on operations and "reconstitution" against a weakened Iraq. Instant Thunder had five goals:

- Isolate Saddam (target Saddam's regime, not the Iraqi people),
- Eliminate Iraq's offensive capability,
- Incapacitate Iraq's national leadership,
- Reduce the threat to friendly nations, and
- Minimize damage to enhance rebuilding (minimize civilian casualties and collateral damage).

The first and third goals corresponded to Colonel Warden's principal center of gravity—leadership. The second and fourth goals meant attacks on what Colonel Warden considered the target least likely to produce immediate effect—a nation's fielded forces. The planners added the last goal from a desire to enhance future diplomacy and avoid condemnation for overbombing and unnecessary destruction. The strategic air campaign would seek to accomplish its goals by pitting American strengths against Iraqi weaknesses.⁴¹

In its selection of targets, Instant Thunder conformed to the five-ring intellectual model previously developed by Colonel Warden. It selected nine target systems, with at least one selected from four of Colonel Warden's five rings. The Instant Thunder strategic targets follow, with the specific target systems appearing in boldface type:

- Leadership
 - Saddam regime**
 - Telecommunications and C³** (military, civil)
- Key Production
 - Electricity**

40. Intvw, Lt. Col. Deptula, Nov 1, 1990; Intvw, Lt. Col. David A. Deptula, SECAF Working Group, with Dr. Richard G. Davis, CAFH, Pentagon, Washington, D.C., Nov 20, 1991.

41. Brfg Slides 1–5, Instant Thunder Brief, Aug 24, 1990 [File No. CK/Deptula Box 7/ Theater Campaign Slide/Brief] This document carries the following notation "as presented to CSAF–14 Aug; CINC–17 Aug; CENTAF/CC–20 Aug."

On Target

Oil (internal distribution and storage, not production export capability)
Nuclear, biological, and chemical research facilities
Military research production and storage

Infrastructure

Railroads

Population

Psychological operations directed at Iraqis, foreign workers, and soldiers
in Kuwait

Fielded Force

Destroy **Strategic air defenses**

Destroy **Strategic offensive forces:** (bombers, missiles)

The planners first called for Instant Thunder to use PSYOP and deception to assist in gaining air superiority, which they would achieve by ruining Iraqi air defenses, attacking airfields, and destroying the IZAF with offensive and defensive counterair sweeps. Then, air would strike the selected strategic target sets enumerated above. The operation would emphasize PGMs. The planners justified their selection of the nine target systems on the following basis: Destroying strategic air defenses would leave Iraq defenseless and minimize the threat to friendly forces. Destroying Iraq's strategic offensive forces would reduce Iraq's threat to adjacent states in both the long and short terms. Given that all Iraqi decision-making centered in Saddam, his regime represented the most important center of gravity. Attacking telecommunications and C³ would rupture Saddam's links with his people, his internal security, and his armed forces. Attacks on electricity would cripple production and create confusion, while strikes on refined-oil distribution and manufacturing sites would paralyze domestic and military internal movement. The loss of railroads would complicate the movement of goods and services, and the destruction of NBC research facilities and of military research, production, and storage facilities would reduce the long-term international threat of terror weapons while limiting Iraq's offensive capability both now and in the future.⁴²

The USAF's senior targeteer on the Air Staff, Col. James R. Blackburn, Jr., Director of Targets for the Assistant Chief of Staff, Intelligence, delivered the target section of the presentation. As on other occasions, Colonel Blackburn's professional presentation of the precise targets and the exact spots on them that the aircraft would hit impressed his audience. His viewers could now correlate the more theoretical portions of Instant Thunder to actual visual images. In all, Instant Thunder went after 84 targets, of which strategic air defenses accounted for 10; CW for 10; telecommunications, 19; electricity, 10; military support and production, 15; oil, 6; airfields, 7; and ports, 1 (Iraq's only naval base).⁴³

Planners predicted significant results from the campaign: destruction of the strategic air defenses, a long-term setback for CW research and production; iso-

42. Brfg Slides 6–10, Instant Thunder Brief, Aug 24, 1990.

43. Ibid.

The Offensive Air Campaign Plan

lation and incapacitation of the national leadership; disruption and loss of effectiveness for telecommunications, railroads, military airfields, and key military production and storage; a large drop in internal oil consumption; and the loss of much of the electricity for Baghdad as well as some for the country at large. They intended to mount the operation with USAF, USN, and USMC aircraft including 2 B-52G squadrons, 1 F-111F squadron, 1 F-15E squadron, 32 fighter/attack squadrons, 1 F-117A squadron, 3 or more suppression of enemy air defenses (SEAD) squadrons, Compass Calls, AWACS, TLAMs, and Volant Solos. Operations would continue around the clock for approximately six days with 1,200 sorties on the first day, and 900 per day thereafter. Operations would commence with a multiaxis, multitarget night strike, with a follow-on attack that same night. Thereafter, the air forces would attack throughout the 24-hour period (A.M./P.M./night). On days 1 and 2 the aircraft would cover the strategic target list; on days 3 and 4 they would reattack on the basis of bomb damage assessments (BDAs) and emphasize targets with offensive capabilities; and on days 5 and 6 they would make a maximum effort against CW production and military-support infrastructure.⁴⁴

Neither at this time nor at the briefing of August 10 did General Schwarzkopf question the plan's six-day timetable. In fact, at the earlier brief, he had calculated that the time would probably fit into practical political considerations: two days of attack, two days of UN debate and vote on the attack, and a 48-hour deadline to a UN-imposed cease-fire. Nor did General Powell raise objection to the time schedule when he heard the brief on August 11.⁴⁵

Instant Thunder contained an execution plan for the first day. At one hour after sunset, the first wave of 163 sorties would engage air defense headquarters and systems, CW-capable airfields, the Presidential Palace in Baghdad, electrical power plants, and telecommunications. This attacking echelon relied heavily on the impact of numerous LRBs that would impact as the aircraft egressed. The briefing expanded its explanation of the activities of the first wave by supplying a campaign flow chart delineating the mission and exact target of each aircraft in the wave. One hour before sunrise, the second wave of 131 sorties would hit the southern airfields and CW and leadership targets. In addition to the strike and supporting aircraft, Coalition forces would retain almost 300 fighters for contingencies as well as the 24-hour manning of barrier CAPs and protection of high-value airborne assets (HVAAAs) such as AWACS, Hawkeyes, and airborne battle-field command, control, and communications (ABCCC) aircraft.⁴⁶

During the first two days of the strategic campaign, the execution plan further required a major SEAD effort, which projected the use of high-speed anti-radiation missiles (HARMs) to suppress or destroy SAM sites. After the initial SEAD effort, the cumulative damage to the Iraqi air defenses would allow for

44. Brfg Slides 12-16, Instant Thunder Brief, Aug 24, 1990.

45. Audiotape, Col. Warden, Mar 2, 1993.

46. Brfg Slides 17, 18, 22, Instant Thunder Brief, Aug 24, 1990.

On Target

force packaging heavier on strike aircraft and lighter on support aircraft. Instant Thunder assigned aircraft to targets on the basis of capability, but it employed a somewhat simplistic method of deconfliction. It sent USAF, USN, and USMC aircraft over Iraq according to the target's proximity to the strike aircraft's base. USN aircraft flying from the USS *Eisenhower* and the USS *Saratoga* in the Red Sea would attack targets in an area approximately between the Jordanian border and eastern Baghdad. USAF aircraft would attack the most heavily defended and target-rich region: western Baghdad and central Iraq. USMC aviation, numerically the smallest U.S. contingent, would concentrate on southern and central Iraq, while USN aircraft flying from the USS *Independence* in the Arabian Sea would strike targets around Iraq's second largest city, Basra, and Iraq's naval base at Umm Qasr. Although the presentation noted that deception operations were not critical for success, it observed that they would reduce casualties and facilitate military operations. One fact cannot be emphasized too heavily—Instant Thunder made PSYOP a critical element of the campaign. It called for destruction of Iraqi television and broadcast stations and the substitution of U.S. broadcasts, and for the separation of Saddam's regime from the support of the people and military. The planners conceived of Instant Thunder as a war-winning plan, not just a blueprint to punish Iraq. Punishment alone would not alienate the populace from the regime. That is why the planners believed it necessary to destroy the regime's means of communications with the people (TV and radio transmitters) and its means of control (the Baath Party Headquarters and associated buildings and the intelligence and security agencies) and to shake the population's and the ruling elite's faith in the regime by demonstrating that the government itself was vulnerable to attack. Colonel Warden promised that the air campaign "would isolate and incapacitate the regime and create the conditions under which Saddam's departure from power would be more likely."⁴⁷ The extreme concentration on attacking political and leadership targets had never before served as a focus of an extended strategic bombing plan. The implicit promise of Instant Thunder to bring about a change in the Iraqi government represented a leap into unknown territory and an extremely far-reaching assertion of the potency of air power. By assuming that Saddam's highly centralized state would prove vulnerable to the type of leadership and PSYOP attack proposed, Instant Thunder promised to fatally undermine the current Iraqi regime, a promise that committed it to a formidable task.

The planners expected the campaign's results to match its major goals:

National leadership command and control destroyed,
Iraq's strategic offense and defense, including missiles and long-range aircraft,
eliminated for an extended period,

47. See Review Comments, Lt. Col. B. E. Harvey, Dec 1992 [All review comments held in the custody of the Air Force History Support Office (AFHSO), Bolling AFB, D.C.]. Colonel Harvey was one of Colonel Warden's close associates during the creation of Instant Thunder; he attended all major Instant Thunder briefings, August 9–20, 1990.

The Offensive Air Campaign Plan

Iraq's internal economy disrupted,
Iraq's capability to export oil not significantly degraded, and
Iraqi military reduced to a strength that would allow the combat capabilities of
the nations of the Arabian Peninsula to effectively counter it.

If Iraq responded to Instant Thunder by attacking Saudi Arabia, the planners pointed to the availability within the AOR of 96 A-10s, 40 AV-8Bs, 36 F/A-18s, and 105 attack helicopters for air-to-ground strike missions. Also, some of the targets addressed by Instant Thunder (such as air superiority, C², and interdiction) would severely impact any Iraqi ground offensive. Together, Instant Thunder and battlefield air could stop any ground advance, with only a minimal impact on the strategic air campaign.⁴⁸

According to the authors of Instant Thunder, certain possible logistical shortcomings and other limiting factors could hamper the operation. Among the munitions problems, the planners considered the availability of HARMs (AGM-88s)—1,100 of which still awaited airlift from USAF stocks in Europe—and the availability of I-2000 hard-target penetrating bomb bodies for the GBU-27—163 of which had not arrived from stocks in Europe. Furthermore, the ground refueling capacity of Saudi bases might not meet sortie surge requirements, and the strategic campaign required a munitions supply line from port to base, which would assure that sufficient assembled complete rounds were present at the point of use. The authors also noted that the plan would require constant updating to reflect the latest intelligence and the political status of nations in the region, and they pointed out that the EC-130 Volant Solo had not yet been included in planning. The final item addressed a concern that would plague operations throughout the USAF presence in the peninsula: CSAR. The briefing observed that the Joint Rescue Coordination Center at Scott AFB, Illinois, had no orders and ought to be collocated with the TACC in Saudi Arabia.⁴⁹

The Instant Thunder strategic air campaign would serve as the basis for the offensive air campaign plan eventually employed against Iraq. The plan had many strong points, most arising from the air power philosophies underlying its development. As promised, it pitted American strengths against Iraqi weaknesses, it attacked well-considered centers of gravity, and it maximized the use of PGMs. In a country with a leadership as centralized as Iraq's, the priority given to disrupting C² promised excellent results. In short, the plan would have created havoc and chaos throughout Iraq.

Instant Thunder also had its flaws, many in tactical or operational details that might have seriously hampered its execution. Its simplistic air control scheme would probably have broken down. Due to insufficient intelligence information, it failed to schedule important sites and facilities for attack. Some of these targets, such as Scud sites, left intact missiles within range of Israel, con-

48. Brfg Slides 20, 23–25, Instant Thunder Brief, Aug 24, 1990.

49. Brfg Slides 27–30, Instant Thunder Brief, Aug 24, 1990.

On Target

ferring on them a prime political importance. The plan also appeared to rely too heavily on B-52G-carried ALCMs, perhaps in order to cover targets in northern Iraq. The limited numbers of these missiles would probably have made their large-scale use impracticable. The plan's treatment of a possible Iraqi ground riposte seemed cavalier, as did its bland assurance that such a maneuver would not impede execution of the strategic campaign, which seemed too optimistic. The planners' charter provides expiation for this: General Schwarzkopf had ordered a plan oriented to the offensive and had specifically stated that CENTAF would handle the defensive air aspects. Nor was Instant Thunder an OPORD based on available in-place forces. It required repositioning and additional tactical and operational planning to go into effect.⁵⁰ Finally and most seriously for the cause of air power, the planners fell into the classic error of overpromise as to results. Nothing could have more fatally harmed their concepts. Given the original target list and resources, Instant Thunder would probably not have been as decisive as it claimed. Nonetheless, when considered in its entirety, the plan supplied a sound conceptual foundation for further work.

The Checkmate planners had traveled to MacDill AFB on August 17 in the expectation that they would hand over the OPORD, give a complete concept brief, and return to Washington, having completed their task of assisting the CINCCENT in the preparation of an offensive air campaign. Indeed General Schwarzkopf received the brief enthusiastically, so enthusiastically that he told Checkmate to "take it over and brief General Horner."⁵¹ On the aircraft back to Washington that day, Colonel Warden selected his original brainstorming core team—Colonels Harvey, Deptula, and Stanfill—to fly to Riyadh with him to present the Instant Thunder brief. That evening, Colonel Deptula and his boss, Secretary of the Air Force Rice, discussed the meeting with the CINCCENT. Dr. Rice asked for the possible execution date of Instant Thunder. Colonel Deptula responded that thinking currently centered on the end of September 1990. Then the secretary indicated the desirability of an earlier execution date. The colonel allowed that some planners had discussed mid-September. Dr. Rice wondered if a still earlier date, such as September 6, might be possible. At that point, the CSAF, General Dugan, entered the room and joined the conversation. He too wished for an early execution date.⁵² This high-level desire for an early date undoubtedly added to the pressure on the Checkmate planners. Secretary Rice and General Dugan apparently believed that the sooner they could offer this plan as executable to the National Command Authorities (NCA), the better. First, the sooner its execution, the less time the Iraqis would have to entrench in Kuwait. Second, even if not executed, it gave the president a useful policy option, and a president seldom has too many arrows in his quiver.

50. Review Comments, Col. Harvey, Dec 1992.

51. Intvw, Lt. Col. Deptula, Nov 1, 1990.

52. Intvw, Lt. Col. Deptula, Nov 20, 1991.

Instant Thunder Transformed into the Offensive Air Campaign Plan

When the Checkmate planners arrived in Riyadh and presented Instant Thunder to General Horner at CENTCOM Forward, they would find that the hot Arabian summer sun could not prevent a chilly reception. General Horner, of course, expected to receive some type of “air plan” because General Schwarzkopf had informed him on August 7, just before returning to the United States, that he intended to ask the Joint Staff for such a plan.⁵³ In addition General Horner had already heard of Instant Thunder twice over, and neither time had it favorably impressed him. On August 9, 1990, the DCS for Plans, HQ TAC, Brig. Gen. Thomas R. Griffith, sent General Horner a message in which he explained that General Robert D. Russ, Commander of TAC, had asked him to review “an Iraqi air campaign plan developed by AF/XOX [USAF Directorate of Plans] (supposedly with the blessing of General Schwarzkopf).”⁵⁴ General Griffith described the earliest Instant Thunder notional briefing held August 8, and offered a TAC-authored alternative. The TAC alternative illustrated the differences in approach between the Deputy Directorate for Warfighting Concepts and the TAC staff. The TAC plan placed all air assets under the JFACC. It added a defensive air component giving air a deterrent role and required air to “establish a visible defensive air posture” to aid in the enforcement of economic sanctions and to defend and preserve the independence of Saudi Arabia. Offensively, air would gain air superiority, “attack and destroy all means to conduct chemical [CW] operations,” interdict critical items of resupply to Iraqi field forces,” and “support ground scheme of maneuver of ground force commander.” Once the ground offensive started, air would conduct extensive CAS and battlefield air interdiction operations to support it. On order, air would extend strategic bombing to include economic targets. The TAC target list included CW and strategic delivery systems as first priority, then it specified oil. But the target list had only a generic term, “strategic targets,” and it envisioned bombing divisions and higher military echelons, the integrated air defense system, and national communications to the field forces. Whereas Checkmate, at the CINCCENT’s specific request, had confined itself to a plan relying solely on air power and working independently to bring Iraq low, TAC drew up a more conventional and traditional plan. Although both plans treated air as a component force supporting the Unified Command, the TAC plan conformed to the role expected of the USAF in almost all Unified CINC planning. On his copy of the message, General Horner, referring to Instant Thunder or the TAC plan, or more likely both, wrote, “How can a person in an Ivory Tower far from the front, not knowing what needs to be done (guidance), write such a message? Will wonders never cease?” General

53. Intvw, Lt. Gen. Horner, Mar 4, 1992.

54. Msg, 100145Z Aug 90, Brig. Gen. Griffith, TACOPS, Langley AFB, VA//XP//, for Lt. Gen. Horner, CENTCOM FWD, Subj: Air Campaign Briefing [File No. CK/DS/Deptula/Box 5].

On Target

Horner may have found suggestions from TAC headquarters at Langley AFB, Virginia, as objectionable as those from the Pentagon in Washington.

A few days later, between August 14th and 17th, General Horner received a briefing based on a more mature version of the Instant Thunder plan from Lt. Col. Steven Wilson. General Adams had sent Colonel Wilson to Riyadh to act as facilitator from the Air Staff to assist CENTAF on bed-down and other matters. When Colonel Wilson left the Pentagon on August 12, he obtained the slides of the Instant Thunder brief from Colonel Deptula. Colonel Wilson walked through the brief with General Horner, but Colonel Wilson had not participated in the plan's development and he did not know many of the subtle points nor the reasoning that lay behind various aspects of it. The general put Colonel Wilson through an extremely tough session, and the Colonel's understandable inability to fully explicate the plan must have raised further doubts in General Horner's mind about the validity of a concept prepared for him without his knowledge or participation. General Horner noted that during this period General Adams had called to assure him that the Air Staff had no intention of usurping his planning functions and meant only to suggest targeting.⁵⁵ General Horner reflected his negative feelings when General Schwarzkopf called to inform him of the Air Staff's role in the planning. General Schwarzkopf recalled that when he told General Horner, the general was "upset" and said, "I'm the air component commander." General Horner stated that this was "Washington interference and Vietnam all over again." General Schwarzkopf tried to reassure him and promised to send the plan over.⁵⁶ Later that day, General Horner called General Glosston, second in command of the Joint Task Force (JTF) Middle East, and asked him to come to Riyadh and begin thinking about putting an air campaign together.⁵⁷ General Glosston had worked closely with General Horner at various stages in his career, including as executive officer and squadron commander at Nellis AFB, Nevada, and as wing commander of the 1st TFW at Langley AFB.

The Checkmate team left Washington on August 18 and flew into Riyadh the next day, blissfully unaware that General Schwarzkopf had, in effect, sandbagged them. They presented their briefing to the CENTAF staff that evening and to General Horner on the afternoon of August 20. The participants agree on the outline of their presentation. One described the atmosphere of the latter briefing as "tense."⁵⁸ Both General Horner and Colonel Warden agree that they had two sharp exchanges during the brief. At one point, General Horner stated that stopping Iraqi tanks from entering Saudi Arabia currently concerned him more than mounting an immediate attack on targets deep in Iraq. Colonel Warden dis-

55. Intvw, Lt. Gen. Horner, Mar 4, 1992.

56. Telecon, Gen. Schwarzkopf, May 5, 1992; Schwarzkopf, *It Doesn't Take a Hero*, p. 320.

57. Intvw, Maj. Gen. Buster C. Glosston with Drs. Richard G. Davis, Diane T. Putney, and Perry D. Jamieson, CAFH, at Bolling AFB, D.C., Dec 12, 1991.

58. Intvw, Lt. Col. Deptula, Nov 20, 1991.

The Offensive Air Campaign Plan

missed this with a reference to traditionally slow overall average rate of advance of armored ground forces. The two men also clashed over the use of the word “strategic” in the brief,⁵⁹ and they disagreed over the effectiveness of PGMs versus precision-delivered weapons, with General Horner, an F-16 pilot, confident of the accuracy of the latter.⁶⁰ Somewhat later, General Horner asked Colonel Warden to return to Washington and to leave his superstars behind—Colonels Deptula, Harvey, and Stanfill.

This is the instant when Colonel Warden retreats from center stage. He had imposed his targeting philosophy on the offensive air campaign and had sold it to Generals Powell and Schwarzkopf—crucial for its eventual success. In the months to come, Colonel Warden would perform the important, but secondary, roles of supplying valuable intelligence information and additional planning from Washington to the theater and of running interference for the theater in fulfilling its requests for aid.

Shortly after the war, in April 1991, General Horner recalled his criticisms of Instant Thunder. He acknowledged the excellence of Checkmate’s target materials and praised the new intelligence they gave him on munitions production and storage, research and development, and Iraqi C². However, Checkmate had built a “seriously flawed” campaign that lacked depth in terms of air operations. The planners did not fully understand how to conduct their operations. Instant Thunder “was very poor” in terms of execution and failed to account for protecting the force and in providing for an Iraqi ground-forces attack from Kuwait. “It was very embryonic,” he added, “and really didn’t withstand the common-sense test.”⁶¹ General Horner’s opinion of Instant Thunder reflected the concerns of a man occupying two difficult positions. In the near future as the JFACC he would coordinate the entire AOR air component. This would make him the man responsible for executing Instant Thunder. He also commanded CENTCOM Forward which, until General Schwarzkopf’s return to the AOR, made him the officer who would control all American forces in Saudi Arabia for the first crucial hours should the Iraqis cross the border, as they might at any minute. In addition to his professional concerns, much anecdotal evidence suggests that General Horner found the Air Staff messengers more objectionable than the message. Instant Thunder’s concept of a strategic air campaign had gained endorsement from both Generals Powell and Schwarzkopf, but Colonel Warden, Checkmate, and doctrinal portions of the Air Staff did not seem appropriate or competent vehicles to prepare the CENTCOM offensive air plan. Hence, General Horner directed Colonel Warden to return stateside, but he kept Warden’s key planners. They could remain and apply their expertise to preparing a CENTAF offensive air plan, for which General Horner, because of pressing needs elsewhere, had

59. Intvw, Col. Warden, Feb 6, 1992; Intvw, Lt. Gen. Charles A. Horner with Lt. Cols. Suzanne Gehri and Richard Reynolds, CADRE, ARI, Dec 3, 1991.

60. Review Comments, Col. Harvey, Dec 1992.

61. Audiotape Transcript, General Horner Comments, n.d. [Apr 1991].

On Target

heretofore been unable to allocate manpower. General Horner may have changed some of the players, but most important, he established an offensive campaign planning group within the theater. This new group would turn a conceptual plan into reality.

Other CENTAF participants in the briefing reflected General Horner's views. In a phrase, they summed up Instant Thunder as "a good idea, but a bad sell." For them it resurrected the specter of Vietnam when President Lyndon B. Johnson and Secretary of Defense Robert S. McNamara's whiz kids in the Pentagon had controlled targeting from more than 10,000 miles away.⁶² They further perceived the presentation as saying "here's *your* plan," rather than saying "here's *a* plan." Whereas Checkmate had brought in dozens of planners and had spent a week working on an executable air plan—quite an effort from their perspective—the CENTAF staff saw an incomplete plan, with no ATO, that did not reflect the manner in which they dealt with real-world air operations. The plan also struck the CENTAF staff as a case of parallel development of a notion-al plan to punish Iraq, one that they had assembled in the beginning of the month. In all probability, the CENTAF staff, a cohesive body of long-service officers, may have felt a few pangs of the traditional resentment of many field organizations toward higher headquarters and outsiders, but most of the staff put such feelings aside and conducted themselves in a professional, though perhaps not enthusiastic, manner toward the offensive air campaign planners.

On the evening of August 21, General Horner appointed General Glosson as Director, CENTAF Campaign Plans. General Glosson had just vacated his position as Deputy Commander, JTF Middle East, where his duties in relation to Exercise Ivory Justice had helped him develop smooth working relations with Gulf leaders, with General Schwarzkopf, and with the CENTCOM staff. In the months to come, General Glosson formed a solid relationship with General Schwarzkopf on air matters. General Glosson also had exceptionally good connections in Washington, where he had served as Deputy Assistant Secretary of Defense for Legislative Affairs just before his posting to the Persian Gulf.⁶³ General Horner instructed General Glosson to put together an executable offensive air plan against Iraq. Horner expected Glosson to have the plan ready for presentation to Generals Schwarzkopf and Powell by September 15.⁶⁴

General Glosson's appointment gave him the opportunity to become one of the principal actors in the offensive air campaign. A man of great energy, he used it to overcome the objections of others to the plan and to work around bureaucratic and physical obstacles. In short order he assumed the role of the plan's chief spokesman, explicating and justifying it to audiences as disparate as the in-theater USAF wing commanders and the President of the United States.

62. Intvw, Col. Crigger, Mar 5, 1992.

63. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993.

64. Intvw, Brig. Gen. Buster C. Glosson, Dir CENTAF Campaign Plans, with TSgt. Theodore J. Turner, CENTAF/HO, Oct 17, 1990.

The Offensive Air Campaign Plan

The next morning, when General Glosson took command of the three former Instant Thunder colonels and of Colonel Wilson from the Air Staff, he found a group of frustrated officers. In the jockeying for resources, manpower, office space, supplies, and equipment, they had lost out at every turn to the already established CENTAF staff sections. Quite understandably they saw this as a case of bureaucratic obstructionism. But the CENTAF staff had its own priorities and had little to share in the way of assets or time. The RSAF could only provide space by moving their people out of offices or opening up nonsecure storerooms. The need for a secure working area led General Glosson to appropriate for the planners a 20 x 40 foot conference room adjacent to General Horner's office on the third floor of the RSAF HQ building in Riyadh. The room had two doors: one to the office shared by Generals Horner and Olsen; the other to the hallway. To provide expertise in each of the USAF weapons systems in-theater, General Glosson had each wing provide two representatives to the planning group. Soon twenty officers, working day and night with an average of four hours' sleep per day, occupied the space. Quite literally during this period, an officer would crawl under a table or desk to catch a quick nap. Five of the officers, hand-picked by CENTAF Director of Operations Col. James R. Crigger, belonged to the Ninth Air Force/CENTAF staff, and they brought with them their expertise in creating an executable ATO and their knowledge of local circumstances. They immediately set about restructuring Instant Thunder's communications and IFF plans to conform to conditions already existing in the AOR, especially the USAF-RSAF air defense network.⁶⁵

The campaign planners, a group of outsiders competing against an interlocking series of previously established personal and professional relationships within the CENTAF staff, perceived themselves as victims of a classic bureaucratic "slow roll" that systematically denied them the resources they required to fulfill their mission. The campaign planners pointed to several circumstances in support of their contention. They had no permanently assigned clerical personnel but had to make do with three part-timers, assigned to other units, who worked three eight-hour shifts doing word processing on a desktop PC in another office on an as-available basis. Apparently, the great CENTAF Forward PC famine, although intense, had been short-lived. The special planners complained that the regular CENTAF planning staff failed to relinquish any of its eight desktop PCs and allocated only two laptop PCs to the campaign planners.⁶⁶ This eventually forced General Glosson to purchase a Macintosh PC for \$5,000 in the open market in Riyadh to give the unit some computing power. These limitations

65. Intvw, Lt. Col. Waterstreet, Mar 6, 1992; Ltr, Horner to Hallion, Subj: Review/Comments on Draft Manuscript, Dec 8, 1992.

66. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 9. Colonel Deptula is vehement in his recollection that CENTAF had a relative abundance of PCs, none of which came the campaign planners' way.

On Target

made it difficult to use software designed to aid in preparing ATOs and to establish a working interactive data base for targeting.⁶⁷

Security and intelligence considerations, some of which stemmed from legitimate operational and diplomatic concerns and others from years of peacetime routinization within the services' and the nation's security and intelligence communities, further isolated the campaign planners. In the beginning, Generals Schwarzkopf and Horner wished to conceal the existence of a plans group working on the implementation of an American air attack on Iraq. Revelation of such a resolve at this critical juncture might inspire U.S. domestic opposition or, worse still, disrupt the Coalition-building efforts of U.S. diplomacy. Revelation of the plan might possibly even provoke Saddam into preemptive actions, causing the very state of affairs that the United States had intervened to prevent. Those reasons alone justified the campaign planning group's establishment as a security classified compartmented activity.

The nature of the campaign planners' work demanded that they have access to intelligence, such as satellite imagery, and weapons systems data, such as black-world developments that carried the requirement for information to be classified as Sensitive Compartmented Information (SCI). But the planners' work area was not rated as a Sensitive Compartmented Information Facility (SCIF) and, therefore, was not supposed to contain SCI. The CENTAF SCIF occupied a building a ten-minute-walk away. This either put the campaign planners at a serious disadvantage or forced them to bend the security rules. Security rules placed an additional burden on the unit by defining its work as a special access-required activity, which imposed strict security requirements as to the planners' ability to discuss their work with persons not having the appropriate clearance. This further interfered with the planners' work by severely limiting their ability to conduct integrated operational research across the different service communities. It also isolated them from the CENTAF/IN staff and led to the unit's nickname. CENTAF headquarters staffers soon noticed that information and personnel sent to the CENTAF special planning group never seemed to come out (because of security restrictions). Comparing this to the phenomenon of a collapsed star, whose great density gives it gravity so powerful that nothing, not even light, can escape it, CENTAF staffers dubbed the special planning group the "Black Hole," an analogy whose many aspects summed up the CENTAF staff's opinions.

From the beginning, the intelligence community failed to satisfy the requirements of the campaign planners. When Checkmate had briefed General Schwarzkopf on August 17, it had already prepared a target folder for each of Instant Thunder's eighty-four targets. However, when Colonel Warden prepared to take the brief to Riyadh, the director of targets for the Assistant Chief of Staff, Intelligence, Colonel Blackburn (whose Air Staff unit had helped prepare the mater-

67. File 201, Desert Storm Monograph Project, AFHSO.

The Offensive Air Campaign Plan

ial), insisted instead upon sending the folders to the Defense Mapping Agency for mensuration of the coordinates. Colonel Blackburn also sent copies to CENTCOM/IN and kept a copy for himself. The Checkmate planners never saw the folders again. The campaign planners had difficulty in getting target imagery from CENTAF/IN; furthermore, in the first few weeks their lack of specialized equipment to read imagery would have also hampered them.⁶⁸ The combined lack of support, lack of cooperation, their isolation, and the scarcity of appropriate information, coupled with the pressure to produce an executable offensive campaign plan, forced the planners to literally return to the basics.

General Glosson immediately made two contributions: he obtained intelligence information from CENTAF/IN and he had each of the combat wings send two officers to the planning cell. These officers served as extra hands in the physical processing of the ATO, and more importantly, they performed a quality control function by supplying specific expertise about the capabilities of their weapons systems. They further served as a planning liaison with their units. Both Generals Horner and Glosson thought the latter action firmly grounded the planners within the theater.⁶⁹ In the initial days, General Horner regarded contact with Checkmate with suspicion, but by the end of the campaign he and General Glosson both acknowledged the important contributions of that unit. Checkmate served as an intelligence fusion center. It gathered information from the DIA, CIA, the Air Force Intelligence Agency, and other sources and passed it to the planning cell. This information proved inordinately valuable because of the inability to obtain timely intelligence through normal channels. General Glosson further raided CENTAF for officers experienced in logistics, operations, plans, intelligence, electronic combat, the building of execution orders, and the assembling of ATOs. He also used his own wide array of personal and agency contacts to contribute to the flow of information into the special planners.

Within two weeks, Colonels Harvey, Wilson, and Stanfill returned to the Pentagon, while Colonel Deptula remained in the theater. Whereas Colonel Warden had steered the planning process until Instant Thunder's arrival in-theater, General Glosson and Colonel Deptula guided it thereafter. General Glosson's energy, can-do ability to produce results and support when requested, and easy working relationships with his superiors greatly eased the progress of the planning process. Colonel Deptula kept the plan true to its ideological roots and planned (and in essence controlled) the attacks on Iraq's strategic targets. Without his overarching direction, the strategic offensive might have assumed a very different shape. Colonel Deptula, the man with the responsibility for preparing the MAP, the centerpiece of the offensive air campaign, had not only worked with Colonel Warden but had spent a tour of duty flying F-15Cs directly under General Horner's command. Deptula quickly established an excellent relation-

68. Ibid.

69. Intvw, Brig. Gen. Glosson, Oct 17, 1990.

On Target

ship with General Glosson as well. Both wore the patch of the USAF Fighter Weapons School, whose fighter-pilot graduates regarded themselves as in the front rank of their profession. Colonel Deptula believed he had General Glosson's confidence, and the general valued the colonel's ability to combine and give equal weight to both concepts and operational reality.

Even if they desired to do otherwise, which they did not, the pressure-cooker situation of the planning cell would have forced its members to use Instant Thunder as the basis of their work, for they had nothing else. General Glosson noted with some chagrin the group's surprise in discovering that "we did not have a [CENTCOM] plan, in being, that we could just modify to our particular situation."⁷⁰ Most of the campaign planners worked almost nonstop to prepare an executable plan, which, as far as they calculated, might go into effect immediately. A far smaller group proceeded to prepare for General Horner a brief to give to General Schwarzkopf explaining the offensive air campaign. The group simply proceeded to convert Instant Thunder to a CENTAF product, taking special care to "change some things that were said in the [Instant Thunder] briefing to adjust to [local] sensitivities."⁷¹ When General Glosson presented the brief on August 26 to General Horner, Brig. Gen. Lawrence Henry (in charge of CENTAF electronic warfare), Brig. Gen. Patrick Caruana (who commanded the SAC B-52Gs and tankers under CENTAF), and Colonel Crigger (head of CENTAF Operations), General Horner called the briefing "terrible" and "confused" and figuratively threw General Glosson from his office. As General Horner later observed, the briefing still had too much Instant Thunder in it.⁷² With General Horner's additional directions, the planners reconfigured the presentation and produced, within approximately two weeks, a brief acceptable to General Horner. The brief employed maps and acetate overlays that addressed the air campaign in terms of sequencing missions and targeting. This presentation eventually reached the JCS and NCA.⁷³ It gave General Horner, in the first week of September, an overview of the plan that he could support and defend to General Schwarzkopf and to others.⁷⁴ The brief also allowed General Horner to familiarize himself with Instant Thunder's targeting philosophy and the layout of the initial attacks. He thoroughly questioned the briefing authors on the whys and wherefores of their work.

This attention paid to a briefing might seem disproportionate, but as one can surmise from the preceding information, briefings and the concomitant interchanges among participants represent one of the principal methods of transmitting thoughts and concepts within the higher levels of the U.S. military. In a forum stressing both brevity and conciseness in speech and skill in using spe-

70. Ibid.

71. Intvw, Lt. Col. Deptula, Nov 1, 1990.

72. Intvw, Lt. Gen. Horner, Dec 3, 1991.

73. Audiotape Transcript, Gen. Horner Comments, n.d. [Apr 1991].

74. Intvw, Lt. Col. Deptula, Nov 20, 1991.

The Offensive Air Campaign Plan

cialized jargon and technical terms to convey difficult concepts, the graphical layout of a briefing matters greatly because it either helps or hinders an easy comprehension of the ideas presented. The very process of delivering or sponsoring this new brief would publicly commit General Horner to the air campaign plan and the concepts behind it.

Not only briefings, but the practical problems of preparing an executable war plan engaged the campaign planners' attention. In addition to their general lack of resources and their directive to produce a plan in a week to ten days, two major problems—lack of hard intelligence data and the standard method of apportioning attacking assets to specific targets—militated against the adoption of traditional attack-planning routines. Within the USAF, targeting had become a highly standardized process, in part because of the accumulated inertia of almost twenty years of peacetime thinking and in part because of the need for the service's educational system to present its instructional material in a coherent, simplified manner that would ease both instruction and the learning process. After the traditional targeteer received the target list, he determined the desired percentage of destruction for a particular target. Then he determined the number and type of weapons needed on-target (which could vary according to the delivery platform) to assure the desired level of destruction, and he transferred that data to the target-planning worksheets. The Joint Munitions Effects Manual outlined and assisted in this procedure. Next, the traditional planners would assemble a force package based on both the aircraft needed to assure destruction and the aircraft needed to protect the bomb-droppers from the enemy's defense array. Hence, a force package would contain a certain number of weapons carriers, a certain number of SEAD aircraft, a defined number of force-protection aircraft, and additional aircraft providing air cover to protect the other aircraft approaching the target—all to ensure achievement of the desired level of destruction. The traditional planner would continue down the target list, determining levels of destruction and preparing force packages until he had apportioned all attack assets. As noted earlier, this conventional method of planning emphasized destruction and was, therefore, antithetical to the Warden group's basic premises of shock and effect. Additionally, the traditional method depended on the availability of overhead imagery, and Colonel Deptula did not have access to a complete stock of it. Nor did he have the luxury of time; the frenzied press for an immediately executable plan meant he could not wait for imagery to become available. He started without it. This led to some inappropriate targeting, such as assigning F/A-18s, which lacked penetrating munitions, to attack regional command posts that were providing enemy air defense information but were not known to be hardened. The eventual arrival of imagery in the five months before the actual execution of the air offensive allowed for correction of such errors, but the lack of imagery did not delay planning.⁷⁵ As Colonel Deptula explained:

75. See Intvws, Lt. Col. Deptula, Nov 1, 1990, and Nov 20, 1991, for a detailed discussion of this problem.

On Target

“The combination of my focus on achieving effects rather than absolute destruction, the lack of available imagery, the pressure to turn out an executable plan quickly, plus the capabilities of stealth resulted in the conception of attack scheme based on the simultaneous, or carefully sequenced, attack on multiple, usually inter-related, targets.” By utilizing this principle of “simultaneity,” Colonel Deptula hoped to substantially increase the shock delivered to the enemy. In employing simultaneity, he also rejected the more traditional methods of attack-sequencing, such as beginning the air campaign with a “roll-back campaign” that concentrated on suppression of first-line enemy air defenses, with successive attacks on deeper air defenses, and only after the success of the roll-back phase, of switching to interdiction or strategic bombing. Stealth technology, which gave virtual immunity from enemy air defenses, eliminated the need for an extensive roll-back campaign. General Glosson endorsed the scheme and overrode the objections of CENTAF planners and intelligence targeteers.⁷⁶

Colonel Deptula’s objection to the traditional manner of force-packaging attack assets on the basis of levels of destruction went to the heart of the matter. Simply put, traditional force-packaging severely limits the number of targets hit at any one time. Also, the conventional methods ranked or prioritized targets in strict order of importance, and then matched the force packages against them until the daily attack assets ran out. The next day the attacks would resume, in ranked order, against targets not previously struck. General Glosson’s air campaign planners, who had authored Instant Thunder and had championed many of the concepts of the Warden group, wished to emphasize simultaneity and effect, not destruction. For example, instead of attempting to achieve 80-percent destruction of fifteen CW storage areas scattered throughout Iraq on a single day, thereby dispersing the effort and forfeiting the advantages of saturating the defenses, and then attempting to achieve the same level of destruction against ten equally scattered BW storage areas the subsequent day, as one might well do under the traditional methods, one could go for effect by employing a carefully sequenced series of raids—maximizing mutual protection to the attackers—that dropped over one section of Iraq a few well-placed bombs on key targets belonging to several target groups, thus disrupting a wide spectrum of enemy activities.

During the last ten days of August, as he labored to turn the initial Instant Thunder aircraft allotment and attack flow charts of August 16 and 18 into a new MAP, Colonel Deptula initiated the concept of simultaneity and pushed the concept of bombing for effect to new limits, especially in his use of the F-117A stealth light bomber. He expounded on part of his thinking in this area by making the unarguable observation that if he were working in a building and a one-ton bomb detonated in the adjacent corridor, he might not be hurt, but he surely wouldn’t be operating with 100-percent efficiency for the next few days either.

76. Intvw, Col. Tretler, Jan 14, 1992. Also see Deptula “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993.

The Offensive Air Campaign Plan

In other words, one doesn't have to flatten a facility to disrupt it. Given the number of Iraqi strategic targets, which continually grew as more intelligence arrived, Colonel Deptula confronted a relative shortage of strike assets available. This added to his incentive to avoid overconcentrating on a single target. In the first night, the first wave of Instant Thunder had scheduled eight F-117As each against two targets. Instead of putting thirty-two PGMs on just two targets, Colonel Deptula, driven by numbers and philosophy, gave eighteen of the 37th TFW's F-117As fifteen targets, with three of the fifteen to be attacked by two aircraft. He spread the strikes between four target systems instead of one. In the second wave he intended to send thirty-one F-117As to hit twenty-seven targets and four target systems.⁷⁷ Colonel Deptula had a high, and as it turned out well-considered, confidence in PGMs and in the F-117A's ability to function with operational freedom. In fact, because of its ability to deliver its munitions directly on target, the aircraft not only provided effect, it usually supplied a high level of destruction as well. Few targets in Iraq could survive one or two correctly aimed GBU-27s. The F-117A's combination of extreme accuracy and operational invisibility made it, after the tanker, the most important aircraft in the offensive air campaign. The plan built its force packages exclusively to exploit the Coalition's advantages—for example stealth, night operations, precision cruise missiles, drones, airborne refueling, and night-capable attack helicopters—versus the Iraqis' weaknesses.

In addition to the F-117As, the early September MAP made other decisions that remained permanent parts of subsequent plans. If necessary, the first mission (to consist of four F-15Cs) would be ready to shoot down any airborne Iraqi AWACS 30 minutes before the start of any scheduled hostilities, that is, at H-30 minutes; SOF would take out early warning radars at H-21 minutes; then F-117As would destroy the Nukhayb intercept operations center (IOC) at H-09 minutes. This would allow F-15Es to attack Scud sites in Western Iraq while the F-117As that had penetrated earlier worked over the Baghdad area at H+05 minutes. At about H+50 minutes, a large SEAD package would engage the southwestern Baghdad air defenses and attempt to suppress them with HARMs. Also, some of the first day's missions would have drone support (BQM-74s), which would help to distract Iraqi air defenses by giving them realistic but false targets. Checkmate proved particularly important in locating drones owned by the USN (BQM-34s) and those produced by Northrop Aviation for the Saudis (BQM-74s).⁷⁸ Although the Israelis had used drones with great effect for reconnaissance and SEAD in the Lebanon War of 1982, the USAF had seemed uninterested in

77. Lists, Lt. Col. Deptula, Instant Thunder, by Campaign Flow, Aug 16, 1990, and Instant Thunder, by Aircraft Type, Aug 18, 1990; MAP, Sep 16, 1990. Colonel Deptula has stated to the author that he had rescheduled the F-117s by the beginning of September.

78. Msg, 080103Z Sep 90, HQ USAF, XOXW to USCENAF FWD HQs [Col. Warden to Brig. Gen. Glosson], Subj: Drone Support for Instant Thunder [File No. CK/Air Staff/Out-Msg].

On Target

them. In this instance, as elsewhere, the strategic planners demonstrated their willingness to depart from the conventional. However, like Instant Thunder, this initial CENTAF plan did not provide for air attacks on Iraqi ground forces. The plan did incorporate TLAMs and attempted to use them with maximum effect by scheduling one TLAM to land on a military target, mostly in Baghdad, every ten minutes during the daylight hours of the morning.⁷⁹

When Colonel Deptula handed over his first CENTAF MAP to the campaign planning personnel who prepared the ATO, he encountered another glitch in the process which he remarked was “not so much a problem as it was an indication of the limited focus of TAC planners.”⁸⁰ The creators of the Computer Assisted Force Management System (CAFMS)—a software package to aid in the preparation and deconfliction of flight times, flight routes, altitudes, refueling rendezvous, and other details involved in the direction of hundreds of aircraft—had never envisioned controlling aircraft assigned to strategic missions. Colonel Deptula had indicated to the ATO cell that he wanted several strategic attack missions entered, but he was informed that no such mission existed and that the CAFMS was capable of identifying only interdiction, counterair (offensive and defensive as well as SEAD), and CAS missions.

The ATO and the MAP both had vital and distinct positions in the offensive air campaign. According to Chief Planner Colonel Deptula, the MAP represented the end product of planning whereas the ATO represented the process of turning a plan into executable operations. As noted, the MAP focused on achieving desired effects on a target system rather than on a specific level of destruction per target. Each MAP consisted of a sequence of attacks for an individual 24-hour period, and it contained the time on target, target number, target description, number and type of weapons systems, and supporting systems for each strike package. The MAP drove the planning and provided a clear script of what would happen, when it would happen, and who would do it. After the chief planner had assembled the MAP, it was typed into a laptop computer from which tanker experts, assigned to the planning cell from SAC forces controlled by CENTAF, developed the aerial tanker refueling plan based on the MAP’s routing and attack requirements. The air refueling plan contained schedules of tanker tracks, altitudes, fuel offloads, call signs, and air refueling times. SAC personnel clung to the traditional method of building the refueling plan around the OPLAN rather than the reverse, which CENTAF personnel judged more efficient. CAFMS helped create the ATO by splicing the two plans, adding technical information, and fine-tuning the results to ensure that no airspace conflict would occur among the hundreds of fast-moving aircraft traveling at various altitudes and flying to and from Iraq as well as between crowded air bases. Without the ATO, the air-

79. MAP, Sep 16, 1990.

80. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p.

The Offensive Air Campaign Plan

craft could not fly. If the MAP acted as the brain of the offensive air campaign, then the ATO labored as its heart.⁸¹

As one could see, MAP changes due to updated intelligence, new forces, or enemy moves would have reverberations in the ATO. From August 20 through January 16, the MAP and its associated ATO underwent numerous changes and refinements, all requiring reshuffling and redistribution of the changes to the units. By the time of the first two days of preplanned attacks—January 17 and 18, 1991—the MAP and its ATO had converged until they paralleled each other as closely and as smoothly as the rails of a bullet train. Once the air campaign passed the initial attacks, the MAP and the ATO began to diverge as events like timely intelligence and rapidly changing priorities created changes in the ATO after the daily MAP had been completed. In the early weeks of Desert Shield, CENTAF prepared several different ATOs. CENTAF combat operations generated two separate ATOs: the daily training ATO and the defensive ATO. Neither concerned offensive action. Because of its status as a code-word security compartmented function, the strategic planning cell generated its own ATO for the first two days of the operation. For the period before the war, the planning cell provided integrated plans for only the first forty-eight hours. After that time, they assumed that the frictions of warfare would necessitate daily planning to account for the unforeseen and unanticipated. After assembling their ATO, the offensive planners would use the heavy printers of the regular CENTAF ATO division late at night, then lug the 100-page or larger printouts back to their office for verification and packaging. Once they accomplished this, planning group officers boarded C-21s and hand-carried the ATOs to the units.⁸²

The wing commanders learned the details of the offensive planning preparations in the last few days of August when members of the special planning group, hand-carrying copies of the initial offensive ATOs, arrived at the wings. The planners met a mixed reception, and on at least three occasions the wings failed to meet the courier.⁸³ In early September General Glosson fully read the wing commanders into the plan at their meeting in Riyadh. He instructed them to establish a small, secret offensive air campaign planning cell within their wings to review their portions of the MAP and associated ATO for errors and refinements. Later in September CENTAF informed the British Royal Air Force contingent of the plan and accepted an RAF representative into the special campaign planning group. The RAF representative almost immediately made one

81. Talking Paper, Lt. Col. Deptula, Chief Planner, JFACC Special Planning Group, "JFACC Directorate of Campaign Plans," Nov 4, 1991.

82. Intvw, Lt. Col. Deptula, Nov 1 1990; Talking Paper, Lt. Col. Deptula, "JFACC Directorate of Campaign Plans," Nov 4, 1991.

83. Intvw, Comdr. Donald W. McSwain, USN, Office of the CNO, with Dr. Richard G. Davis, CAFH, Bolling AFB, at the Pentagon, Rm 5E613, Apr 7, 1992. The commander escorted the courier and recalls at least three instances when the wing did not meet them. General Glosson confirmed these incidents. Intvw, Maj. Gen. Glosson, Dec 12, 1991.

On Target

valuable contribution: he corrected the planning staff's outdated maps to show the current 1990 Iraqi-Saudi border.⁸⁴

In the last half of August and the first days of September 1990, the offensive air campaign underwent two substantive changes, both originating outside the USAF. First, the offensive air campaign became a portion of the overall CENTCOM war plan; second, the reduction if not destruction of the elite Iraqi Republican Guard became a task assigned to the offensive air campaign. On August 26, the day that he deployed forward to Riyadh, General Schwarzkopf briefed both General Powell and Secretary Cheney on his concept of operations for an offensive campaign. Three weeks earlier President Bush had made such a campaign likely, given Iraqi intransigence, with his public pronouncement that the occupation of Kuwait "would not stand." General Schwarzkopf stated that when directed he would conduct "offensive operations to eject Iraqi forces from Kuwait and restore original Kuwait/Iraq Border." He made seven assumptions:

- Iraq would still hold American citizens hostage,
- Iraqi forces would remain in Kuwait,
- Friendly nations would not restrict U.S. actions,
- Offensive operations would not begin until C+120 days,
- The NCA would authorize cross-border operations into Iraq,
- Iraq would use chemical weapons if attacked, and
- Jordan, Iran, and Israel would maintain their neutrality.

Next General Schwarzkopf broke down his proposed campaign into four phases and summarized each. Phase I, the strategic air campaign, was based on Instant Thunder. When he received the August 17 Instant Thunder briefing, he was "pre-occupied" with the offensive planning already begun at General Powell's orders. When General Schwarzkopf had heard the earlier presentation on August 10, he perceived immediately it went beyond his request for a "retaliation" plan and could serve as an important piece of CENTCOM's plans. In fact he saw that the plan could "double" with the "offensive planning" under way. In the evening of August 17, General Schwarzkopf and his staff put together the four phases of the campaign, which now appeared in their initial form.⁸⁵ He placed the strategic air campaign into context by observing that it would not begin until CENTCOM's ground forces had established adequate ground defenses and that after four to six days of main effort, it would continue at a "reduced level until conflict termination." In Phase II, preparation of the battlefield, air would "improve ground combat ratio adequate for the attack." Phase II would immediately follow Phase I or, if the resources existed, could occur concurrently with Phase I. In Phase II, air would roll back Iraqi air defenses and attack forward-deployed Iraqi ground

84. Intvw, Capt. William Bruner, USAF, GWAPS (NBC and F-111 planning officer, Special Campaign Planning Staff), with Dr. Richard G. Davis, CAFH, at Crystal City, Arlington, Va., Mar 19, 1992.

85. Telecon, Gen Schwarzkopf, May 5, 1992.

The Offensive Air Campaign Plan

forces, their reserves, and their counterattack capability. Phase II would continue throughout the remainder of the conflict, including supplying “continuous and concentrated attacks to produce favorable combat ratios in front of advancing and attacking Coalition ground forces.” In Phase III, assault into Kuwait, the ground forces would retake Kuwait and restore its borders. It would commence when the ground force ratios favored offensive action and would destroy the main Iraqi defenses, isolate the Iraqis in Kuwait City, block Republican Guard counterattacks, and launch a deep attack on Iraqi reserves. Phase III would last until it rendered the main Iraqi forces combat-ineffective, destroyed Iraqi tactical reserves, and isolated Kuwait City. Phase IV, end state, restored the borders, established a multinational defense force, declared a U.S./Pan-Arab victory, and announced U.S. withdrawal intentions. CENTCOM would initiate Phase IV when force ratios favored pursuit or continued attack north of Kuwait City; if it could not procure favorable force ratios, it would establish a defense west of Kuwait City. Phase IV had three priority missions: secure the areas south of Kuwait City, defend Kuwait’s northern and western borders, and clear Kuwait City or conduct any necessary mop-up actions. Phase IV would last until a multinational force assumed the defense of Kuwait.⁸⁶

As one would have expected of an Army four-star general serving as a Unified CINC, General Schwarzkopf proposed a combined air and ground campaign. But he also recognized the advantages of a strategic air campaign, based on the concepts advocated by the Air Staff, for disrupting the Iraqi leadership, crippling Iraq’s strategic offensive and defensive capabilities, and lowering its population’s will to resist. He further saw the utility of allowing the strategic campaign to continue, albeit at a reduced level, throughout the conflict. He assumed, and events confirmed his belief, that if conflict came, the air campaign would not in and of itself force Saddam to concede. Consequently, he planned for a ground offensive, which required that air power would soften enemy ground forces before the battle and would support Coalition ground forces during the conflict. In Phase I the general permitted air power to operate independently; in Phase II he required that it operate in parallel and in a supporting role to perform interdiction and CAS. Interdiction and attack on deep reserves were tasks only air power could perform. As for CAS, at this stage in the planning General Schwarzkopf could not have known that he would eventually receive massive armored reinforcements beyond those already scheduled to deploy. Except for the 24th Infantry Division (Mechanized), he had few heavily armed units, and to undertake an offensive he would need a maximum of air-delivered firepower to overcome his deficiency in artillery and other heavy weapons. In the time before January 17, 1991, many of the details of the offensive against Iraq would change,

86. Brg, “Offensive Campaign: Concept of Operations Outline,” Aug 26, 1990 [File No. CK/DS/CENTCOM]. This copy carries the following annotation: “Schwarzkopf Brief to CJCS/SECDEF.”

On Target

including the phases, but with this plan General Schwarzkopf had sketched in much of the campaign's eventual outline.

The CENTAF campaign planners learned of their place in the overall plan on August 26 during General Glosson's initial briefing of General Horner when the CENTAF commander informed Glosson of the contents of Schwarzkopf's brief. This did not affect the initial MAPs for the first three days; however, the planning cell began to sketch out a scheme for carrying a reduced strategic attack through Phases II and III as well.⁸⁷ On September 2, at the direction of General Schwarzkopf, General Glosson informed the planning group that the Republican Guard had become an additional, separate target system. This came about, in part, because of General Powell's concerns. As noted previously, during Colonel Warden's August 11 brief to General Powell on Instant Thunder, the CJCS remarked that even if the Iraqis withdrew from Kuwait, he didn't want them to retain an effective ground force. General Schwarzkopf shared this view. According to General Horner, General Schwarzkopf expressed and continued to express concern about the Republican Guard from at least as early as April 1990.⁸⁸ General Schwarzkopf considered the Republican Guard to be Iraq's most effective ground units for providing both defense and power projection. Additionally, he believed that because of their loyalty (bought by special treatment and elitist recruiting) and military effectiveness, these units served as a valuable prop to the regime, providing internal security. Their destruction would serve to destabilize Saddam's hold on the country and ease the tasks of the Coalition ground forces in any future ground conflict. The decision added 28 ground-force targets, which, combined with the 15 military-support production targets already on the campaign target list, produced a subtotal of 43 Republican Guard and military-support targets. The planners further augmented the target list with 15 strategic targets, for an overall gain in excess of 50 percent, from 84 to 127.

Initially, the Checkmate planners, who had placed the Republican Guard (as a fielded military force) in the outermost of their five strategic rings, had reservations about adding it to their target sets. Colonel Warden pointed to the difficulty of locating and identifying Republican Guard units that had left Kuwait. Tracking and monitoring them could require significant intelligence assets, and strikes on a dug-in enemy ground force would consume large numbers of weapons to incapacitate cannon fodder, whereas a few weapons on Baghdad might incapacitate the national leadership. Besides, while the Republican Guard remained in the rear, it offered only a low threat to friendly ground forces. Attacking a portion of Iraq's army did not equate with the other targets, such as leadership, C³, and key supply points. Finally, Colonel Warden decried the dedication of large numbers of sorties against "elusive tactical objectives with mar-

87. Intvw, Lt. Col. Deptula, Nov 20, 1990.

88. Intvw, Lt. Gen. Horner, Mar 4, 1992.

The Offensive Air Campaign Plan

ginal/minimal results instead of using these sorties against fixed and achievable targets.” Hitting the Republican Guard could reduce the overall effectiveness of the strategic air campaign.⁸⁹ In spite of this protest, the CINCCENT’s directive to include the Republican Guard in the offensive air campaign became effective immediately.

The addition of ground forces as a target expanded the role of the F-16s in the offensive air campaign. In late August the planners intended to use that aircraft during the first forty-eight hours in a strike on the Al Kut IOC and on limited strikes on CW production on the outskirts of Baghdad. To reach Baghdad, without refueling over Iraqi territory, the F-16s carried external fuel tanks and a reduced ordnance load. The Republican Guard target set offered much closer targets, which eventually permitted even the A-10s to participate in the offensive air campaign. This, in turn, meant the extension of the MAP and its associated ATO to cover all USAF assets in the AOR.

The AOR also contained non-USAF assets. For instance, the RAF had sent Tornado attack aircraft (GR-1s), Tornado fighter aircraft, and an excellent Tornado reconnaissance variant. British representation on the campaign planning staff added to the RAF’s uniformly excellent record of performance and cooperation. The other Coalition air forces cooperated with no serious difficulties, and after some delays most of their governments allowed them to operate over Iraq as well as over Kuwait.

The USMC proved somewhat less cooperative. On August 29 General Glosson and Colonel Deptula briefed the air campaign plan to USMC Air Commander Maj. Gen. Royal Moore. Although General Moore seemed to approve the plan’s basic premises, he agreed to make available to the air campaign plan 100 percent of the Corps’s EA-6s and A-6s, but only 50 percent of its F/A-18s, and none of the AV-8s.⁹⁰

General Moore’s decision may not have been entirely in keeping with one of the longest-standing USAF doctrines—the insistence on placing all air power under a single commander. Yet, given the equally explicit USMC air doctrine requiring that marine air support marine ground forces and given the USMC’s exposed position facing Iraqi armored units, the fact that the campaign plan did not yet include Iraqi ground forces, and the short range of the AV-8s, General Moore might well be said to have been quite cooperative. Doctrine should not overrule obvious common sense. A didactic insistence on putting every single airframe at every single instant under the JFACC might well do more harm to interservice cooperation than the damage incurred by a generous *laissez-faire* attitude. Throughout the course of the campaign, and to his great credit, General Horner, in the interest of harmony, turned a blind eye to the attempts of USN and

89. Msg, 062332Z Sep 90, Col. Warden, XOXW, to Brig. Gen. Glosson, Chief, CENTAF Campaign Planning Unit, Subj: Targeting Iraq’s Republican Guard Army.

90. Intvw, Lt. Col. Deptula, Nov 20, 1991; Audiotape Transcript, General Horner Comments, n.d. [April 1991].

On Target

USMC aviation to circumvent the JFACC process. From the early stages of the campaign, General Horner adopted the position that if, on occasion, the aviation of the other services wished to do their own thing, so be it. He had USAF assets in-theater to perform any task the CINCCENT required.

General Horner affixed his imprimatur to the plan on September 2, 1990. On that date he signed and issued COMUSCENTAF OPOD Offensive Campaign—Phase I.⁹¹ The next day General Glosson presented the revised campaign plan to General Schwarzkopf. Eight days later, on the evening of September 11, General Glosson presented the briefing to Generals Dugan and Adams in Riyadh during the CSAF's visit to the AOR. It apparently conformed to the chief's expectations. The CSAF also brought the special planning group several hundred pounds of targeting material, destined for the target folders of the combat wings. Colonel Deptula collected the material as soon as possible.⁹²

General Powell got the briefing on September 13; by then, the target list had grown to 171 entries. At all three briefings, General Glosson stated that CENTAF could execute the plan as of September 13.⁹³ The final slide of the brief, "RESULTS," revealed how completely CENTAF had adopted the principles of Instant Thunder. The air campaign would "destroy military capability," "eliminate government control," and "generate internal strife," which would "Decapitate [the] Saddam Regime" and result in its "change."⁹⁴ But the new formulation also reduced significantly one possibly crucial aspect of the original Checkmate plan: The CENTAF plan made no overt provision for PSYOP to aid in a campaign to wean the Iraqi people from their state.⁹⁵ In addition, bureaucratic constraints in the United States, including a lack of appropriate Arabic-language programming and delays in its development, further handicapped efforts to conduct PSYOP against Saddam's regime.⁹⁶

Generals Schwarzkopf and Powell not only approved the plan and its execution date, they also made the important decision to have the offensive air campaign plan be their primary response to an Iraqi attack. If necessary, the A-10s

91. OPOD, COMUSCENTAF, Offensive Campaign—Phase I, Sep 2, 1990 [File No. CK/Deptula Box 12].

92. Intvw, Col. Warden, Feb 6, 1992.

93. Intvw, Lt. Col. Deptula, Nov 1, 1990.

94. Brfg Slide, Brig. Gen. Glosson to CJCS, Riyadh, "RESULTS," Sep 13, 1990 [File No. AFHSO microfilm reel 10198, frame 25].

95. Intvw, Lt. Gen. Horner, Mar 4, 1992. Also see Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 14. Colonel Deptula notes that during the conflict the Coalition conducted "several psychological operations," but not to the extent envisioned by Instant Thunder. He further points the finger at the CENTCOM staff bureaucracy which "inhibited" attempts to conduct "some strategic" PSYOP.

96. Intvw, Col. Warden, Feb 6, 1992. Lack of proper material had hounded earlier USAF PSYOP attempts. During Operation Just Cause against Panama, the EC-130 Volant Solo aircraft, for lack of anything better, had adopted the fiendish plan of substituting children's cartoons and old situation comedies for regular Panamanian TV. More substantial cultural differences would obviously lessen the worth of such a tactic over Iraq.

The Offensive Air Campaign Plan

held in reserve would delay the Iraqi ground forces.⁹⁷ This aggressive decision relegated the D-day plan to secondary status and demonstrated the overarching priority Generals Powell and Schwarzkopf gave to damaging Iraq's strategic offensive and defensive capacities and to limiting its prospects for creating future mischief. It showed their faith in the ability of their soldiers and marines, supported with minimal air cover, to defend against Iraqi ground forces. The decision may also simply have shown that, with the Republican Guard withdrawn from Kuwait and replaced by regular Iraqi units, the two generals judged the chances of an attack as low and the efficiency of the regular Iraqi army on the offensive as even lower. By September 15 General Powell had informed the president that the Coalition had sufficient air forces in Saudi Arabia "to execute and sustain an offensive strategic air campaign against Iraq, should he order one."⁹⁸ On September 25, the UN Security Council expanded the maritime blockade, with Cuba voting against it, as specified in Resolution 670 (1990) to include all air travel to and from Iraq. This restricted the Iraqis' ability to obtain crucial spare parts, and it increased their isolation.

During his trip to and from Saudi Arabia, especially during the ten-hour return flight, General Dugan candidly discussed in broad terms and, on the record, aspects of the offensive air campaign plan. He expressed his views on the conduct of a possible conflict against Iraq with reporters of the *Los Angeles Times*, the *Washington Post*, and *Aviation Week & Space Technology*. The *Times* and the *Post* broke the story on Sunday, September 16, 1990. "Senior U.S. Air Force officials" described U.S. war plans as calling for the rapid and massive bombing of key military targets in Iraq and air strikes directed against Saddam and his inner circle. The articles stated that General Dugan had noted that U.S. target planners had assembled lists of Iraqi targets in the following order of priority: air defenses; airfields and warplanes; ballistic missile sites; C³; NBC and munitions plants; and Iraqi armored formations. This order roughly paralleled that of the CENTAF offensive air campaign. "If push comes to shove," General Dugan added, "the cutting edge would be in downtown Baghdad." He explicitly targeted Saddam saying, "He [Saddam] ought to be at the focus of our efforts." Apparently, the general also let slip that Israeli sources had suggested that the most important items to Saddam were his family, personal guard, and mistress. While personalizing the leadership target set on Saddam himself, this emphasis on leadership echoed that of the offensive air campaign. When speaking of the air campaign, General Dugan observed, "We are looking for centers of gravity that air power could take on that would make a difference early on." This statement applied directly to the philosophy underlying the offensive air campaign. General Dugan also spoke of future options and appeared to adopt a view slight-

97. Information Paper, "CINCCENT Campaign Plan Options" (marked, "Given to CSAF [General Merrill A. McPeak] 30 Nov 90"), n.d. This paper was part of a package given to General McPeak to prepare him for a meeting with President Bush at Camp David.

98. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 94.

On Target

ing to the army: “But when you finally get down to violence, in my view it’s [air power] the only option. That does not mean that the ground forces that are there would not be used to intimidate, to demonstrate, to do lots of things. I just don’t see us conducting a big ground invasion.” General Dugan knew that General Schwarzkopf, as his first option, intended to employ the offensive air campaign, and that General Powell agreed to it. After noting that a ground attack could get very “bloody,” he stated, “Our nation has pursued for decades the policy that has substituted machines and technology for human lives. I think especially in this environment we will continue that policy.” When specifically asked if the JCS and General Schwarzkopf concurred with his views, General Dugan stated, “They agree with that policy, yes.”⁹⁹

The CSAF’s remarks alienated General Powell and infuriated Secretary Cheney. The secretary called National Security Advisor Brent Scowcroft, who agreed to state during his appearance on the TV show “Face the Nation” later in the day that General Dugan was not in the chain of command and did not speak for the administration. General Dugan had crossed the line on a strong Secretary of Defense who did not hesitate to publicly reprimand his service chiefs. On March 24, 1989, in his first press conference and after only eight days in office, Secretary Cheney had rebuked General Dugan’s predecessor as CSAF, General Larry D. Welch, for negotiating about strategic missile programs with members of Congress. (Service chiefs do not have the legal authority to negotiate legislation with Congress on behalf of the defense secretary or the president; they may only inform and advise.) In fact, General Welch had permission from Deputy Secretary of Defense William H. Taft IV to talk to members of Congress and to share information on the missile programs. It is not clear whether General Welch ever actually negotiated with the legislators, but Secretary Cheney ensured that in the future his service chiefs would take care to avoid giving the appearance of overstepping their authority. On September 17, after consulting with President Bush and discussing the matter with General Powell, Secretary Cheney fired the CSAF, who became only the second service chief relieved of his office since the end of World War II. The defense secretary cited nine reasons for his decision:

1. General Dugan’s bad judgment,
2. The discussion of operational plans and a priority listing of targets,
3. Acting as the self-appointed spokesman for the JCS and the CINC,
4. The setting of a bad example, especially for USAF personnel,
5. The cavalier treatment of casualties,
6. The citing of an intent to break the executive order banning participation in assassinations,
7. The potential revelation of classified information about size and disposition of American forces,
8. Denigration of the role of the other services, and

99. John D. Morrocco, “U.S. War Plan: Air Strikes to Topple Hussein Regime,” *Aviation Week & Space Technology*, Sep 24, 1990, pp. 16–18. Also see Woodward, *Commanders*, pp. 290–292.

The Offensive Air Campaign Plan

9. Raising sensitive matters of diplomacy, including obtaining targeting information from Israel.¹⁰⁰

General Dugan's departure removed from the service his personal championship of the effort to take a fresh look at service doctrine and methodology, especially the examination of the decisiveness of independent air power such as that undertaken by the Deputy Directorate for Warfighting Concepts. Secretary Cheney nominated, and the Senate confirmed, on October 30, 1990, General Merrill A. McPeak, the Commander of the Pacific Air Forces, as the new CSAF.

Chief of Staff of the USAF, General Merrill A. "Tony" McPeak



General Dugan's dismissal had no discernible effect on the status or details of the offensive air campaign plan. The decision of Generals Powell and Schwarzkopf to implement the plan in response to any Iraqi attack meant that the theories of the Warden group might undergo a trial by fire. If the crisis had reached a resolution before combat, then the air campaign plan would have remained a little-known oddity, more important for its indication of American will to bomb Iraq than for the method used. If CENTAF had returned to its U.S. bases without firing a shot, Instant Thunder would never have excited the fierce debate over its origins and implementation that it has, not only in the services' schools and "doctrine shops," but in plans, operations, and intelligence sections as well.

Refining the Offensive Air Plan

On the afternoon of October 6, 1991, General Powell picked up his secure phone and called General Schwarzkopf. The CJCS ordered the CINCCENT to send a team to Washington to brief the JCS, Secretary Cheney, and "possibly the President" on plans for an offensive land and air campaign against Iraq. General

¹⁰⁰ News Briefing Transcript, SecDef Richard B. Cheney, DoD, OASD (Public Affairs), Monday, Sep 17, 1990, 1430 EDT. Secretary Cheney described his reasons for asking for General Dugan's resignation at this press briefing [Supporting Document I-27, CY 1990 Air Staff Annual History, Air Staff History Branch, AFHSO]. Also see Woodward, *Commanders*, pp. 292-293 and previous pages for General Powell's reaction to General Dugan's statements.

On Target

Schwarzkopf instantly protested with words to the effect that as far as an effective ground campaign went, he had absolutely nothing. General Powell blandly replied, “your offensive air plan is so good that I want these people to hear it, but you can’t brief just the air plan; you must brief the ground plan too.”¹⁰¹ The order to present offensive options to the White House touched General Schwarzkopf’s darkest fear—that the NCA would order him into a risky attack with insufficient force. In his memoirs, General Schwarzkopf stated, “I was now under orders to send in a plan I believed could result in a bloodbath.”¹⁰² The CINCCENT prepared the briefers carefully; warned them not to give optimistic can-do replies to high-level questioning; and gave four slides to the head of the team, CENTCOM Chief of Staff Maj. Gen. Robert B. Johnston, USMC, to present at the end of the brief. On October 10, 1990, the CENTCOM team briefed the JCS and Secretary Cheney in the “tank” in the Pentagon. The next day they gave their presentation at the White House. General Glosson addressed President Bush, Secretary Cheney, General Powell, Secretary of State Baker, White House Chief of Staff Sununu, and National Security Advisor Scowcroft, among others, on the strategic air campaign. Glosson presented the first three phases of the four-phase brief. He started with a discussion of the Iraqi air defense posture and included specifics on the SAM and AAA threats in the H-2 and H-3 airfield areas and in the Baghdad and Basra areas. An examination of major Iraqi airfields and dispersal fields followed. The president asked how the Coalition forces would close the runways. General Glosson replied that RAF and RSAF GR-1s would drop JP-233 munitions which cratered and mined runways and taxiways. F-111Fs with 2,000-pound bombs would additionally crater the runways. Attention then turned to the Iraqi air defense warning and control network. It consisted of the air defense operations center (ADOC) in Baghdad, the five sector operations centers (SOCs)—H-3, Kirkuk, Taji, South, and V (in Kuwait)—and the sixteen IOCs that reported to the SOCs.¹⁰³

After setting the stage, General Glosson began to explain the “offensive air campaign.” It had three centers of gravity: leadership, military forces, and infrastructure. The strike force consisted of the following aircraft:

Combat Aircraft

Aircraft	No.	Aircraft	No.	Aircraft	No.
F-117A	18	GR-1 RAF	200	A-7	22
F-15E	24	GR-1 RSAF	25	F-15C	72
F-111F	32	F-16	12	F-14	54
A-6E	67	F/A-18	42		
B-52G	20	F/A-18 USMC	24		

101. Schwarzkopf, *It Doesn't Take a Hero*, p. 358.

102. *Ibid.*

103. Brfg Slides 1-4, Presidential Brief, Oct 11, 1990; MemoRec, Brig. Gen. Buster C. Glosson, Subj: Questions at Presidential Brief, Oct 11, 1990 [File No. CK/Deptula/Box 12].

The Offensive Air Campaign Plan

Twelve additional F-117As would join the attack force from the United States within sixty hours, and 96 A-10s, 132 AH-64/AH-1s, 40 AV-8Bs, and 24 F/A-18(M)s would defend or initiate Phases II and III. The supporting force composition follows:

Support Aircraft

Aircraft	No.	Aircraft	No.	Aircraft	No.
F-4G	36	E-3	6	KC-10	6
EF-111A	14	RC-135	4	KC-135	88
EA-6	24	U-2R/TR-1	4	SOF	45
EC-130	13	RF-4	6		

An additional 24 KC-10s and 64 KC-135s would close from the United States within sixty hours. Secretary Baker's inquiry as to why the operation needed so many tanker aircraft initiated a short discussion. General Glosson pointed to the requirements of the USN carriers as the primary reason. He acknowledged that the USMC and USAF needed them too. He cited the F-15Es based in Thumrait, Oman, located 1,100 miles one-way from Baghdad. General Powell ended the discussion by observing that we had probably not used the forward bases because of their proximity to Iraqi border.¹⁰⁴

The number of targets associated with the offensive air campaign had more than doubled from the original 84 of Instant Thunder; they now numbered 218. Each of the ten targets systems grew and would continue to grow until the end of the crisis and subsequent war in the Persian Gulf:

Target System	Instant Thunder	Presidential Brief
Strategic Air Defense	10	40
Strategic CW & Scuds	8	20
Leadership	5	15
Republican Guard & Military Support	15	43
Telecommunications	19	27
Electricity	10	18
Oil	6	10
Railroads	3	12
Airfields	7	27
Ports	1	6

This increase in numbers reflected the results of additional intelligence and study of Iraq. After explaining the target systems, General Glosson sketched the attack plan for the first 24 hours. It provided for 822 attack sorties (265 predawn, 266 morning, 97 afternoon, and 194 night sorties) and 536 sorties for defense, or for

¹⁰⁴ Brgf Slides 5-8, Presidential Brief, Oct 11, 1990; MemoRec, Brig. Gen. Buster C. Glosson, Questions at Presidential Brief, Oct 11, 1990.

On Target



Planning maps for the air strikes

Phases II and III. He followed this with a map of Iraq and acetate overlays that graphically illustrated the first day's attack sequence and objectives. In addition to other points throughout Iraq, the first wave's strikes would hit seventeen targets in the Baghdad area: the Baghdad presidential residence and bunker, Abu Ghurayb presidential grounds and bunker, Salman Pak BW bunkers, Taji SOC, Taji presidential retreat, Al Taqaddum airfield, Balad Southeast (SE) airfield, Taji IOC, Taji Military Relay Facility, the Baghdad "AT&T" telephone exchange, Baghdad Air Defense Headquarters, the Presidential Grounds, Baath Party Headquarters, the Presidential Palace, the Baghdad TV transmitter, and the Baghdad telecommunications center. The next three waves would reattack two of those targets and twenty-three new ones in the Baghdad area. On day 2, Coalition forces would reattack twenty of the first day's targets, additional targets not covered in the first twenty-four hours, and key targets that BDA indicated as requiring additional attacks. Days 3 through 6 would continue the routine of hitting targets not yet struck and reattacking those requiring it. As possible limiting factors, General Glosson noted the closure times of reinforcements. In addition to the already mentioned F-117As and tankers, the general referred to the USS *Saratoga* carrier battle group (60 hours' closure to its battle station) and the ALCMs (20 hours' closure on B-52Gs flying from Barksdale AFB). At the end of the offensive air campaign, the Americans expected to have achieved destruction of the Iraqi leadership's C², disruption and attrition of the Republican Guard, disruption of the Iraqi leadership's ability to communicate with the populace, destruction of key electrical grids and oil supply, destruction of Iraqi NBC capability, and disruption of Iraq's military resupply capability.¹⁰⁵

The various facets of Phase I evoked several questions. President Bush wanted to know why the battleship USS *Wisconsin* was so close to Iraq and the

105. Brgf Slides 9-14, and paper copies of overlays, Presidential Brief, Oct 11, 1990.

The Offensive Air Campaign Plan

carriers so far back. General Glosson answered that the carriers' safety concerned the USN, and General Powell added that a battlewagon could take a lot more punishment than a carrier could. Secretary Baker asked a question that brought into focus the planning of an air offensive. How did the USAF know that the Iraqis could not detect the F-117A? Had the service actually flown any F-117As over Iraq? The general replied that they had tested Iraqi defenses and detected nothing to indicate that the Iraqis had seen anything. The issue of damage to sites of historical or religious significance arose when the president asked if the general was sure that the Royal Palace had no symbolic value to the Iraqi people. General Glosson responded that he knew it had no religious value. (After the briefing, the palace came off the target list.) The president then turned to the CJCS and asked him to ensure that the target lists contained no targets of historic or religious significance. General Glosson further remarked that the planners had already removed targets because of their proximity to shrines, had restricted run-in headings, and had selected the most accurate systems to avoid religious targets. General Powell observed that the services had worked the problem from the beginning. The general also reassured the president on the accuracy of the TLAMs and stated that the planners had put a minimum of three each on the power plants to ensure sufficient damage.

President Bush queried what would Saddam be able to do after Phase I? A short discussion ensued. General Glosson began by stating that Saddam would lose the ability to effectively communicate with his people, would lose C² to his forces, would have significant problems in reinforcing Kuwait because of LOC cuts, and would have to deal with disruption throughout the country. Secretary Baker interjected that the phrase "decapitate Saddam" used in the briefing was misleading. The general answered that the slide was only intended to indicate the difficulties Saddam would have in controlling his army and his people and that his country would be visibly in disarray.

Next the briefing offered a concise description of Phases II and III. In Phase II, obtaining air supremacy in Kuwait, the bulk of the Coalition air forces would attack the Integrated Air Defense System (IADS) covering Kuwait and southern Iraq and either destroy it or roll it back. USAF, RAF, and RSAF planes would strike southern Iraq and the western Kuwaiti border, more USAF aircraft would attack southwestern Kuwait, while USMC aircraft worked over southeastern Kuwait and USN aircraft plastered northeastern Kuwait. Once Phase II succeeded, Phase III attacks would begin on the Republican Guard stationed in southern Iraq, followed by attacks on the regular Iraqi ground forces in Kuwait. The full weight of Coalition air power—including the A-10s, AV-8Bs, and Jaguars, heretofore held in reserve to retard an Iraqi ground-led counterattack—would begin a battle of attrition against the Iraqi forces in Kuwait, paying particular attention to armor, C³I (command, control, communications, and intelligence), and the Iraqi logistics base. Phase III would take seven to ten days to complete, in addition to the time required for Phases I and II, and during the last two phas-

On Target

es the Coalition would continue to strike Phase I targets at a reduced level. As the general explained Phase III, White House Chief of Staff Sununu referred to the U.S. Embassy staff in Kuwait City. At that time the staff still maintained the embassy in support of the official U.S. position that Kuwait remain a sovereign, independent state. The Iraqis, who had illegally annexed Kuwait, surrounded the embassy, virtually making hostages of the staff. The White House Chief of Staff asked if the operation included a plan to get the embassy staff out of Kuwait when Phase I began. General Glosson said it had not, but General Powell stated the problem was being worked another way.

Then the Secretary of State asked for the Coalition air loss rates for each phase. The general gave the planners' projections: 10 to 15 aircraft in the first 24 hours of Phase I, with a high of 40 aircraft for the entire phase; 2 to 3 aircraft, at most, for Phase II; and for Phase III, if initiated after Phases I and II, 8 to 10 aircraft for the first 2 days, and 1 to 3 per day thereafter. Secretary Baker then inquired as to the differences between Vietnam and Iraq. The general explained that the NCA had permitted the service to use its full force to deal with the problem—to cut the trunk instead of clipping the branches. The president observed that the logistics differed greatly, because the Vietnamese had China and others unloading at the ports. The general agreed, citing the total embargo on Iraq and citing that in this conflict the services would strike the enemy's major LOCs rather than overfly them, as they had the ships unloading in Haiphong Harbor. The president, revealing his concern over Saddam, quizzed the briefer, "What do you say to people who say Saddam Hussein will rise up out of the rubble on national TV and say 'Here I am'?" "He might do that," responded the general, "but not on his television or radio networks." He would need outside help for that. General Powell cautioned that the Americans would have to be prepared for a dramatic postattack announcement from Saddam and not be seduced into thinking that Coalition forces would "get him for sure." Secretary Cheney reaffirmed this point, "We've got to be careful not to lead people to expect that Saddam will be eliminated personally in Phase I." This ended General Glosson's section of the presentation.

Lt. Col. Joseph Purvis, USA, presented Phase IV, the land campaign. Colonel Purvis headed of a team of graduates from the Army's elite School of Advanced Military Studies, the school from Leavenworth, Kansas, that specializes in campaign planning. General Schwarzkopf had requested the four-man team in mid-September to supplement CENTCOM staff thinking. He told the Leavenworth planners to "assume a ground attack will follow an air campaign."¹⁰⁶ Much like the officers of Colonel Warden's Deputy Directorate for Warfighting Concepts, these so-called Jedi Knights had engaged in the systematic reappraisal of their service's method of warfare.¹⁰⁷ They also had much to do

106. Schwarzkopf, *It Doesn't Take a Hero*, p. 354.

107. Telecon, Maj. Gen. Buster C. Glosson with Richard G. Davis, CAFH, Feb 3, 1992.

The Offensive Air Campaign Plan

with ARCENT's offensive planning. The hurriedly assembled Army plan (the planners completed the first draft only on October 6) lacked the polish of the well-rehearsed briefing of General Glosson. ARCENT like CENTAF seems to have spent its energy concentrating on defense and bed-down. Because the American and Coalition ground forces had insufficient numbers to launch a flanking movement on the Iraqi forces while simultaneously holding the front lines, the planners had little choice but to adopt a scheme that provided for an assault through the stiffest Iraqi defenses, followed by seizure of a key road junction deep in Kuwait and a battle of attrition against Iraqi reinforcements. The plan predicted 10,000 American casualties, including 2,000 dead. It further committed all American ground forces to combat, leaving no reserves.¹⁰⁸ The plan may have been no more than an exercise to prove the impossibility of mounting an attack using the Coalition ground forces then present in the AOR.¹⁰⁹ During this brief, those present had more questions and observations. Unfortunately General Glosson recorded only their questions, not the answers, because he had not given the brief. Nevertheless, the questions reveal the thought processes of the administration. The president wanted to know why the services thought so highly of the Iraqis. His information indicated Saddam might cut and run at the first bombs. "Are we seeing any impact of sanctions? Food and water?" asked President Bush, "I'm told large portions are ready to give up, but you indicate that's not true." Later the president queried, "Why not do Phase I, II, and III, then stop?" President Bush certainly did not appear to think of the Iraqis as ten feet tall.¹¹⁰

After the Phase IV presentation, General Johnston put up the slides showing General Schwarzkopf's concerns, which in effect impeached the just-delivered ground offensive briefing. The commander warned against a plan that dispensed with reserves, noted that the Saudis had not yet agreed to any attack, and cautioned against underestimating Iraqi fighting ability. In part of his final slide, the CINCCENT gave his overall assessment:

Offensive ground plan not solid. We do not have the capability to attack on [the] ground at this time.

Need additional Heavy Corps to *guarantee* successful outcome.

Defensive Plan Solid—As promised the President during the first week of August, United States military forces are now capable of defending Saudi Arabia and executing a wide range of retaliatory attacks against Iraq.¹¹¹

With his implied, if not overt, refusal to attack without reinforcements, General Schwarzkopf confronted his military and civilian superiors with a classic dilemma. Do you support your commander in the field, or do you replace him or force

108. Schwarzkopf, *It Doesn't Take a Hero*, pp. 356–358.

109. Woodward, *Commanders*, pp. 305–306.

110. Brfg Slides 16–18 and Charts G–I, Presidential Brief, Oct 11, 1990; MemoRec, Brig. Gen. Buster C. Glosson, Questions at Presidential Brief, Oct 11 1990.

111. Schwarzkopf, *It Doesn't Take a Hero*, pp. 359–360.

On Target

him to carry out contradictory orders and take the consequences if your imposed solution fails? The answer to that question relies not just upon the field commander's record of success, but upon the temper of the government. Secretary Cheney, General Powell, presumably the president, and others had at least twenty-four hours' notice of the field commander's stance. Nonetheless, at least one of those present made a less than sotto voce reference to General George B. McClellan, a Union army commander early in the American Civil War who moved too slowly and exaggerated his difficulties. Another remarked, "My God, he's already got all the force he needs, why won't he attack?"¹¹² However, President Bush stepped up to the situation. The president softly asked for additional information, "How many more people will you need?" He received the answer that General Schwarzkopf required three heavy divisions. Secretary Baker apparently had the last comment: the force fielded so far appeared too American and did not include enough Arabs.¹¹³ General Powell quickly relayed the results of the briefing to General Schwarzkopf that "the White House is very comfortable with the air plan, but there was a lot of criticism of the ground attack."¹¹⁴

For the president, this briefing represented but one part of a larger puzzle—how to get Saddam out of Kuwait. He could wait either for an indeterminate period or for the economic sanctions to bite and hope that the international Coalition held together, that the Saudis kept their nerve and could withstand the indefinite presence of Western soldiers in their country, that sanctions would not break down, that U.S. domestic support would hold firm, and that Saddam would blink and retreat rather than subject his land, his people, and above all his regime to ruin. If President Bush did not choose to defend and deter, he could attack, cutting the Gordian knot, and use military force to eject Saddam from Kuwait and weaken the Iraqis to prevent their harming their neighbors. This course of action appeared to offer speed and decisiveness, but if American military inefficiency should result in high losses and disproportionately small results, serious domestic and international political consequences would ensue. However, throughout the crisis and the following conflict, President Bush evinced complete faith the U.S. military. He demonstrated this by exercising his powers as CINC at the minimum while allowing his generals and admirals to fight his war. For example, the president's reception of this briefing illustrated his treatment and understanding of military affairs. His questions show that he understood the matters under discussion and would support the air plan presented to him. Phase IV, because of its head-on attack into the Iraqi defenses, troubled President Bush and Secretary Cheney. They further realized that no matter what offensive land option they

112. *Ibid.*, p. 361.

113. Brfg Slides 16–18 and Charts G–I, Presidential Brief, Oct 11, 1990; MemoRec, Brig. Gen. Buster C. Glosson, Questions at Presidential Brief, Oct 11, 1990.

114. Schwarzkopf, *It Doesn't Take a Hero*, pp. 361–362.

The Offensive Air Campaign Plan

selected, it would require more troops.¹¹⁵ When the conflict came, the Army would use a much more innovative plan.

This briefing, as none other had, locked the offensive air campaign into place as a key element in any conflict with Iraq. Except to add targets, as more aircraft and intelligence became available, the plan changed little from this point forward. Interestingly enough, the national leadership began to express reservations at this point concerning the offensive air plan's ambitious goal of changing the regime in Baghdad. Their doubts may have sprung from a healthy skepticism of military planning or, just as likely, from a desire not to go too clearly on record as advocating the elimination of Saddam, should that effort fail. In any case, the NCA and other high-level administration decision-makers approved of the outline and details of the plan.

From its inception through its execution, the target base of the offensive air campaign matured as the campaign planners garnered additional intelligence information, with NBC targets presenting major technical and humanitarian concerns. Chief among these was the possible catastrophic consequence of destroying NBC storage and production facilities. Would their destruction spread their contents to the surrounding, unprotected civilian population and beyond? Somewhat surprisingly, nuclear facilities appeared to offer the least risk of excessive collateral damage. As early as August 8, U.S. intelligence estimated for the Air Staff that destruction of all three reactors and associated research facilities, which might contain minute amounts of plutonium, "will result in a negligible probability of any radioactive contamination extending more than 1 nm [1.15 miles] from Tuwaitha."¹¹⁶ Its heavy air defenses notwithstanding, the minimal harmful side effects expected from the bombing of the Tuwaitha complex ensured its targeting for destruction.

Bombing Iraq's BW and CW assets presented equally daunting problems concerning the safety of Iraqi and other civilians of the region. Air planners delayed a final decision on targeting BW and CW until late December 1990. At that point they decided to use "a combination of timing of attacks and choosing proper munitions"¹¹⁷ to destroy Saddam's possible trump cards.¹¹⁸

The decision to strike Iraqi BW production and storage facilities proved well-reasoned and necessary. Failure to attack the BW and CW targets would

115. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 67; Woodward, *Commanders*, p. 307.

116. Memo, Capt. Richard C. Runchey, USAF Nuclear Intelligence Analyst (AFIA/INKS), for AF/CC, Subj: Your Question on Iraq's Osirak Reactor, Aug 8, 1990; Point Paper, Capt Richard C. Runchey, AFIA/INKS, "Tuwaitha Nuclear Complex—Impact of Air Strikes," Aug 9 1990 [File No. CK/Air Staff/Nuclear].

117. *GWAPS*, Vol. 4, pt. 1, *Weapons, Tactics, and Training* (2d ed.), p. 179

118. See Intvw, Lt. Col. David A. Deptula with Drs. Richard G. Davis, Diane T. Putney, Perry D. Jamieson, and CAFH, Nov 29, 1991. Colonel Deptula strongly implies that the data about anthrax's rapid deterioration when exposed to sunlight finalized the decision to bomb the BW bunkers.

On Target

have sent precisely the wrong signal to Saddam, to the Libyans, and to other regimes known or suspected to have BW R&D and production under way. If the very possession of weaponized or bulk BW could possibly be seen as carrying with it an implicit immunity from attack, then this inherent self-protection could only encourage its proliferation. Many more nations would have an even greater incentive to enter the game. In the actual event, no significant incident of contamination has surfaced as a result of the Coalition's bombings, and one of Saddam's most potent terror-weapon programs received a significant setback.

This chapter demonstrates that the offensive air plan employed by the USAF in the Persian Gulf War originated with a small group of radical air power advocates on the Air Staff and matured under the care of the CENTAF special-campaign planning group and General Horner, who delegated the task to these planners and allowed them to complete their task with virtually no interference. Phase I of the air campaign had its roots in the Warden group's philosophy of analysis of the opponent's weaknesses, selection of his centers of gravity, and targeting for effect. By seizing his two weeks on center stage during the conflict's original air planning, Colonel Warden imposed his own vision on the strategic air operations of the campaign. In most important respects, Phase I of the conflict equates with Colonel Warden's original Instant Thunder concepts. However, General Glosson, Colonel Deptula, and many others in Riyadh spent months applying the elbow grease that turned Instant Thunder from a brilliant concept into a executable OPLAN. General Glosson contributed energy, enthusiasm, clout, and his services as a go-between for the campaign planners and CENTAF. Without his support, encouragement, and belief, the concepts in the original plan might have been jettisoned. Colonel Deptula pushed the ideas of attack sequencing and of simultaneity to their logical end points, and he developed the MAP, the planning control-point for the air offensive against Iraq. Without Colonel Deptula, the results of the offensive air campaign might have been substantially different. This chapter further shows that the request for an offensive air plan came from Generals Powell and Schwarzkopf, outside the service, and that CENTAF itself initially resented the plan and forced cosmetic changes on it. Nonetheless, General Horner fostered the plan, refined it, and made it his own, even to the extent of allowing General Glosson to make a charter member of the Warden group, Colonel Deptula, the chief of the special campaign planning group, which oversaw the plan's development. Finally, the unswerving support of the two army generals, who saw the plan as but a portion of their overall scheme of operations, kept the concept alive and pushed it to actualization. The U.S. government's forthcoming decision to provide the forces necessary to execute an offensive option increased the probability of the air campaign plan's use. Once employed, the unique nature of the air campaign made the plan's construction the singularly important criterion in assessing the USAF's performance.

Chapter Four

The Offensive Deployment, Morale, and Training

This chapter examines two themes: the decision of President Bush to authorize the deployment of additional forces to implement a ground offensive, if necessary; and the morale, discipline, training, rules of engagement (ROE), and organization of CENTAF. The decision for an offensive deployment was a response to the actions of Saddam Hussein. The Iraqi dictator continued to pour more men and matériel into his newly conquered province. The weight of Iraqi manpower and the depth and seeming complexity of their ground defenses invalidated CENTCOM's initial ground plan: a frontal assault into Kuwait. At the same time, the open Iraqi left flank invited a turning movement, but the movement to the west of a U.S. heavy armored force strong enough to conduct such a turning operation necessitated doubling the force, the so-called two-corps option. The U.S. XVIII Corps—a quick-reaction force with one lightly armed airborne division, one almost as lightly armed air assault division, and one mechanized division at two-thirds strength—could not conduct a mobile offensive against the heavily armored Iraqis. Nor did the Coalition have sufficient troops to protect the line from the Persian Gulf to the turning force and protect the open left flank of the turning force as it advanced into Iraq. If the United States wished to fight a war of movement and avoid dancing to Iraq's tune of an assault on prepared defenses, it needed more armored ground troops. Mobile warfare also promised to maximize U.S. advantages; emphasize Iraqi shortcomings; and produce fewer Coalition casualties, an extremely important consideration to President Bush and his civilian and military advisors. Logistics, force structure, and the eased strategic situation in Western Europe dictated that the heavy corps, if it came, would arrive from Germany.

Once the U.S. government made known its intention to attack if required, the condition of its fighting forces became a matter of prime importance. Several

On Target

factors distinguish an armed service from an armed mob. Both may have uniforms and employ the same weapons, but the intangible factors such as morale, discipline, training, and organization make one a reliable instrument of national will and the other a will-o'-the-wisp liable to scatter before the first stiff wind.

Choosing the Offensive Option

On October 22, 1990, General Schwarzkopf changed his analysis of Iraq's least likely course of action from withdrawal to attack. In decreasing order of probability, he assessed Iraq's actions as defend, reinforce, withdraw, and attack. To meet these potentialities, he had 217,198 Americans, including 10,287 women. Of this total, CENTAF personnel accounted for 31,439 (1,958 women).¹ In CENTCOM's opinion, this indicated that Saddam would probably not take offensive action, which meant that he would not provide an overt excuse to initiate hostilities. Also on October 22, General Powell flew into Riyadh and immediately met with General Schwarzkopf. A week earlier, General Schwarzkopf had anticipated General Powell; he instructed his staff to begin planning for a two-corps offensive as well as a single corps offensive. The concept of a two-corps offensive rested on the assumption that by the beginning of Phase IV, the air campaign would have thoroughly wrecked the Iraqi C³ system. Army planners also assumed Iraqi use of CW.² In part, the expanded directive stemmed from White House dissatisfaction with a frontal assault, expressed October 11 during a CENTCOM briefing of the NCA. The CJCS listened to briefings on both the single and double corps options. After a comprehensive discussion of both options, he directed the CINCCENT to continue planning the two-corps alternative. He also asked General Schwarzkopf to state his force needs for an offensive against Kuwait and Iraq. It seems probable that General Schwarzkopf asked for a doubling of the USAF component and for three additional carrier battle groups, an additional Marine division, and the U.S. Army VII Corps. The VII Corps, stationed in Germany, consisted of the entire 1st and 3d Armored Divisions, a portion of the 2d Armored Division, the 42d Field Artillery Brigade, an air defense brigade, and assorted corps troops. Its soldiers had the army's most modern tank, the M1A1 Abrams main battle tank with the 120-mm gun; Bradley armored personnel carriers; and a high state of readiness and training. General Powell purportedly offered to round out VII Corps with the 1st Infantry Division (Mechanized) from Fort Riley, Kansas. General Powell agreed to seek Secretary Cheney's and President Bush's approval of the reinforcements. Also, he cautioned General Schwarzkopf that the mood in the U.S. capital city shifted rapidly according to the political wind. The bellicosity displayed at the October 11 briefing had succumbed to talk of extending economic sanctions and to preoccu-

1. Msg, 222115Z Oct 90, USCINCCENT to AIG 904, Subj: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 103.

2. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 67.

The Offensive Deployment, Morale, and Training

pation with the federal budget crisis and the upcoming national elections.³ On October 25, the CJCS returned to Washington. That same day, the Congress and the president reached a budget compromise after a long and relatively unseemly fight that had increased the public esteem of neither. The settlement of the budget issue, which among other things kept Desert Shield costs off the books, helped clear the way for the administration to devote its full energies to the Gulf crisis.

Starting on the morning of the same day, Secretary Cheney broadly hinted to three TV networks—ABC, CBS, and NBC—that “we are not at the point yet where we want to stop adding forces.” When asked if as many as 100,000 more servicemen and women might go to the Gulf, he replied, “it’s conceivable that we’ll end up with that big of an increase.” On October 29 Secretary Baker addressed the Los Angeles World Affairs Council. He stated, “We will not rule out a possible use of force if Iraq continues to occupy Kuwait.” On October 30, as scheduled, President Bush met with fifteen congressional leaders from both houses and parties to discuss the crisis. These events, and the upcoming congressional elections, seem to have convinced Saddam that attack might come at any moment. On October 30 he placed his military on high alert in anticipation of a U.S.-led attack. CENTCOM reported “higher than normal” Iraqi air activity and higher transport activity that day. The next day, a State Department official told the *Washington Times*, “we are edging closer to the military option.”⁴

The president appears to have decided to implement the offensive option on October 31, after his discussion of the matter with Secretaries Baker and Cheney, the National Security Advisor, and the CJCS, who undoubtedly revealed the result of his recent trip to Riyadh. Before the public announcement of the doubling of the force, postponed until after the congressional elections six days hence, the president sent Secretary Baker to take last-minute soundings of the opinions of the governments of Saudi Arabia, Egypt, Turkey, Great Britain, France, and the USSR.⁵ General Schwarzkopf learned of the president’s decision immediately.⁶ On the morning of November 1 he sent the following message to his component commanders:

1. Although there is no definitive theater campaign concept for a wide ranging, large scale military offensive against Iraq, it is prudent that we consider such an operation and look at associated requirements and capabilities as soon as possible.
2. Along that line, I ask each of you to consider a hypothetical offensive campaign in which you would be provided necessary forces to execute an exten-

3. Schwarzkopf, *It Doesn't Take a Hero*, pp. 366–367.

4. Msg, 302115Z Oct 90, USCINCCENT to AIG 904, Subject: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 111; Andrew Borowiec, “U.S. Strategy ‘Edging Closer’ to War,” *Washington Times*, Oct 31, 1990, p. 1. Also see CRS, *Iraq-Kuwait Crisis: Chronology*, p. CRS-42.

5. Woodward, *Commanders*, pp. 319–321.

6. Schwarzkopf, *It Doesn't Take a Hero*, p. 370.

On Target

sive air, naval, and ground offensive campaign against Iraq. Assume no constraints on availability of additional forces. Within that context, request you provide ASAP a broad concept of operations and additional forces required. Request also the approximate number of personnel added to current personnel ceiling.

3. I emphasize the need to keep this close hold. Although this will preclude coordination with higher service and other headquarters, political sensitivities require absolute operational security as this time.⁷

The first sentence of this message offended both General Glosson and Colonel Deptula. They had a wide-ranging, large-scale military offensive plan already accepted by the CINCCENT, and they believed their air plan could be executed by mid-November. They suspected that the CENTCOM staff had decided to play for more time to prepare an Army-dominated offensive.⁸ Nonetheless, General Horner replied that he felt comfortable with his strength for Phase I, but if General Schwarzkopf contemplated a large ground offensive, he could use additional forces.⁹

On November 1, USAF personnel in Saudi Arabia numbered 31,456, including 2,020 women in the overall American total of 229,154 service personnel, including 11,894 women. The number of USAF aircraft in Saudi Arabia follows:¹⁰

Combat Aircraft		Support Aircraft	
A-10	96	C-20	1
AC-130	5	C-21	8
B-52G	20	C-29	1
EC-130H (CC)	5	C-130	95
EC-130E (VS)	2	E-3 (AWACS)	6
EF-111A	14	EC-130E	6
F-4G	36	HC-130	4
F-15C	72	KC-10	6
F-15E	24	KC-135	114
F-16	120	MC-130	4
F-111F	32	MH-53	8
F-117A	18	MH-60	4
		RC-135	4
		RF-4C	6
		TR-1	2
		U-2	3

7. Msg. 011030Z Nov 90, USCINCCENT to COMUSNAVCENT, COMUSMARCENT, COMUSARCENT MAIN, USCENTAF FWD HQs ELEMENT, COMSOCCENT (personal), Subj: Campaign Requirements [File No. TAC/HO/TS]T.

8. Deptula, "Comments and Review of the Air Offensive," Feb 3, 1993, p. 15.

9. Memo, Col. Warden, XO/W, for Lt. Gen. Adams, XO, Subj: re: Our Conversation This Morning, Some Additional Thoughts, Nov 8, 1990 [File No. CK/AS/Deployment-Second Increment].

10. Michael, *Desert Shield Chronology*, p. 113.

The Offensive Deployment, Morale, and Training

Three Navy carriers and the Marines could supply an additional 318 U.S. aircraft.

On November 2 Secretary Baker met with King Fahd. The king agreed to the presence of additional U.S. forces and to helping convince the other Arab Coalition members to accept possible hostilities. The king also acknowledged Israel's right of self-defense in this instance and he promised that, in the event of Israeli retaliation against an Iraqi attack, his forces would continue to fight with the Coalition, as long as the Coalition did not ally itself with Israel. Given the volatility of Arab-Israeli relations and the sparks sure to fly from any Israeli attack on Saddam, the king made an extraordinarily courageous commitment, one that a severe popular reaction might possibly invalidate. Secretary Baker and King Fahd firmed up host nation arrangements for provisioning U.S. forces and the wartime Coalition military command structure with Saudi-supplied fuel, water, transportation, fresh food, and accommodations. At General Schwarzkopf's instigation, Secretary Baker presented the king with the following definition of wartime C²: "should military operations commence, a joint command as currently exists will continue; however, the commander of U.S. forces will have final approval authority for all military operations." As General Schwarzkopf explained, the first clause was a nod to Saudi sovereignty: It continued the appearance of equality. The second clause allowed the Americans to retain control of offensive planning and operations.¹¹

Six days later, on November 8, President Bush announced to the American people his decision to adopt the offensive option. In addition to the forces already promised to General Schwarzkopf, the president activated three National Guard "round out" brigades, one each from Georgia, Louisiana, and Mississippi, with the intention of sending them to California for desert warfare training. On the day before the announcement, Secretary Cheney initiated the first combat reserve call-up since the Korean War, more than forty years earlier, by giving the Marine Corps permission to summon 3,000 reservists. On November 9, Secretary Cheney stated that the United States would not rotate its forces in the Persian Gulf, and those servicemen and women already in the AOR would stay for the duration of the crisis. Then on November 14 he approved the possible call-up of an additional 72,500 National Guard and reserve troops for service in the Gulf. This more than doubled the DoD's ceiling of reservists permitted on active duty at one time to 125,000. General Powell supported these actions with a deployment order, approved by Secretary Cheney. The general stated that the additional forces would support Desert Shield, increase the pressure on Iraq, and improve the flexibility of U.S. and Coalition forces in the region. He directed the closure of all reinforcements to the AOR by January 15, 1991 (C+161 days).¹²

11. Schwarzkopf, *It Doesn't Take a Hero*, p. 373.

12. Msg, 081440Z Nov 90, CJCS to CINCEUR et al., Subj: Southwest Asia (SWA) Military Operations [File No. CK/AS/SPECAT].

On Target

General Powell's deployment order did not give specific air requirements, a situation General Schwarzkopf soon remedied. On November 10 General Schwarzkopf sent the Joint Staff his needs from the USAF, based on General Horner's requirements.¹³ The following aircraft were to arrive no later than December 15: 18 F-117As, 18 F-111Fs, 24 F-15Cs, 12 RF-4Cs, 8 B-52Gs, and 64 KC tankers. Although the offensive air campaign had always assumed the closure of 12 F-117s prior to execution, the extra 6 F-117As, the self-designating laser-equipped F-111Fs, and the extra tankers in this first echelon had the capacity to expand greatly the destructive potential of Phase I. A second echelon of reinforcements to support a ground campaign consisted of 14 F-111Fs, 24 F-15Es, 6 F-117s, 12 F-4Gs, 48 F-16s, 48 A-10s, 4 E-3As, 32 C-130s (the final number dependent on Army requirements), and 39 KC-135s (15 to support Navy operations). General Schwarzkopf further requested a force of 48 F-16s, 14 B-52Gs, and 5 AC-130s to be earmarked for deployment but held in reserve. Taken as a whole, this requirement gave CENTAF virtually the entire USAF inventory of fully self-designating PGM-capable aircraft as well as large percentages of other combat and support aircraft.¹⁴ The accuracy of the 100 to 110 PGM-capable aircraft greatly leveraged their combat effectiveness, making them



An F-111 receiving hangar maintenance

An F-15 receiving an engine change



13. Deptula, "Comments and Review of the Offensive Air Campaign," p. 15.

14. Msg, 101730Z Nov 90, USCINCCENT to The Joint Staff, Washington D.C., Subj: Follow-on Air Forces for Operation Desert Shield.

The Offensive Deployment, Morale, and Training

the equal of a non-PGM force three or four times their size, much as the Prussian needle-gun proved more deadly than the Austrian rifled musket in the six-week-long Austro-Prussian War of 1866. General Powell approved this request on November 16, but he delayed the arrival of most aircraft to no later than January 15 and placed more tankers on call and on 120-hour alert.¹⁵

While the multinational Coalition against Iraq gave the United States the mantle of international approval for its actions, the Coalition also imposed a check on the Americans' freedom of action, in that the existence of the Coalition forced the Americans to consult their partners before making major decisions. An authorization to use force to solve the crisis could not come from Washington alone; the UN resolutions, passed in accordance with the UN charter, provided the legal basis for the embargoes and other sanctions so far taken against Iraq. Therefore, the UN Security Council would have to pass such a resolution. This presented the United States with a delicate, but by no means insolvable, diplomatic problem. The Security Council had passed the lesser resolutions by lopsided majorities, with only Yemen or Cuba consistently abstaining or voting in the negative. However, under the procedural rules of the Security Council, which rotated the chairmanship monthly, in alphabetical order, Yemen would chair the council for the month of December 1990. This would enable it to hamper and delay the passage of any further resolutions until the next month. To avoid that difficulty, the authorizing resolution had to be procured in November, when the United States headed the council. Each of the five great powers also had the right to veto any vote of the Council. The United States, Great Britain, and France had sent troops to aid Saudi Arabia, making it reasonably certain they would authorize the use of force, but the two Communist powers, the USSR and China, posed potential problems.

On November 15 President Bush publicly informed the American people and Saddam that a domestic and international "ticking clock" now limited the time available to the Iraqis to reach a peaceful solution to the crisis.¹⁶ That same day, Secretary Baker landed in Brussels to begin a series of visits to nine members of the UN Security Council, and Yevgeny Primakov, President Gorbachev's special envoy to the Gulf and the leading Soviet Middle East expert, issued a stern statement. Although he favored delaying the resolution on force in order to give Saddam one more chance to save face by leaving Kuwait, he observed that if the initiative failed, the UN should pass a resolution authorizing force and immediately take military action against Iraq.¹⁷ Presidents Bush and Gorbachev met in Paris to discuss the situation. Their meeting ended on November 19 with-

15. Msg, 161540Z Nov 90, CJCS to USCINCCENT, Subj: Follow-on Air Forces for Operation Desert Shield [DEPOD CJCS77] [File No. AFHSO microfilm reel 10211, frames 1269-1271].

16. Ann Devroy and Dan Balz, "Bush Says Time Is Limited for Peaceful Gulf Solution," *Washington Post*, Nov 16, 1990, p. 1.

17. Paul Lewis, "Soviet Aid Urges Delay of U.N. Move on Force in Gulf," *New York Times*, Nov 16, 1990, p. 1.

On Target

out a Soviet endorsement of a resolution on force. But in subsequent face-to-face meetings in Moscow with Foreign Minister Eduard Shevardnadze and President Gorbachev, Secretary Baker obtained the Soviets' consent for the use of force. President Gorbachev made it clear that continuing to allow Saddam to operate outside of international rules would jeopardize Gorbachev's own visions of a new Soviet state and a reformed international order. President Gorbachev's decision removed the most serious obstacle to a UN resolution on force. Secretary Baker judged that the People's Republic of China would follow the Soviet lead. Saddam made his own response; he announced he would send an additional six or seven divisions to Kuwait, recall 60,000 reservists, and conscript 100,000 more men. The following compilation indicates the major types of U.S. military aircraft present in the CENTCOM AOR from September 1, 1990, to February 1, 1991.¹⁸ Aircraft capable of delivering laser-guided bombs are indicated with boldface type.

Service	Aircraft	Type	Sep 1	Oct 1	Nov 1	Dec 1	Jan 1	Feb 1
USAF	F-15C	Fighter	70	72	72	72	96	96
	F-4G	WW	24	36	36	36	48	49
	F-16	Ftr/Attack	106	120	120	120	168	212
	A-10	Attack	72	96	96	96	120	144
	AC-130	Gunship	0	5	5	4	4	2
	F-117A	Bomber	18	18	18	18	36	42
	F-15E	Bomber	24	23	24	24	46	48
	F-111F	Bomber	18	32	32	52	64	64
	B-52	Bomber	20	20	20	20	20	36
	RF-4C	Recon	6	6	6	6	6	18
	JSTARS	Srvl & Ctrl	0	0	0	0	2	2
	E-3B/C	Srvl & Ctrl	6	6	6	6	7	11
	EF-111	EW	10	14	14	14	18	18
	KC-10	Tanker	0	6	6	6	6	30
	KC-135Q	Tanker	79	93	114	115	164	194
	C-130	Airlift	70	95	96	96	96	149
	EC-130E	ABCCC	6	6	6	6	6	6
USN	F-14	Fighter	56	76	76	76	76	109
	F/A-18	Ftr/Attack	58	58	58	88	88	89
	A-7E	Ftr/Attack	0	24	24	24	24	24
	A-6E	Bomber	35	48	48	62	62	96
	E-2C	Srvl & Ctrl	12	17	17	21	21	29
	EA-6B	EW	12	17	17	21	21	27
	KA-6D	Tanker	8	12	12	16	16	16
	S-3A/B	Recon	23	31	31	31	31	43
USMC	F/A-18	Ftr/Attack	48	48	48	48	72	78

18. *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium*, Table 9 "U.S. Air Order of Battle by Aircraft and Service" (1st ed.), pp. 31-32.

The Offensive Deployment, Morale, and Training

AV-8B	Attack	40	60	60	60	81	84
OV-10	Srvl & Ctrl	0	8	8	8	8	19
EA-6	EW	12	12	12	12	12	12
A-6	Bomber	9	10	10	10	20	20
KC-130	Tanker	6	8	8	8	12	15

President Bush continued his trip to Saudi Arabia where he and Mrs. Bush spent Thanksgiving Day with U.S. military personnel. The next day he met with Syrian President Assad in Geneva. By November 25 foreign diplomats confirmed the statements of U.S. officials that the United States had the votes necessary to procure the needed resolution. The only remaining dispute revolved around the ultimatum's deadline: the United States wanted it to be January 1, and the Soviets wanted January 15. Perhaps not coincidentally, on November 27, two days before the UN vote, the Gulf states offered \$6 billion, including \$4 billion from Saudi Arabia, in financial aid to the Soviet Union in consideration for Soviet support during the crisis.¹⁹ Finally, on November 29, the UN Security Council passed Resolution 678 (1990) by a vote of 12 in favor, 2 opposed (Yemen and Cuba), and 1 abstention (China). The resolution demanded that Iraq comply fully with all earlier relevant resolutions and stated that it would allow Iraq "one final opportunity, as a pause of good will, to do so." Then, if Iraq refused to comply by January 15, the resolution authorized the member states cooperating with the government of Kuwait "to use all necessary means to uphold and implement 660 (1990) and all subsequent relevant resolutions and to restore international peace and security in the area." The resolution further requested "all states to provide appropriate support for the actions undertaken in pursuance of" the above authorization.²⁰

Morale and Cultural Differences

As their nation edged from confrontation to conflict, the men and women of CENTAF sought to keep the force at maximum efficiency. However, their presence, and that of all other American service personnel, presented their Saudi ally with a problem. The Americans had come to defend Saudi Arabia, not to Westernize or modernize it, but their massive numbers and total ignorance of Arabic culture offered the potential of both destabilizing the Saudis and damaging the personal relations between the two allies. On August 15 General Horner issued a circular to all U.S. commanders in Saudi Arabia, "Awareness of Host-Nation Sensitivities." He reminded the commanders that most Saudi government institutions were extensions of Islam and that Islam was a way of life, not just a religion. He noted that "to offend a tenet of Islam is to cut at the very heart and soul of the Saudi nation." He observed that through unintentional misunder-

19. CRS, *Iraq-Kuwait Crisis: Chronology*, p. CRS-37.

20. Msg, 300047Z Nov 90, USMission USUN, New York, to SECSTATE, Washington, D.C., Subj: "SC Adopts Resolution Authorizing Use of Force."

On Target

standings, service personnel had already offended the sensibilities of the Saudis “and all of us must learn that some types of behavior acceptable in the United States are illegal in the Kingdom of Saudi Arabia.” He warned that unless service personnel became aware of their ignorance, they might undo all that they had accomplished so far. General Horner next set out specific rules of conduct:

Civilian Dress: No Shorts, T-Shirts, or tank-tops; Conservative clothing only, such as long pants and conservative shirts; Women should pay especial attention to the need to dress modestly, no tight fitting slacks, excessive jewelry, and uncovered legs and arms in public. In addition, the Saudis find the wearing of earrings extremely offensive, and of course one should wear religious jewelry (crosses etc.) under their clothing.

Women in Society: Islam teaches that women hold a special place of honor and dignity in society and must be protected from dishonor. It follows that American female personnel should not venture out alone in public when off-duty, nor should they travel in the company of only one male companion (unless married to each other). Female personnel may drive vehicles in the performance of their duty, if in full uniform, including hat, but it is against the law for them to drive off duty.

Alcohol: Not permitted in Saudi Arabia.

Public Affection: Public displays of affection between men and women, such as holding hands and kissing, violate Saudi public morals. Fornication and adultery are serious criminal offenses.

Indecent Publications: In addition to sexually-oriented publications, fashion magazines containing lingerie ads, and “swimsuit” editions of popular magazines are all considered grossly immoral. Possession of such items is a criminal offense and can result in a heavy fine.

Spoken Words: Profanity in public places is unacceptable. Criticism of the Saudi King, nation, or people is criminal defamation.

Gambling: Including lotteries, sports pools, card games, etc., is illegal, and

Public Profile: Tell your people to keep a lower profile. Large gatherings of uniformed personnel in front of billeting motels invites unwanted attention and encourages unwanted security incidents. Personnel should wait inside for shuttle buses.²¹

Although necessary, these restrictions had some negative impact on morale and probably had the not-unintended side effect of discouraging social intercourse with the Saudis. After the conflict, General Horner acknowledged that one aspect of the policy of making U.S. cantonments as hospitable as possible was to give servicemen and women little reason to leave the base and interact with the Saudi populace.²² General Horner’s chief of staff, Col. George L. Getchell, also acknowledged a policy of keeping service personnel out of sight and apart from the Saudi populace.²³ Separation discouraged possible incidents.

21. Memo, USCENCOM FWD for all U.S. Comdrs, Subj: Awareness of Host-Nation Sensitivities, Aug 15, 1990 [File No. AFHSO microfilm reel 10203, frames 502–503.]

22. Intvw, Lt. Gen. Horner, Mar 4, 1992.

23. Intvw, Col. George L. Getchell, C/S 9AF, with Dr. Richard G. Davis, CAFH, at Shaw AFB, S.C., Mar 2, 1992.

The Offensive Deployment, Morale, and Training

Even the order of August 15 revealed a less than full comprehension of Saudi mores. A subsequent information card given to all personnel noted that the Saudis found the wearing of earrings by men, not women, offensive.²⁴

On August 30, after consultation with the U.S. political advisor in Saudi Arabia over draft orders containing explicit details,²⁵ General Schwarzkopf followed up General Horner's advice to the commanders by issuing to all forces under his command the much more binding and authoritative General Order 1 (GO-1), "Prohibited Activities for U.S. Personnel Serving in the USCENTCOM AOR." GO-1 prohibited certain activities, and its violation could serve as the basis for a court-martial or other military disciplinary action. General Schwarzkopf stated that Desert Shield had placed U.S. forces in countries where Arabic customs and Islamic law prohibited or restricted "certain activities generally permissible in Western societies." The maintenance of those restrictions is, he noted, "essential to preserving U.S.-host nation relations and the combined operations of U.S. and friendly forces." GO-1 prohibited the following eight activities:

The purchase, use, or sale of privately owned firearms, ammunition, or explosives and their introduction into the AOR.

Entering into a Mosque or any other site of Islamic religious significance, unless ordered by military authority or required by military necessity.

Introduction, possession, use, sale, transfer, manufacture or consumption of any alcoholic beverage.

Introduction, possession, use, sale, creation or display of any porno graphic photograph, videotape, movie, drawing, book, or magazine or similar representations. This includes not only obscene items but items of "art" which display human genitalia, uncovered women's breasts, or any human sexual act.

Introduction, possession, display, etc. of any "sexually explicit" book, magazine, videotape, etc. that displays the human anatomy in any unclothed or semi-clothed manner and which display portions of the human torso (i.e. the area below the neck, above the knees, and inside the shoulders), such as body-building magazines, swimsuit editions, underwear ads and catalogues, as well as visual mediums that infer but do not directly show human genitalia, women's breasts, or human sexual acts.

All forms of gambling,

Removing, possessing, selling, defacing, or destroying archeological artifacts or national treasures, and

Selling, bartering or exchanging currency other than at the official host-nation exchange rate.

As for the taking of war trophies, should that occasion arise, the order strictly limited trophies to items of captured enemy military clothing (such as hats, belts, shirts), enemy insignia, and individual items of military equipment (such as helmets, load-bearing equipment, canteens, mess kits, and ammunition pouches).

24. Information Handout Card, "Cultural Sensitivities for U.S. Military Personnel in Saudi Arabia," n.d. [File No. TAC/HO/18/GO-1].

25. Intvw, Col. Getchell, Mar 2, 1992.

On Target

Nongovernment, private enemy property could not be confiscated. For all prohibited items except alcohol, General Schwarzkopf allowed a grace period of seventy-two hours to dispose of the offending material.²⁶

General Schwarzkopf again revealed his intense interest in ensuring amicable relations with the Saudi people by following up GO-1 with an admonition to his commanders. He informed the JCS that “every commander in the AOR has been personally instructed to make himself and his people aware of the local Islamic customs.” He ordered the establishment at every major command location of community relations action councils to improve communication and understanding. These would preclude problems and resolve, at the lowest level, any issue that did arise.²⁷

As the services’ experience in Saudi Arabia grew, so did the list of do’s and don’ts. The information card handed out to all service members contained several pieces of new advice. Regarding Saudi women it stated, “Dating is not allowed. Don’t stare or attempt to strike up a conversation.” At the Muslim prayer times, five each day, service personnel should remember that all business and commercial establishments must close and restaurants may suspend service. The handout recommended, “Leave politely...at these times if asked.” On photography it suggested,

avoid photographing military or civilian installations and equipment, places, mosques, military or civilian police, oil fields, Saudi women, etc. Do not photograph people at close range (particularly women) without permission. Consider purchasing one of the many fine pictorial guides of the Kingdom instead.

As for time it observed, “don’t be impatient with local people. It’s interpreted as a sign of insincerity or lack of self-control. If you hurry, they may take offense.” The handout warned of the two cultures’ conflicting definitions of personal space, stating that “Arabs stand close together when talking. Americans may find this uncomfortable at first but should avoid backing away.” Because the unintentional injury sometimes causes the most harm, the handout offered the following, “never sit and expose the sole of your shoe or bottom of your feet to an Arab—it’s an insult.” Be aware of patronizing your hosts, it instructed; “don’t talk down to someone who doesn’t speak English well.” Conversation also offered pitfalls: one should follow his or her Saudi host’s lead, avoid asking questions about Arab women (impolite), and avoid discussing politics and religion. The instructions emphatically stated, “don’t discuss Israel at all. Our gov-

26. GO-1, HQ USCENCOM, Subj: Prohibited Activities for U.S. Personnel Serving in the USCENCOM AOR, Aug 30, 1990 [File No. AFHSO microfilm reel 10204, frames 491-493].

27. Msg, 152115Z Sep 90, USCINCENT to AIG 904, Subj: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 61. For General Schwarzkopf’s description of some of the cultural incidents he dealt with and his philosophy in handling Arab culture, see Schwarzkopf, *It Doesn’t Take a Hero*, pp. 332-339.

The Offensive Deployment, Morale, and Training

ernment policy toward Israel is complex, and any discussion may create more misunderstandings.” Be careful of admiring an Arab’s personal possessions, the handout warned. “By Arab custom, [the owner of the admired item] may present it to you, amid much embarrassment. However, never refuse an Arab’s gift—this is also considered insulting.”²⁸

The handout had detailed instructions on how to deal with the *Muttawwa*, or religious police. The *Muttawwa* do not belong to the civil police, but rather to the Committee for Enforcing the Right and Forbidding the Wrong, also termed Public Morality Committees. Established in 1925 by religious zealots, they seek to safeguard the conservative Wahhabi-Muslim ideology of Saudi Arabia. They have no legal power to investigate or prosecute crimes, but as concerned Muslims they have the right and traditional duty to make the equivalent of a citizen’s arrest. They report violations to the legally competent authorities, usually the police, and often seize offenders and deliver them to the local police station where the crime could be investigated. In Riyadh in 1982 and 1983, they detained persons they believed intoxicated, stopped individuals in the company of a member of the opposite sex to determine if they were married, and “raided” local supermarkets to enforce their views as to the proper attire of a modern Saudi woman.²⁹ Clearly, repeated incidents involving the *Muttawwa* and service personnel might spark misunderstandings and provoke violence by both parties, which had the potential to escalate into serious difficulties with and for the host-nation government. Of the *Muttawwa*, the handout counseled nonviolence and limited cooperation:

They enforce Muslim rules including the dress code, prayer time, etc. Some zealous *Muttawwa* will confront Americans. If confronted by a *Muttawwa*, attempt to quietly slip away. If they try to take you into custody, insist on the presence of a uniformed police officer. When he arrives show him your armed forces I.D. You may be released at this time. If not, accompany them to the police station where you will eventually be released. Report the incident to your commander.

Finally, at the end of the handout’s daunting list of possible miscues and errors, it concluded glowingly, “Don’t be misled, Saudi Arabia is a fascinating country, and its people are friendly and generous in many cases. You may be the first American some Saudis have met. This is a terrific opportunity to show them how really wonderful Americans are. Do it!”³⁰

In fairness, one must point out that the Saudis too, had their concerns. One Saudi officer spoke of the widespread disbelief of the U.S. buildup. Although he accepted the necessity for it, the idea of Israel’s benefactor in Saudi Arabia went

28. Information Card, “Cultural Sensitivities,” n.d.

29. Joseph P. Saba, “The Law of Saudi Arabia,” U.S. Military Training Mission to Saudi Arabia, Country Law Study for Saudi Arabia, Feb 22, 1984, p. 25 [File No. AFHSO microfilm reel 10203, frame 1596].

30. Information Card, “Cultural Sensitivities,” n.d.

On Target

beyond “normal thought.” Many Saudis, he added, wanted the United States to leave the instant it had pacified Iraq.³¹ A long-term, highly visible American presence could destabilize the regime and discredit it as a guardian of Islam’s most holy places.

Further, the number of women in the American armed forces and their roles in the services, especially female officers ordering men about, must undoubtedly have shocked the Saudis. During General Horner’s first meeting with the Saudi service chiefs on August 8, the Saudis’ senior military officer, General Muhammad al Saleh Al-Hammad, Chief of the Joint Staff, Ministry of Defense and Aviation, asked, “Are you bringing women?”³² General Horner replied affirmatively. Female CENTAF Forward personnel faced immediate problems. No woman had ever before set foot in the RSAF HQ building. The building also contained a Mosque, from which the Saudis apparently intended to exclude all U.S. personnel, particularly women. In addition, the building had no specified women’s rest room. The Americans solved this by roping off one of the rest rooms for use by female personnel.³³ Although these and other irksome restrictions understandably infuriated U.S. female military personnel, both cultures eventually attained a modicum of understanding. In time, the Americans developed a useful strategy that somewhat eased the role of, but by no means all of, the restrictions on American servicewomen in Saudi Arabia. The Americans informed the Saudis that female personnel in full uniform were soldiers and would be treated as soldiers, including having the right to operate motor vehicles. Out of uniform, female personnel were subject to local mores, such as the prohibition against driving, but they normally did not have to follow the strictest dress codes, such as wearing the abayah, the black robe that covers Saudi women from head to foot. When King Fahd gave permission for U.S. forces to enter his land, the aspect of women among the American service personnel present may not have occurred to him, nor would most of his subjects have even conceived of it.

American efforts to inform their servicemen and women of some of the differences between their and the Saudis’ cultures may have served to frighten more than to educate, much as the anti-venereal disease films did to the troops’ grandfathers in World War II. In this earlier time, one could determine how effective the films were by the subsequent rate of sick calls (reduced in the short run). Likewise, one can gauge the relationship between U.S. forces in Saudi Arabia and the people of their host nation. Some incidents occurred but none was so serious as to complicate U.S.-Saudi relations. Measured by this standard, the vast bulk of U.S. service personnel in Saudi Arabia comported themselves well.

Not all the restrictions in GO-1 proved detrimental to morale—some personnel simply ignored them. As of November 1, the CENTAF judge advocate

31. Msg, 072212Z Sep 90, DIA, Washington D.C., to DIACURINTEL, Subj: Saudi Arabia: Attitudes on Gulf Crisis [File No. T/HO/2/DIA-Sept].

32. Intvw, Lt. Gen. Horner, Mar 4, 1992.

33. Intvw, Col. Getchell, Mar 2, 1992.

The Offensive Deployment, Morale, and Training

noted a total of eleven drunk and disorderly offenses and the same number of violations of GO-1. Yet on the whole, GO-1 and the lack of any local alternatives helped produce the driest and probably least profane and least raunchy force ever fielded by the U.S. military.³⁴ One soldier joked when asked the perennial question, “What are we fighting [in Saudi Arabia] for?” He responded, “To dry out all the alcoholics.” As one observer pointed out, the average soldier, sailor, or airman spent a great deal of time in his or her base compound and may have come into contact more often with third-party nationals, such as Saudi-hired, non-Saudi truck drivers, than with the host nation populace.³⁵

The mix of restrictive conditions (especially the scarcity of spirits), the high level of motivation produced by the crisis, and the top-to-bottom professionalism of the military (CENTCOM fielded the largest U.S. military force ever to engage in combat without having in its ranks a single conscript) helped create a superbly disciplined command. As of January 25, 1991, the cumulative court-martial rates of CENTCOM when compared to the FY 1989 worldwide rates for all U.S. services showed a dramatic difference. For every 100,000 service personnel worldwide, 157 received general courts-martial and 365 received special courts-martial. For CENTCOM, 3 per 100,000 underwent general courts-martial and 11.8 per 100,000 underwent special courts-martial, rates 30 to 40 times less than the norm. As for Uniform Code of Military Justice Article 15 nonjudicial punishments, CENTCOM had accumulated 2,817, including 16 officers, as of January 25, 1991. CENTAF compiled an exceptional disciplinary record over the period: 1 general court-martial, 1 special court-martial, and only 188 (including 8 officers) Article 15s. In part, CENTAF had such a large percentage of officer Article 15s because the USAF has a higher percentage of commissioned personnel than the other services.³⁶

The cultural isolation and increasingly long periods away from their families, with no firm word on a rotation policy, adversely affected the morale of USAF personnel in the AOR. In the first week of September, CENTAF Staff Chaplain Lt. Col. James T. Elwell visited nine air bases. He found Bateen, on the UAE peninsula in the Gulf, with its at least 70-percent humidity and its more than 120° Fahrenheit temperatures the most physically uncomfortable. He assessed morale as high but noted that the lack of a return date to the United States presented a key morale issue. The lower-grade enlisted personnel lacked work, leading to boredom, and female personnel felt “like prisoners.” However, in Oman and Bahrain, more liberal states than Saudi Arabia, servicewomen had only loose or nonexistent restrictions. The chaplain also disclosed that his organ-

34. Brfg Slide, “Military Justice: Most Common Offenses,” n.d. [carries notation a/o 1 Nov 90] [File No. AFHSO microfilm, reel 10204, frame 290].

35. Charles Moskos and John Wattendorf, “Troops in the Desert,” *IUS Newsletter*, No. 9, Mar 1991.

36. Brfg Slides, CENTAF Judge Advocate, n.d. [Feb 1991] [File No. AFHSO microfilm reel 10204, frames 198, 200].

On Target

ization had been granted one of the first exemptions to a part of GO-1—General Schwarzkopf had authorized them to import sacramental wine. Colonel Elwell then reported on the chaplains' plans for caring for the dying and wounded in the field, should the conflict come. His teams would attempt to maintain sensitivity to local customs, but "during actual conflict, it will be disruptive, to say the least, and possibly impossible to keep 'looking over our shoulders' to see if any national is around who could be offended by our religious practices." He suggested that the U.S. government might wish to discuss and arrive at a policy on the issue of religious practice on the battlefield and in the hospital ward.³⁷

Maintenance of morale is an important command responsibility. CENTCOM took several measures to support it. With CENTCOM's help and cooperation, many entertainers, Hollywood personalities, and celebrities visited the troops on show tours. The Steve Martin and Jay Leno tours visited thirty-two bases, including four CENTAF facilities.³⁸ Bob Hope brought a Christmas show from December 23 to 29. Its male members put on shows in Riyadh, Al Jubayl, and King Fahd, but cultural sensitivities limited its female members—Ann Jillian, Marie Osmond, and the Pointer Sisters—to performances in Bahrain and on Navy ships. The command also chartered cruise ships as rest and recreation facilities. The first berthed on December 24 and immediately went into service. It provided quiet areas, swimming, base exchange retail operations, barber/beauty shops, a book store, amusement, games, entertainment, and bar operations. It had access to a beach area and sightseeing tours. The services based their respective allotments of the ships' accommodations on the number of personnel they had deployed in Saudi Arabia. Initially, CENTAF had one hundred slots. An individual's recreation cycle would run from the afternoon of the first day to the morning of the fourth. Priority went to airmen longest in theater and serving in the harshest conditions. Members of the 1st and 354th TFWs comprised the first USAF increment. In a spontaneous outpouring of concern and support, the American public and U.S. corporations donated recreational and other items for the troops' welfare. A short list of CENTAF's share of this largesse included 416 electronic games, 77 camcorders, 59 TVs, 62 VCRs, 41,420 blank VCR tapes, 1,130 radios, 1,500 whiffle balls, 5,050 blank cassette tapes, and 9 boxes of footballs. Alas, Army and Marine personnel appear not to have shared the donated comic books, caramel corn, and Twinkies.³⁹

While these organized activities had a positive effect on the service members, individuals for the most part sustained themselves with more traditional props to morale—comradeship and esprit within their units. In this conflict, even

37. Rpt, Lt. Col. James T. Elwell to CENTAF/CC, Current Findings at CENTAF FWD, Sep 11, 1990 [File No. TAC/CTC/Box 5 folder 6].

38. Memo, Col. Joseph A. Crozier, Jr., USAF, CENTAF Dir Personnel, for Lt. Gen. Homer, Subj: Commander's Daily Update, Nov 27, 1990 [given to General Horner on Dec 1, 1990] [File No. AFHSO microfilm reel 10216, frame 30].

39. Msg, 041030Z Jan 91, USCENTAF/DPS to HQ USAF/DPMW, Washington D.C., Subj: MWR Update—Operation Desert Shield [File No. T/CT/52/-].

The Offensive Deployment, Morale, and Training

more than in Vietnam, American service personnel found enormous satisfaction and relief in popular music. Boom boxes blared Madonna and rap music, and at least one observer concluded that this was the first American force to go into battle wearing Walkman radios.⁴⁰

The lack of a rotation policy seems to have constituted the single most consistently detrimental morale factor. If the crisis had continued another few months, anxiety over lack of rotation might have become debilitating. By January 7, 1991, the CENTAF chaplain reported,

The number of counseling cases concerning rotation policies and marital/family concerns continues to grow. Morale had taken a slight downward trend. We anticipate this to continue until some firm decisions about rotation policies or unless some type of armed conflict begins.⁴¹

This preoccupation with rotation, albeit understandable, raised an issue with consequences for future deployments. In this instance, the U.S. military could not simultaneously field a large force and have a rotation policy. All U.S. armed forces face the prospect of an indefinite and constant pressure to shrink their manpower as a result of both the end of the Cold War and the necessity to reduce all nonentitlement programs in the federal budget, a result of the U.S. government's inability to align revenues with expenditures. It follows, therefore, in any upcoming long-term deployment involving more than a few units and perhaps 100,000 personnel that the possibility of rotation becomes remote, unless the armed services return to the politically expedient but unsatisfactory and extremely disruptive personnel practices of the Vietnam War. Such practices nearly wrecked the Army and left all the services with worldwide shortfalls of trained personnel, hollow units, and damaged morale. If large-scale rotation is impractical, then the services must face the alternative squarely. They should state a policy of no rotation for large deployments in advance of those contingencies, and in such circumstances they should study and provide for appropriate measures to maintain morale. Such a policy will unfavorably affect personnel, but not as unfavorably as would constant speculation and uncertainty about current policy. At the very least, personnel and their families could make firm plans for their future. Another alternative exists: the U.S. might choose to attempt to end crises quickly, before the uncertainty of possible rotation weakens morale. Putting U.S. military response on such a hair trigger could so shorten the list of political and diplomatic options as to make that alternative counterproductive.

The Final Preparations, Administration, and Training

As the UN Security Council deadline of January 15 approached and Saddam remained as obdurate as ever, CENTAF continued or even stepped up prepara-

40. Moskos and Wattendorf, "Troops in the Desert."

41. Monthly Rpt, Col. Peter M. Hansen, USAF, CENTAF/CH, to USCENTCOM/CCCH, Jan 7, 1991.

On Target

tions for combat. Several different facets of the effort are examined here, including the definition of wartime ROE and the compilation of a joint no-fire target list (JNFTL), that is sites exempt from attack by Coalition air forces; air training for the offensive air campaign; CENTAF reorganization; and the deployment of JSTARS.

The writing of CENTCOM's peacetime ROE presented fewer problems than the preparation the wartime ROE, which CENTCOM did not finalize until January 14, 1991. Three factors complicated the creation of a wartime ROE: the security compartmented nature of the offensive air campaign plan, differences among the Coalition members' languages and national ROEs, and differences between the USAF and USN. Compartmentalization of the planning for the offensive air campaign prevented coordinating the plan and its objectives with the CENTAF staff charged with preparing ROEs, in particular, the director of air defense. The director had the responsibility of integrating the air defenses of the Coalition forces and of other U.S. services into the RSAF-CENTAF air defense system established at the beginning of the crisis. The differing air defense doctrines of the Coalition members necessitated coordination between the offensive air plan and the air defense plan. The ATO would reflect the results of this coordination. Ignorance of the offensive plan hampered other USAF and USN drafters of the ROE because they did not understand how—and from what directions, with what aircraft, and at what times—the Coalition air forces would attack Iraq. By early October 1990, a single member of the air campaign planning staff, Maj. Larry L. Heintzelman, who had experience in preparing ROEs and had contacts with the CENTAF director of air defense, acted as a liaison between the two organizations. He shouldered much of the burden of reviewing and coordinating an offensive ROE for the theater. Members of the special planning group with extensive air-to-air experience—General Glosson, Colonel Deptula, and Maj. John Turk—and AWACS representatives developed the air-to-air ROE for the offensive air campaign. They spent many hours creating an ROE acceptable to operators, those personnel who actually fly the missions. In particular, General Glosson, who had experienced first-hand the restrictive ROE in the war in Southeast Asia, was determined not to handicap Coalition pilots. The ROE committee had to maintain air discipline sufficient to keep incidents of fratricide (casualties inflicted by friendly fire) at a minimum. The process eventually resulted in a unique concept—an ROE written by operators for operators.⁴² The first wartime ROE, prepared in mid-August, consisted of only a single sheet of rules which permitted U.S. forces to cross the border and attack anything that might interfere with their operations; the second wartime ROE did not appear until October 6.⁴³

42. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 15.

43. Intvw, Maj. Heintzelman with TSgt. Saluda, "Rules of Engagement," Mar 14, 1991 [File No. T/CT/21/Olsen & Heintzelman].

The Offensive Deployment, Morale, and Training

This draft ROE reflected the difficulties in crafting a set of rules applicable to a diverse Coalition. Many of the U.S. rules and documentary references carried a Secret/Not Releasable to Foreign Nationals classification that prevented their release to many Coalition members. Also, because few Coalition members had English as a native language, ROEs meant for the entire Coalition required extremely clear and precise drafting, which played hob with the complex conditional phrasing and reliance on if/then logic employed in traditional ROEs. With CENTCOM approval, the October 6 ROE used a format of supplying a short basic document, with explanatory tabs or annexes. Major Heintzelman had distilled this ROE from the fourteen-page prewar ROE to a three-page basic document and four tabs, one of which was a beyond visual range (BVR) rule of engagement.

Apparently, none of the Coalition partners objected to the draft ROE. But the USN took almost four weeks to reply, and it had several problems with the treatment of BVR engagements. The Navy's worry concerned the differences between the USAF's resources and their less-capable equipment. CENTAF ROE threatened to prevent the Navy and its excellent Phoenix (AIM-54) system from participating in the air-to-air fight against a 700-plane air force.

Part of the ROE problem between the two services stemmed from the differing capabilities of their air-to-air missiles. Both services used the AIM-7 and AIM-9 missiles, but the Navy's AIM-54 had other capabilities that it did not wish to relinquish. In a December 18 draft, CENTAF attempted to meet some of the Navy's ROE concerns. It provided a contingency scheme whereby the Navy's aircraft could obtain necessary clearances. Instead, on December 24, the Navy suggested restricted operations zones, which provided that when a Navy package attacked Iraq, planners would fence off the Navy's route from other Coalition aircraft.⁴⁴ Such a scheme would have completely uncoordinated the simultaneity and shock effect of the offensive air campaign and unnecessarily clogged the three main air approaches for the benefit of a tiny number of aircraft with no penetrating munitions, few self-designating lasers, and little range.

At last, in the first week of January, a representative from CENTCOM, Major Heintzelman, and several officers from one of the carrier groups met to thrash out a modus operandi for full use of the Navy's weapons systems. After two days of negotiation they developed the "special BVR zone." Tying the Navy aircraft into the ATO and the AWACS gave the JFACC stronger control over Navy missions. During the negotiations it became clear to all parties that if a Navy flight abused the process, the AWACS would refuse to turn on any more zones, ever.

On January 7, CENTAF sent out another draft ROE and asked for approval from all the components and from CENTCOM. Although the Navy objected to

44. Ibid.; Staff Summary Sheet, Col. Sykes and Maj. Heintzelman, [CENTAF] DAD/JA, Subj: Desert Shield Wartime Rules of Engagement (ROE), Dec 18, 1990.

On Target

several points, three presented potential problems: naval mining, procedures for solo BVR flights, and promulgation of the ROE by CENTAF instead of by CENTCOM. Apparently, the mining issue went in the Navy's favor. CENTAF agreed to modify the solo BVR rules to allow Navy aircraft that could not meet all solo criteria to fire AIM-54s. CENTCOM rejected the possible Navy attempt to undermine the JFACC by having CENTCOM issue the wartime ROE and then allow General Horner, as the JFACC, to issue the regulation. However, the CENTCOM staff did seek to eliminate the portion of the ROE that defined neutrality and to restrict the rules of hot pursuit, obviating them. CENTCOM acceded to this reasoning. In the realm of hot pursuit, CENTAF had envisioned a situation in which Iraqi war planes would seek shelter in neutral airspace, shed their pursuit, and immediately bounce out into Iraqi space and line up a shot at Coalition aircraft. The two sides worked out a compromise that would allow Coalition aircraft to defend themselves in border-crossing situations.⁴⁵ Approximately seventy-two hours before the start of Desert Storm, the approved wartime ROE went to the units.

CENTAF's wartime ROEs accomplished their major objectives. They provided an operating environment that, despite the activity of more than 1,400 aircraft, held incidents of friendly air-to-air fire to a minimum, with only two incidents recorded. They also allowed Coalition aircraft, including USN aircraft, to operate almost unhindered over Iraq while avoiding any international incidents with either Jordan or Iran. The ROE did prevent hot pursuit of Iraqi aircraft fleeing to Iran once they had crossed the Iranian border; the diplomatic repercussions of a large-scale violation of the Iranian international boundary may well have outweighed the residual military value of the Iraqi aircraft marooned in Iran. Unlike earlier conflicts when the NCA could not refrain from tweaking the ROE to conform to political objectives, these ROEs seemed remarkably free from outside interference. Aside from the initial JCS peacetime ROE and its eventual approval by General Schwarzkopf, the JFACC and the air components prepared the ROEs without interference. Of course, unlike earlier conflicts such as Korea and Vietnam, the possible conflict with Iraq had no enemy sanctuaries or potentially hostile powers capable of or likely to massively intervene on the side of Iraq. The neutral powers, Jordan and Iran, might scowl fiercely and indulge in anti-Coalition rhetoric, but they seemed far more likely to maintain their neutrality than to risk an incident for the sake of Iraq. In this instance, at least, the situation in the Persian Gulf was simpler than those elsewhere.

The preservation of Iraq's internationally significant humanitarian, historic, and religious sites had a close association with the ROEs. Human civilization had originated almost 6,000 years ago in the lands now occupied by Iraq. In Mesopotamia, the region between and bordered by the Tigris and Euphrates Rivers, great cities and cultures had arisen and vanished. The ruins of ancient Ur,

45. Intvw, Maj. Heintzelman, "Rules of Engagement," Mar 14, 1991.

The Offensive Deployment, Morale, and Training

perhaps mankind's first city, lies just to the southwest of An Nasiriyah (site of a major bridge across the Euphrates) and adjacent to Tallil Airfield, one of the most important military targets in southern Iraq. The capitals of long-gone empires dot Iraq—Babylon; Ctesiphon, with the world's widest remaining brick-work vault; Nippur; Nimrud; Nineveh, directly across the river from Mosul; and Al Kufa, the first Arab capital of Iraq. Several important Shia Muslim shrines, including Husayn's Tomb in Karbala and Ali's tomb in An Najaf, also required protection. The final, preconflict JNFTL, issued January 16, 1991, listed a wide range of such targets exempt from attack.

The topic of collateral damage—unintentional injury inflicted upon persons and property in proximity with but not connected to the target of an attack—relates closely to the JNFTL. The term, in fact, has become a euphemism for enemy civilian casualties resulting from friendly bombing or shelling. The possibility of such casualties in a conflict with Iraq and the potential for Iraq to produce sensational propaganda with mischievous effects on world and domestic opinion naturally concerned the USAF, and likely General Powell and the president as well.⁴⁶ Of the 238 identified strategic targets as of early November 1990, more than one-third (93) were in close proximity (within three miles) of suburban (40) or urban (53) areas. This included some leadership targets, electrical targets (some in urban areas), telecommunications targets, and many railroad targets. In Baghdad, residential areas surrounded or contained 19 targets and abutted 6 more. The special planners took several precautions to minimize collateral damage.⁴⁷

Checkmate supplemented the CENTAF effort with a computer-based study employing the Threat Related Attrition software package. The USAF Surgeon General used the software as a standard source of casualty data, as did the Air Staff DCS for Personnel. The study focused on night operations over Baghdad, the most densely populated area of Iraq, and used the most accurate weapons systems in the U.S. inventory: the F-117A/GBU-27, the F-111F/GBU-24, and the TLAM. It counted only the noncombatant casualties inflicted from U.S. weapons system malfunctions or human error. Checkmate assumed that the fog of war would drive the numbers of dead and injured toward the high side of the predictions, but it noted that careful crew preparation before the attack could reduce civilian losses. In Checkmate's judgment, the F-117A's characteristics perfectly suited it for the mission, and also night attacks would reduce noncombatant casualties because civilians would have left their places of employment near potential targets and returned home. Checkmate surmised that pilot error in misidenti-

46. Talking Paper, "Limiting Collateral Damage," n.d. [ca. early Nov 1990] [carries annotation "as prepared by Buck Rogers and Oly Olsen of the Special Campaign Planning Group"; see further annotations "for CSAF mtg w/Pres, Camp David 1 Dec 90," and on the third page, "Briefed CINC, Delivered to Chairman for Presidential Brief—8 Nov 90"] [File No. CK/AS/-CSAF].

47. Talking Paper, "Limiting Collateral Damage," n.d. [ca. early Nov 1990].

On Target

fying targets, rather than weapon malfunctions, would cause most of the damage. Lastly, the study recommended immediate postattack reconnaissance imagery to establish casualty estimates based on actual impact points; such estimates would help counter anticipated Iraqi charges.⁴⁸ With its relatively reassuring estimate of low noncombatant casualties based on precisely the attack methodology the special campaign planners meant to employ, this report, which Checkmate sent to General Glosson and possibly to others, may have strengthened the resolve of the special planners to continue in the course they pursued without fear of negative consequences.

Twenty centuries ago the military historian Josephus, an Israelite general who submitted to the forces of Rome (the superpower of his day), said of his captors, “their exercises are battles without bloodshed, and their battles are bloody exercises.”⁴⁹ The Roman legions, like any first-class military unit, trained constantly—as does the USAF. In the five months between the arrival of the 1st TFW in August and the outbreak of the conflict in January, all units of CENTAF trained intensively for their expected combat roles. During the initial period after Iraq’s occupation of Kuwait, the first U.S. aircraft into theater stayed at alert status to guard against any aggressive Iraqi moves. When the immediacy of the Iraqi threat subsided, USAF units began a training program to maintain skills, to practice coordination of strike packages, and to familiarize and coordinate all units with the advanced electronic and communications assets available to them in the AWACS and ABCCC aircraft.

By September 6, 1990, CENTAF had already begun to plan for small-scale exercises to coordinate the use and connectivity of electronic assets. At the same time, CENTAF forces began to coordinate more realistic air-to-ground tactical training, including the reduction of low-level training restrictions and the increased use of Saudi practice ranges for live and dry tactics. Within ten days, CENTAF forces began flying large practice interdiction packages: on September 16 forty F-16s comprised one package. This represented an instance of an F-16 wing commander beginning to practice his portion of the offensive air campaign ATO. F-16s seldom flew in such large packages, and the wing commander wished to give his pilots the necessary training. Many of the wing commanders followed this tactic, without revealing their true intentions to their pilots; they broke out bits and pieces of their segment of the offensive plan and had them written into the daily training ATO.⁵⁰ Because of the classified nature of the plan, Coalition aircraft did not exercise the plan all at once, which would have given the Iraqis exposure to it; instead, they flew parts of it, while other aircraft flew

48. Memo, Col. Warden for Brig. Gen. Glosson, Nov 14, 1990, attachment No. 2: Point Paper “Threat Related Attrition (THREAT) Application for Operation Desert Shield” [CK: TS 90-XOXWF-004].

49. Josephus, 37–100 A.D., cited in Robert Debs Heinl, Jr., *Dictionary of Military and Naval Quotations* (Annapolis, Md.: U.S. Naval Institute Press, 1966), p. 328.

50. Intvw, Capt. Bruner, Mar 19, 1992.

The Offensive Deployment, Morale, and Training

other missions.⁵¹ Four days later, CENTAF aircraft flew night packages of four F-15Cs and twelve F-111Fs and day packages comprising F-16s, F-4Gs, and Saudi Tornados. Also, the A-10s began to fly ground-force familiarization flights over the Eastern Province. F-4Gs and five B-52Gs flew a low-level strike package on September 24. Two days later, CENTAF aircraft cooperated with RAF and RSAF in a single package as well as conducted CAS exercises with USMC and ABCCC aircraft. F-117As formed a part of one of three packages flown on September 29.⁵² The pace and the complexity of training accelerated in the coming months.

For the period between October 1 and January 15, CENTAF aircraft averaged almost 500 flights daily, quadruple the number of detected Iraqi flights.⁵³ This would indicate that during the months before the conflict, CENTAF aircraft and pilots trained at a rate of, at the very least, twice that of Iraqi aircraft and pilots. This, like so many other factors, would work to the benefit of the Coalition. Canadian CF-18s constituted part of one of four strike packages on October 10. By October 14, CENTCOM reported that training had progressed from small, single-unit missions to large, multinational strike packages accompanied by opposition air, escort fighters, early warning aircraft, and Wild Weasel support. After the conflict, the commander of the 35th Provisional Tactical Fighter Wing [TFW(P)] (the F-4G Wild Weasels based at Shaik Isa AB) observed that this period for extended training allowed his aircrews to build a war plan that included two significant changes in their normal mode of operations. Before deployment, HQ TAC restrictions had not allowed its airmen to practice night flying operations. After the unit's arrival in the AOR, it began extensive tactical and theoretical discussions and dedicated one-third of its training sorties to nighttime Wild Weasel missions. In addition, the wing adjusted its HARM-firing doctrine for night conditions. Second, after evaluating the Iraqi threat environment, the wing refined its tactics and practiced for medium-altitude (15,000–19,000 feet) operations. For example, the distance from planned air-to-air refueling areas meant that the F-4Gs would have no loiter time in the Baghdad area and would have to flow a stream of formations through the region, limiting the collection of electronics order of battle data and time on station. Accordingly, the wing allowed each four-ship formation the flexibility to tailor HARM-firing doctrine to the mission flow plan and support requirements as well as to employ all methods of HARM deconfliction, such as threat type, geographic position, time, and position in the flow.⁵⁴

51. Intvw, Lt. Col. Waterstreet, Mar 6 1992.

52. Msg, 062115Z Sep 90, USCINCCENT to JCS, Subj: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 50. For other dates in this paragraph, see appropriate Sitreps as cited in Michael.

53. Michael, *Desert Shield Chronology*, Chart "CENTAF-IRAQ Flight Activity," following p. 78 [compiled from figures in CENTCOM Sitreps].

54. Msg, 211330Z Mar 91, 35TFW(P) Deployed/CC to CENTAF/DO, Subj: 35 TFW(P) Combat Effectiveness Reviews [File No. CK/DS/F-4G].

On Target

Training and maneuver casualties constitute one of the hardest and least-acknowledged facts of military life. Usually they are directly proportional to the size and rigorousness of the exercise. Not only expense but also the greater chance for deadly and crippling mistakes and accidents limit the number of large, peacetime exercises. Only services unaccountable to the public, such as the Japanese Imperial Navy in the 1930s and early 1940s, can indulge in prolonged and rigorous training under field conditions. By October 12 CENTAF aircraft had suffered four Class A accidents (accidents involving serious damage to an aircraft and or death or serious injury to the air or ground crew). Two were an F-111F and an RF-4C flying into the ground on different occasions as they practiced maneuvers to avoid enemy fire. In reaction, General Horner imposed height limitations on CENTAF aircraft: 5,000 feet above ground level (AGL) for air-to-air operations, and 1,000 feet AGL on continuation training. He noted that when the commanders advised that they had received and understood the message, he would reduce the limits.⁵⁵ Almost immediately he allowed the B-52Gs to train at 500 feet AGL.

Exercise Imminent Thunder, a precursor to Instant Thunder, began on November 15 (C+100 days). It exercised major portions of the offensive plan and included nine strike packages and one CAS package involving more than 700 aircraft. The exercise integrated joint and combined air, ground, and naval forces. The next day Coalition forces flew twelve strike packages in a simulation of D+1 day missions. The IZAF responded to this air activity by sharply reducing its own flying.⁵⁶ The exercise ended on November 21 (C+106) after several days of large CAS exercises and a total of approximately 4,000 Coalition air sorties.

From December 5 (C+120) through December 7 (C+122), Coalition aircraft conducted Exercise Desert Force and participated in seventeen strike packages and live firings on Saudi ranges. This and other exercises provided experience not just for the combat aircraft, known in current service slang as “shooters,” but for the support aircraft as well. The strike packages flew distances and routes corresponding to their ultimate missions. Along the way, both types of aircraft had to coordinate their actions with the tankers and coordinate their procedures with the electronic-support aircraft. The Coalition partners and other U.S. services found the missions of particular utility—live firing reinforced marksmanship, weapons procedures, and ground-crew weapons handling. As December progressed into January, Coalition aircraft flew bigger and bigger portions of the first night attack plan. The practice missions revealed some flaws in various aspects of the upcoming strike, and the special campaign planners adjusted their work accordingly.

55. 120900Z Oct 1990, COMUSCENTAF to COMTAC et al, Subj: Desert Shield Accidents [File No. AFHSO microfilm reel 10161].

56. Msg, 172115Z Oct 90, USCINCCENT to AIG 904, Subj: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 130.

The Offensive Deployment, Morale, and Training

At their more leisurely pace, the Iraqis also prepared for future conflict; on Christmas Day, six Iraqi air bases and thirty fighters conducted a simultaneous countrywide nighttime ground-controlled intercept exercise.⁵⁷ The late December Iraqi night flying reflected an overall growth in their night training to 25 percent of their total training sorties, a response to anticipated Coalition tactics. From October to December, Iraqi night air combat training increased from 5 percent to 35 percent of all sorties. Southern bases and bases around Baghdad in particular boosted their night air-combat training schedules.⁵⁸ The sixth of January saw Coalition training in dissimilar aerial combat tactics, low-level navigation, surface attack, and aerial refueling. That night, CENTAF prepared for a key element of the anticipated operations by conducting a large-scale tanker surge exercise.

As the UN Security Council deadline of January 15 approached, CENTAF units began to cease practicing for war and to prepare for it. From January 12 (C+158) onward, air-to-ground and air-to-air units loaded some or all assigned aircraft with the weapon mixes specified in the first night's MAP. On January 13 (C+159), tankers practiced manning wartime orbits.⁵⁹ While Coalition training did not precisely duplicate wartime conditions, it did sharpen skills and pinpoint some weaknesses. In the first three days of conflict—when Iraqi defenses were at their maximum, Coalition pilots were at their most inexperienced, and tanker tracks occupied almost all altitudes—not one air-to-air collision occurred. Quick reflexes and dumb luck account for some of that achievement, but much belongs to the many hours spent training.

Clear lines of authority permit the members of an organization to focus on their tasks without the distraction of competing or contradictory instructions. In the military, basic combat units up to the brigade or wing and often to the division level tend to have fixed tables of organization and equipment that delineate explicit chains of command. This prevents uncertainty and hesitation at the point of combat, factors that produce wasted effort and unnecessary casualties at best, and total defeat at worst. Higher command levels have more flexible organizations to reflect their unique adaptation to specific functions and missions, and their position in the overall command hierarchy. In his own person, General Horner commanded or controlled three distinct entities: the U.S. Ninth Air Force, CENTCOM air forces, and the Joint Force air component. As a USAF general, he commanded the Ninth Air Force, a tactical air force consisting of fighter and attack aircraft assigned to TAC. Besides his duties as a USAF numbered air force commander, General Horner had a responsibility to support the CINCCENT,

57. Msg, 272115Z Dec 90, USCINCCENT to AIG 904, Subj: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 177.

58. Msg, 031018Z Jan 91, CENTAF/IN to AIG 12929 (INTREP 91-006), Subj: Iraqi Night Flying Trends [File No. T/CT/52/-].

59. Msg, 162115Z Jan 91, USCINCCENT to AIG 904, Subj: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 209.

On Target

should that commander require air forces to accomplish his mission. The decision to send forces to Saudi Arabia, part of CENTCOM's geographic AOR, meant that General Horner came under General Schwarzkopf's authority as commander of CENTAF. As COMCENTAF, General Horner had the responsibility to organize the forces under his command and control and to carry out the orders of General Schwarzkopf, a relatively straightforward task.

Within CENTAF, the extent of General Horner's legal control over his units varied with the unit's command of origin (its regular USAF MAJCOM assignment). He had direct command and control over Ninth Air Force and other units seconded from TAC. SAC retained combatant command of all its aircraft (tankers, B-52Gs, U-2s, and TR-1s). It passed operational control, which included mission planning and execution authority, of B-52Gs deployed to the AOR and B-52Gs in the continental U.S. and assigned to support Desert Shield to the CINCCENT. The CINCSAC delegated operational control of his tankers to the subordinate numbered air forces (the Eighth and the Fifteenth) and to the commander of 17th Provisional Air Division [17th AD(P)], who was dual-hatted as the director of Strategic Forces (STRATFOR). The STRATFOR commander had operational control of tankers specifically assigned to support CENTCOM. The JFACC had tactical control of all tanker sorties supporting CENTCOM operations. SAC retained operational control of reconnaissance assets including mission execution, but it delegated tactical control to the 17th AD(P). Assignment of reconnaissance missions would have to go through the Strategic Reconnaissance Center at HQ SAC.⁶⁰ The USAF Commander of Airlift Forces (COMALF) also wore another hat—Commander, 16th Provisional Air Division [16th AD(P)]. He had a command relationship with CENTAF similar to that of the STRATFOR commander. These two air divisions came into existence in late August 1990. General Horner retained direct command of the tactical combat and electronic support units.



The CINCSAC, General John T. Chain, inspects a forward operating location.

60. Msg, 241900Z Aug 90, CINCSAC to 8 AF, Barksdale AFB et al., Subj: Command Relationships of SAC Forces Supporting Desert Shield [T/HO/19/SAC Command Relationship].

The Offensive Deployment, Morale, and Training

The JFACC, Lt. Gen. Charles A. Horner, is greeted on his arrival in Saudi Arabia by Col. Hal M. Hornburg, commander of the 4th FW(P).



This arrangement sufficed until the influx of new units in November forced a change. On November 22 after a review of CENTAF's organization, General Horner asked TAC to exercise its legal authority to create two new provisional air divisions. General Horner pointed out that his span of control had grown to an unwieldy size, spread over 2 provisional air divisions, 17 operational units, and 25 staff agencies. The air division structure worked well for the tanker and airlift forces, and he wished to apply it to the operational forces which had over 700 aircraft assigned to them. Two new provisional air divisions would significantly reduce COMCENTAF's span of control. General Horner intended to attach his ten operational fighter wings—the 1st (F-15Cs) at Dhahran, the 4th (F-15Cs, F-15Es, and F-16s) at Al Kharj, the 23d (A-10s) at King Fahd, the 33d (F-15Cs) at Tabuk, the 37th (F-117s) at Khamis Mushait, the 48th (F-111Fs) at Taif, the 354th (A-10s) at King Fahd, the 363d (F-16Cs) at Al Dhafra, the 388th (F-16Cs) at Al Minhad, and the 401st (F-16Cs) at Doha—to a proposed 14th Provisional Air Division [14th AD(P)]. He wished to assign his electronic combat, C², reconnaissance, and miscellaneous units to a proposed 15th Provisional Air Division [15th AD(P)]. Nine units would constitute the 15th AD(P): the 7th Airborne Command and Control Squadron, the 35th Tactical Fighter Wing (F-4Gs), the 41st Electronic Combat Squadron, the 117th Tactical Reconnaissance Wing, the 366th Tactical Fighter Wing (EF-111As), the 390th Electronic Combat Squadron, the 507th Tactical Air Control Wing, the 552 Provisional Airborne Warning Wing, and the 4409th Provisional Operational Support Wing.⁶¹ On December 5, TAC published orders confirming CENTAF's request.⁶²

A week later, after appointing General Glosson to command the 14th AD(P) and Brig. Gen. Glenn A. Profitt II to command the 15th AD(P), General Horner again asked TAC to regularize changes he had made in CENTAF. (He had standardized and streamlined his subordinate wing structures.) Using the same unit

61. Msg, 220930Z Nov 90, USCENTAF Deputy Comdr Maj. Gen. Thomas R. Olsen to USCENTAF REAR, Langley AFB, Subj: Establishment of Provisional Air Divisions for Desert Shield.

62. SO GB-14, HQ TAC, Dec 5, 1990.

On Target

numbers, General Horner redesignated his tactical air force wings from “deployed” to provisional, and he created eight provisional combat support groups, each assigned to their respective provisional tactical fighter wings. Three fighter wings, the 23d, 388th, and 401st TFWs (who shared bases as tenants), did not get support groups. The host wing commander would also serve as the installation commander.⁶³ HQ TAC ratified these changes on December 20.⁶⁴

Also in late December General Horner reorganized the HQ CENTAF staff, which had swollen to at least 2,000 personnel including 500 in intelligence who worked double 12-hour shifts.⁶⁵ To transition the plans staffs into a heightened state of readiness for a possible wartime situation, he created the Directorate of Campaign Plans by combining the Black Hole with portions of the CENTAF Combat Operations Planning Staff that performed the D-day defensive planning in the event of an Iraqi attack, the ATO staff that prepared the daily training ATO, and the Airborne Combat Element (ACE) that staffed the AWACS aircraft. The merger joined the Black Hole’s 30 to 40 personnel with the 400 or more members of the other organizations. This total included two shifts of officers who worked twelve hours apiece. The ATO portion of the new directorate had approximately 250 personnel.⁶⁶

The new organization contained three divisions: the Guidance, Apportionment, and Tasking (GAT) Division; the ATO Division; and the ACE Division. The GAT Division contained specialized planning and targeting cells. Former D-day planners became the KTO Planning Cell, which matched them to the target base each had studied for the past five months. The former Black Hole became the Iraq (Strategic) Planning Cell. Supporting planning cells for electronic combat, Scud and NBC planning, surface operations, liaison, and analysis rounded out the division. The combined planning cells forming the GAT Division occupied a large storage room in the basement of the RSAF HQ building that now became known as the Black Hole. Within the GAT Division, all completed targeting recommendations flowed to Colonel Deptula who reviewed, selected, and assembled them into a final MAP. After reviewing the plan with General Glosson and obtaining his approval, Colonel Deptula handed the plan to the GAT Division night shift, which transcribed the MAP onto target-planning work sheets, the only format familiar to the ATO planners. The night shift carried the work sheets down the hall to the ATO Division, and the ATO Division began the complex task of processing the daily ATO. Significant changes to the MAP resulting from current operations went back to the GAT Division for approval. This approval process soon developed its own bureaucratic control mechanism—the MAP change

63. Msg, 120600Z Dec 90, COMCENTAF to USCENTAF REAR, Subj: USCENTAF Organization Structure.

64. SO GB-18, HQ TAC, Dec 20, 1990.

65. Intvw, Col. Getchell, Mar 2, 1992.

66. Intvw, Col. Crigger, Mar 5, 1992; Intvw, Capt. J. Hawkins, SAC/DOOQ, with Dr. Kent M. Beck, SAC/HO, Omaha, Neb., April 30, 1991 [File No. SAC/HO Historian’s Working File].

The Offensive Deployment, Morale, and Training

sheet—which tracked changes and required the usual assortment of personal initials. The ATO Division did not go through the time-consuming and relatively pointless task of resubmitting for approval the many minor changes to the MAP developed in the course of refining the daily ATO. After the first two days of combat operations, the daily mass of minor and last-minute changes altered the GAT Division's function: it became concerned with the execution as well as the planning of operations. The ACE Division comprised the air war coordinators onboard the AWACS and assisted them in managing the day-to-day execution of the war.⁶⁷ Officers from the other two divisions served in the ACE Division to observe and control the plans they had helped to create. General Glosson retained command of the new directorate. This reorganization established an organization that conformed to the anticipated standard USAF 72-hour wartime planning sequence. The GAT Division would plan for the day after tomorrow (72 hours), the ATO Division would process the plan for the next day's execution of operations (48 hours), and the ACE Division would oversee the execution of the current day's operation.⁶⁸ Reality upset this idealized scheme, as Colonel Deptula described the functioning of the directorate in practice:

In actuality the GAT Division became involved in current operations adjustments which in turn affected the plan for the next day, which would drive changes for the following day. Since the master attack plans were the purview of the GAT, and they were the ones who understood the direction of the air campaign, they accordingly subsumed the tasks of execution oversight as well as planning for 48, as well as 72 hours in advance. General Glosson's position [as] both the Director of Campaign Plans and the Commander of the 14th Air Division allowed him to pick up the phone and make things happen without having to go through an intermediary.⁶⁹

To no one's surprise, late-arriving high-priority changes inserted before execution produced many unexpected stumbles in the anticipated planning sequence. To adapt to these high-priority changes inside the planning cycle, General Glosson established a ground attack alert force of eight F-111Fs with a four-hour reaction time. In this context, ground refers to the aircraft's location while on alert, not a dedication to support Coalition land forces.

The December reorganizations left CENTAF better prepared for future conflict, with changes affecting the offensive air campaign having a special import. They papered over organizational conflict between two competing air planning entities. Instead of continuing as a special access-required function, isolated from the CENTAF HQ staff, the Black Hole planners joined the rest of the CENTAF planners in three new rooms recently acquired in the basement of the RSAF HQ building. The new space provided the spark for the reorganization and demonstrated how physical factors can impinge on organizational politics. The

67. Talking Paper, Lt. Col. Deptula, "JFACC Directorate of Campaign Plans," Nov 4, 1991.

68. Intvw, Maj. Gen. Olsen, Mar 5, 1992.

69. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 17.

On Target

Black Hole now formed part of a new integrated organization that planned for attacks on Kuwait as well as on Iraq and whose plan would be understood by the airborne controllers who would direct it and attempt to compensate for unexpected contingencies. Most importantly, the GAT Division and the MAP would continue to act as the baseline, or starting point, for each day's activity during the air campaign. This ensured that the strategic principles of the Warden group would have—insofar as Colonel Deptula and Generals Glosson and Horner allowed them to—a disproportionately large influence in the direction of the air campaign.

The entire staff of the 14th AD(P) consisted of one man, its commander, General Glosson. But this assignment placed the general in the direct chain of command of CENTAF's mailed fist of twenty-six tactical fighter squadrons. He retained his post as Director of Campaign Plans, which gave him the dual responsibility of planning and directing much of the campaign. A single intellect, subject to higher authority, controlled plans and operations. This situation had advantages and disadvantages. From the perspective of higher commanders, it maximized the efficiency of both sides of the equation by reducing loss of information through transmission errors and from organizational static while it opened channels for mutual feedback. When General Glosson learned of new opportunities or received updated intelligence, he could pick up a secure phone, call a unit, and change its orders, bypassing any intervening organizational step. At least one combat wing commander stated that in the subsequent months he dealt far more often with General Glosson as his division commander than with Glosson, Director of Plans.⁷⁰ The very directness of this communications channel, in the eyes of more junior officers who occupied intervening positions in the system, constituted its very weakness. In their eyes, the direct access to the units and occasional lapses of the 14th AD(P) in forwarding new orders to the ATO Division gummed up the ATO and its associated systems. As described earlier, each change in the ATO created a cascade of subsequent changes affecting the entire document and possibly future operations. If the ATO writers did not know of the change or had too little time to track its ramifications through the order, then other units might find no tankers at the refueling points or discover themselves flying reciprocal courses, with units flying the changes. To the ATO Division, the use of direct access showed a failure to understand the complexities of the process.⁷¹ Two years after the reorganization, General Horner seconded this opinion stating: "The Directorate [*sic*] of Campaign Plans having his own intel network and tasking directly to the units without using the ATO process caused many problems in scheduling support aircraft (tankers, SEAD, etc.) and complicated the execution of the daily ATO."⁷² These differing viewpoints illus-

70. Intvw, Brig. Gen. Hal M. Hornburg, formerly Comdr, 4th TFW(P), with Dr. Richard G. Davis, CAFH, at the Pentagon, D.C., Jan 24, 1993.

71. File 201, Desert Storm Monograph Project, AFHSO.

72. Ltr, Horner to Hallion, Subj: Review/Comments on Draft Manuscript, Dec 8, 1992.

The Offensive Deployment, Morale, and Training

trate how, after a certain established point, the ATO with its all encompassing complexity and inelasticity tended to demand the placement of restrictions on rapid response and initiative, and also, how such restrictions frustrated those who controlled operations. Direct access, when not abused, allows for the rapid response and initiative necessary for combat operations and to some extent compensates for the inelasticity inherent in the planning process. Any organization or organism so tied to its internal processes that it no longer rapidly and effectively responds to outside stimuli is headed for extinction.

On January 12, 1991, two aircraft reinforced CENTAF. Each of the two modified Boeing 707s (EA-8s) carried the JSTARS housed in a 26-foot-long “canoe” under the forward part of the aircraft’s fuselage. The system consisted of an advanced synthetic aperture radar (SAR), an operations and control subsystem, and a surveillance and control data link to a specially designed ground-station module (GSM). The SAR had the capability of supplying wide-area surveillance of the battlefield. It had two modes of operation: as a moving-target indicator able to track mobile targets and as a SAR imager able to spotlight and accurately detect fixed targets. Operators could select areas and obtain imagery of them from the aircraft. The system would generate fixed-target indication reports. The system could switch between moving- and fixed-target indicators at will. The operations and control subsystem allowed weapons controllers to display and manipulate the radar data. It enabled joint mission crewmembers to perform real-time surveillance and target analysis, attack planning, attack support, and postattack assessment in addition to their radar management functions. Some service members had a more succinct description of the system’s capabilities; they called the GSM “the upside down AWACS.”

For all its marvelous properties, JSTARS had substantial potential problems, most owing to the fact that the service had not scheduled the system’s initial operational capability until 1997. Developmental and operational testing had barely begun. The two prototypes sitting on the ramp at King Khalid International Airport comprised the world’s entire supply of JSTARS. The program had started in 1985 with Grumman Aerospace Corporation as the prime contractor and with substantial inputs from Boeing Military Aircraft (supplying reconditioned airframes, intended to save the expense of buying new) and from Norden Electronics (the SAR). The program had suffered large cost overruns and delays due to poor management, severe software problems, and difficulties with nonstandard construction in the airframes. By mid-1990, the service had begun to seriously consider fining the contractor for nonperformance. The service contemplated buying at most 22 or 23 aircraft at a flyaway cost of approximately \$400 million to \$450 million each. That many aircraft would provide enough three-aircraft orbits for Europe, Korea, and one or two contingencies. Although the USAF managed the contract, the Army, the chief beneficiary of the aircraft’s ability to locate multiple ground targets simultaneously, had an intense interest in the project’s successful completion, especially when one realizes that the Army

On Target

had made a heavy investment of its relatively sparse funds in GSMs. The Army would certainly regard the USAF's cancellation of the project as a blatant act of bad faith. On the other hand, if the system worked as planned, it might relieve the USAF of a significant portion of its CAS mission by improving the effectiveness of Army artillery, missiles, and attack helicopters. Congress, too, had an opinion on JSTARS. In late 1990 the House of Representative's FY 1991 authorization bill canceled the project. The House FY 1991 DoD appropriations bill reversed this cancellation, but support for the project in Congress had clearly eroded and might erode further. Without a positive performance, JSTARS might well join Skybolt, the XB-70A, and the atomic aircraft engine on the scrapheap of expensive might-have-beens.

General Schwarzkopf personally gave the JSTARS a chance to prove itself. In 1990 the system participated in two tests in Europe: one in February and an Operational Field Demonstration in September and October. The second demonstration proved decisive. The Army commanders who saw the JSTARS's capability went wild. The VII Corps Commander, Lt. Gen. Frederick Franks, Jr., stated, "Gentlemen I have seen it, it is real and it is the most reliable thing I have."⁷³ Undoubtedly General Franks and others expressed their enthusiasm to General Schwarzkopf. General Horner did not completely share General Franks's enthusiasm; he appreciated the opportunities offered by the system but feared that premature deployment might compromise its future development. General Horner wanted assurances that he could employ the system without ultimately killing it.⁷⁴ On December 5 General Schwarzkopf requested that the JSTARS program directors come to Riyadh to brief him on the system. He asked that they come prepared to answer several questions: What would distinguish the system's performance in the controlled demonstrations in Europe from its performance in Saudi Arabia? Can two aircraft deploy to Saudi Arabia? Can the aircraft fly a 20-hour mission?⁷⁵ On December 17 General Schwarzkopf heard the briefing. The JSTARS representatives answered that they could deploy two aircraft; that the system could perform extended missions, but at a heavy cost in future operations; and that they could deploy in thirty days, with thirty days' worth of spares.⁷⁶ Two days later, General Schwarzkopf told the Joint Staff in the Pentagon, "USCENTCOM has reviewed Joint STARS current capabilities and believes that the system, aircraft, and ground station modules can make a significant contribution to Desert Shield operations." He further requested the system's deployment to

73. Brfg Slide, "JSTARS in Support of Desert Shield," Dec 17, 1990 [File No. AFHSO microfilm reel 10211, frame 201].

74. Intvw, Lt. Gen. Horner, Mar 4, 1992.

75. Msg, 051215Z Dec 90, USCINCCENT to AMCPEO IEW, Ft. Monmouth, N.J., Subj: Request for JSTARS Briefing, tab 1 to SSS, Subj: JSTARS Briefing, Lt Col Perozzi, CENTAF [File No. T/CT/13/3].

76. Brfg Slide, "CENTCOM Questions: JSTARS in Support of Desert Shield," Dec 17, 1990. [File No. T/CT/13/3]

The Offensive Deployment, Morale, and Training

Saudi Arabia as soon as possible, with an operational date no later than January 15.⁷⁷

General Schwarzkopf's request caused some dismay in the USAF Systems Command. The commander of the Electronic Systems Division, Lt. Gen. Gorden Fornell, worried that deployment of a system so early in its life cycle would make his division accountable for any failure, even one not related to the system, such as a collapsed landing gear. In addition, deployment would carry with it many associated costs, not the least of which involved allowing the prime contractor to escape nonperformance penalties. (Deploying the aircraft could give the contractor grounds to claim that the service had broken the contract.) Furthermore, workers would have to bring both aircraft to a standardized configuration. Heretofore the contractor had used one aircraft to leapfrog the other with new developments. The problem of finding and manufacturing one-of-a-kind spares for an experimental system might prove difficult to surmount. Contractor personnel, especially the electronics and software Ph.D.-types necessary to keep the system operating, would have to deploy as well. Of the 164 deployed personnel, more than 60 were civilians; Systems Command and TAC supplied 53, and the Army an additional 33. The system would be inordinately expensive to support and operate. JSTARS program officials estimated that the projected six-week deployment would cost \$30 million and result in a three- to six-month slip in the program. But whatever General Schwarzkopf wanted, he got. On January 14, the USAF's newest unit, the 4411st Provisional Joint Surveillance Target Attack Radar System Squadron sent its first bird out on an operational mission to calibrate its systems along the Kuwaiti-Iraqi border.⁷⁸

As has often happened with technological advances, the theoretical capabilities of JSTARS threatened to outstrip the ability of its parent organizations to employ it properly. The system combined intelligence collection (surveillance) and operations (near real-time targeting). The former appealed to the ground commanders because JSTARS supplied a fairly accurate picture of enemy ground movements. The real-time targeting appealed to the USAF because it would enable this service to divert aircraft to bona fide targets. The way these two services manned the aircraft's operator stations reflected the services' different outlooks. The Army used intelligence personnel while the Air Force used operations personnel. Air Force personnel had difficulty in interpreting ground images because of a lack of training and familiarity. When the system was fully

77. Msg, 191330Z Dec 90, USCINCCENT to Joint Staff, Washington, D.C., Subj: Joint STARS Deployment [File No. T/CT/13/3].

78. See Charles D. Lloyd, "A Technological Success Story: Joint STARS and Operation Desert Storm," *Air Power History* 38, No. 3 (Fall 1991), p. 32, for System Command's reaction to General Schwarzkopf's request and for squadron personnel figures. Brfg Slide, "Summary: JSTARS in Support of Desert Shield," Dec 17, 1990 [File No. AFHSO microfilm reel 10211, frame 222]. See Peter Grier, "Joint STARS Does Its Stuff," *Air Force Magazine* 74, No. 6 (Jun 1991), p. 40, for the first operational mission. SO GB-21, HQ TAC, Jan 10, 1991 [File No. AFHSO microfilm reel 10216, frame 1041].

On Target

operational, it could supply both types of information simultaneously. However, in the early stage of system's development when it was deployed to the theater, it could fulfill both functions, but they could only be performed one at a time. This constriction of information outflow initially led both the theater intelligence and operations organizations to seek to stake a claim to a controlling interest in the type of JSTARS's output. The Army wanted to ensure that the system would support ground offensive preparations and operations. On January 14, General Schwarzkopf issued instructions on JSTARS utilization. In them he rejected CENTAF suggestions that would have placed the system under the JFACC.⁷⁹ Instead, General Schwarzkopf would retain operational control by establishing overall priorities based on the needs of each component force. CENTAF would have tactical control of the system, subject to the CINCCENT's overall guidance, especially his "daily weight of effort." The CINCCENT directed that the system support his "theater indications and warning, targeting, and enemy situation development needs." In the initial phases of the upcoming operation, the bulk of the JSTARS effort would support the air campaign. As the air effort shifted in support of ground operations, so would the focus of the JSTARS effort. If, during an individual mission, the aircraft should receive conflicting radar coverage change requests from ARCENT, MARCENT, and CENTAF, the aircraft commander, in consultation with the TACC, would arbitrate the request. As CENTAF Deputy Director of Operations Colonel Crigger ruefully acknowledged, the JSTARS might be too good, in that it would give the ground commanders too complete a picture of the front opposite them. This could lead ground commanders to demand that the USAF hit all targets located on their front, clearly an impossible feat as well as a misuse of air power.⁸⁰ The CINCCENT also expected the system to conduct future targeting and radar intelligence collection. Intelligence requirements, established at the daily CENTCOM J-2 reconnaissance meeting, would go to CENTAF for collection. CENTAF would coordinate aircraft tracks and times with CENTCOM's Joint Reconnaissance Center for synchronization with other airborne reconnaissance activities.⁸¹

General Schwarzkopf's decision on JSTARS reflected his philosophy of keeping joint matters in the hands of the CINCCENT. JSTARS had joint manning and served joint needs; it just happened that the USAF ran the platform. It does not appear that General Schwarzkopf harbored hostility for air power: He enthusiastically supported the offensive air campaign and maintained good relations with his air officers. But from his perspective, he believed that all U.S. forces in the AOR formed a whole, or a team, in which no one component should race ahead of any other. The general may have thought that the JFACC would

79. Draft, CENTAF/DO, Desert Shield JSTARS Concept of Operation, Jan 9, 1991 [File No. T/CT/13/3 (annotated, "CENTAF 1st draft")].

80. Intvw, Col. Crigger, Mar 5, 1992.

81. Msg, 141136Z Jan 91, USCINCCENT to CENTAF, Subj: JSTARS Utilization [File No. T/CT/13/JSTARS].

The Offensive Deployment, Morale, and Training

siphon off too much of his own authority as the Unified CINC. In any case, General Schwarzkopf consistently refused to give the JFACC unlimited authority over the air war, to the frustration of his USAF officers.

The U.S. decision to pursue the offensive option was the response to the Iraqis' refusal to disgorge Kuwait. Once reinforcements arrived, CENTCOM's mission would inevitably shift from deterring Iraq and defending Saudi Arabia to the tasks of expelling Iraq from Kuwait and of damaging or removing Iraq's missile and NBC capabilities. In the face of continuing Iraqi intransigence, the presence of new forces would inexorably push American leadership toward the decision to use military force to solve the situation. The next chapter will describe that decision. Also, the forces already in Saudi Arabia demonstrated a professionalism unknown to a massed American force at the beginning of a conflict. Until the Persian Gulf crisis, the United States had never in its history fielded a large force composed entirely of professional soldiers at the beginning of hostilities. The armies at New York, Bladensburg, Manassas, San Juan Hill, the Marne, Kasserine Pass, and Pusan consisted of volunteers and conscripts trained barely, if at all, in the use of their arms and still struggling to master the basics of their trade. In Saudi Arabia, the opposite held true. Americans in the Gulf may have trained no more industriously than their forebears, but they built on a far superior base of knowledge. The American servicemen and women in the Gulf honed an already sharp weapon into a blade of razor sharpness that their commanders could wield with a dexterity unobtainable by their foe. Generals Horner and Schwarzkopf, and others, provided their force with an atmosphere conducive to success: clear lines of command and authority, well-defined and constant rules of engagement, and a healthy working arrangement with the far different culture present in their host country. The fortuitous ban on alcohol simplified discipline throughout the force, but the care with which the CINCCENT and CENTCOM educated their men and women in the complexities of Islam and enforced in their troops a respect for that religion kept a possibly volatile situation well under control. Not only their training but their behavior toward their hosts showed the professionalism of the American women and men in uniform. That professionalism proved as decisive a factor in the upcoming conflict as the technological edge enjoyed by the USAF.

Chapter Five

The Decision for War

In a very real sense the war in the Persian Gulf had been inevitable since the fifth of August 1990 when President Bush announced publicly that Saddam Hussein's invasion of Kuwait "would not stand." Saddam responded by annexing Kuwait and making it an integral part of Iraq. By locking themselves into diametrically opposed positions, the two presidents, Bush and Saddam, ensured a situation in which neither could compromise without losing face, internationally and domestically. In the ensuing months, both leaders engaged in a prolonged match of open diplomatic moves, gestures for media effect, armed forces buildups, economic gamesmanship, and name-calling. As the potential for conflict heightened, neither leader judged that he could sacrifice a significant portion of his nation's vital interests, as he perceived them, to avoid the looming conflict. Iraq needed Kuwait's oil to rescue its economy. Meanwhile, to preserve its economic well-being, the United States could not allow a radical regime to control Kuwait and threaten Saudi Arabia. President Bush's decision to employ VII Corps gave the train to war a full head of steam, and UN Security Council Resolution 678 (1990), passed on November 29, tied down the safety valve. In its broadest grant of power since the Korean War, the council authorized the Coalition to use "all necessary means" to force Iraq from Kuwait if Iraq did not withdraw by January 15, 1991. If the two leaders could not reach a *modus vivendi* in forty-seven days, then President Bush, upon whom rested the onus of liberating Kuwait, would either have to use military force or admit that he lacked the will to cross his personal Rubicon.

The Decision for War

On November 30, 1990, to demonstrate his willingness "to go the extra mile for peace" and solve the crisis, President Bush invited Iraqi Foreign Minister Tariq Aziz to come to the United States in mid-December and offered to send

On Target

Secretary Baker to Baghdad between December 15 and January 15. The démarche shocked the Saudi Ambassador to the United States, Prince Bandar bin Sultan. He feared that the offer sent Saddam a message of weakness and offered him an opportunity for further delay. But as National Security Advisor Scowcroft explained to him, the president had made the offer for domestic as well as international politics. The president believed that the American people expected him to make every effort for peace. Secretary Baker may also have favored the offer, in part because he had come to believe that the only way to ensure that a message got through to Saddam was to deliver it in person. Whatever the U.S. domestic political benefit, Prince Bandar had read Saddam correctly. The Iraqi dictator told Soviet President Mikhail Gorbachev's Middle Eastern Advisor, Yevgeny Primakov, that the offer invalidated Moscow's warning of an inevitable conflict.¹ A short time later the *Washington Post* published the results of poll indicating that 90 percent of the American population supported the offer. On the day of the president's proposal, two former Chairmen of the Joint Chiefs of Staff, Admiral William Crowe and General David Jones, testified to the Senate Armed Services Committee that the United States should not rush into a war with Iraq.² On December 1 Saddam accepted President Bush's bid for peace, but he placed a condition on it that Palestine and other occupied Arab lands must form the first item under discussion. The president rejected this linkage of Kuwait to the Palestinian problem.

The next day Saddam continued his manipulation of the thousands of Western and Soviet hostages he had seized in early August. After a personal meeting with Muhammad Ali, former world heavyweight boxing champion, Saddam released into his custody two Canadian and six British hostages. On December 3 the Soviets reported that Saddam had given permission for 1,000 Soviet citizens to leave. Twenty-four hours later the Iraqis gave all 3,232 Soviet citizens in its custody freedom to leave. This behavior illustrated the capricious fashion in which Saddam dealt with his hostages. He had seized them in an attempt to gain political leverage over their native countries. He had seen the United States, in particular, bend its regional foreign policy into pretzel-like shapes over a few dozen hostages held in Iran and a half-dozen in Lebanon. At this point, however, Saddam encountered a media phenomena, the toddler-down-the-well syndrome (when a two-year-old child trapped in a well in Texas is big news, but a mud slide killing hundreds of people in Peru, as had occurred in 1987, is not). By making too large a statement, Saddam lost his supposed advantage. The world found it hard to personalize his hostages because he had so many.

Saddam had the hostages distributed to various targets throughout Iraq, hoping to deter Coalition bombing. In this he succeeded. Had he but known that

1. Cigar, "Iraq's Strategic Mindset," p. 7.
2. Woodward, *Commanders*, pp. 336-337.

General Glosson had instructed Colonel Deptula to red-line all targets reported to have hostages present, Saddam might never have moved them. However, according to Colonel Deptula, the Iraqis had, for the most part, placed the hostages in locations that would not inhibit the offensive air campaign.³ This was an indication, perhaps, that the Iraqis either had little understanding of the goals of a strategic attack or, more likely, had little idea of their vulnerability to one. The Iraqis actually placed the hostages on several targeted sites, but PGMs and nonlethal weapons could attack the specified aiming points of those targets with no harm to the hostages.⁴

When it appeared that the hostages constituted a wasting asset, Saddam began to release them a few at a time to visiting international statesmen and personalities. Those personages merely had to travel to Baghdad, make the appropriate homage to Saddam, and depart with a handful of their countrymen. This slightly demeaning game benefited all its players. The powerless pawns, the hostages, gained their freedom. The white knights, the visiting dignitaries, gained the regard of their partisans in the homeland as peacemakers and as rescuers of the helpless. Saddam, the king struggling to escape check, had his ego stroked and gained prestige with his countrymen and fellow Arabs, who either naively accepted the game at face value or savored the pervasive hypocrisy of all involved in the affair. Few could fail to appreciate the irony of members of the first world coming to kowtow to a member of the third. After a number of eminent visitors secured the release of numerous hostages from various countries, on December 6 Saddam announced the ending of the travel ban imposed on foreigners, and within a week all American hostages had left Iraq. President Bush remarked, “when you don’t have Americans there, and if force is required that’s just one less worry I’ve got.” Senior U.S. military officials admitted to the press that they could now revise targeting to attack all targets.⁵ By January 15, all non-Iraqi nationals who wished to leave Iraq had gone. If one accepts the proposition that a sovereign state may take hostages (which is, of course, against international law), one must wonder at Saddam’s handling of his hostage resource. He seems to have paid dearly in lost respect and international anger and sold cheaply for the benefit of out-of-power politicians or for ineffective propaganda. His infamous televised audience with the British hostages backfired and provided his opponents with a tremendous propaganda coup. Once Saddam had accepted the opprobrium for hostage-taking, he might well have continued the gamble and used his prisoners as human shields indefinitely. This might have made subsequent Coalition air operations more difficult and costly. Perhaps Saddam’s own self-image prevented this—a paladin does not hold the helpless in thrall.

3. Telecon, Lt. Col. Deptula, SECAF Working Group, with Dr. Wayne Thompson, AF/CAFH, Sep 13, 1991.

4. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 19.

5. John M. Broder, “With Its Hostages Out, U.S. Revises List of Iraqi Targets,” *Los Angeles Times*, Dec 13, 1990, p. 1.

On Target

As the last act of the hostage drama ended, the tragicomedy of the Secretary Baker-Foreign Minister Aziz missions continued. On December 9 the Iraqis stated their willingness to meet Secretary Baker before January 12. The Secretary suggested that the date be earlier than January 3 instead, only to have the Iraqis shift it to January 12. This date was perilously close to the deadline and seemed to offer the chance for the Iraqis to use delaying tactics. On the thirteenth of December, the day the United States finally evacuated its embassy in Kuwait City, the United States rejected the Iraqi proposal. Two days later, Iraq responded by canceling Foreign Minister Aziz's December 17 visit to Washington. Secretary Baker maintained the U.S. position of not meeting in Baghdad after January 3. On the last day of the year, an unnamed Iraqi official stated Iraq would consider scheduling meetings between the Iraqi and U.S. presidents and foreign ministers if the United States cared to make another proposal. The White House announced on January 3 that Secretary Baker could meet on January 8, 9, or 10 in Geneva with Foreign Minister Aziz. The next day the Iraqis agreed to a foreign ministers meeting on January 9.

The military and domestic political aspects of the crisis overshadowed crisis diplomacy. In mid-month, Amnesty International, a respected international human rights organization known for its willingness to condemn abuses wherever found—including in the United States and in its friends and clients—issued a damning report on the Iraqi occupation of Kuwait. Based on uncorroborated interviews with expatriate Kuwaitis and eyewitnesses, the report testified to illegal Iraqi arrests, detentions, torture, and executions. It gave numerous instances of kidnaping, disappearances, and gang rape. The report also spoke of medical atrocities, such as killing a patient by disconnecting her from her dialysis machine, and the killing of 312 premature infants by removing them from their incubators in order to send the machines to Iraq.⁶ The report horrified and enraged President Bush, who spoke of his anger to reporter David Frost during the taping of a interview for later broadcast. The report may have nudged the president toward war. He told Frost that the United States could have a better world if it stood up to Saddam, but not if it compromised with him. The president added, "We have such a clear moral case....It's that big. It's that important. Nothing like this since World War II. Nothing of this moral importance since World War II." By December 17 National Security Advisor Scowcroft purportedly told Prince Bandar, "the President has made up his mind," and regarded subsequent moves as "exercises."⁷

The President may have committed himself to the use of force on an emotional level, but he apparently sent General Powell and Secretary Cheney to the

6. Amnesty International, *Iraq/Occupied Kuwait: Human Rights Violations Since 2 August 1990* (Washington, D.C.: Amnesty International USA, December 19, 1990). For the medical atrocities, see AI Index: MDE 14/16/90, pp. 55, 57. The AI interviewers seemed particularly credulous of the accounts of their informants. Postoccupation investigations in Kuwait failed to confirm some of the conditions alluded to in the report.

7. Woodward, *Commanders*, pp. 343–345.

*Chairman of the Joint Chiefs of Staff,
General Colin L. Powell*



Gulf to assure himself of the viability of General Schwarzkopf's war plans and the readiness of the force. They arrived in Riyadh on December 19 and almost immediately found themselves caught in the back blast of a faux pas committed by General Schwarzkopf's second in command, Lt. Gen. Calvin A. H. Waller, USA. General Waller had a thirty-minute interview with eight reporters traveling with the chairman and the secretary. A few hours of candor ended a career for General Dugan; for General Waller, one candid answer embarrassed the secretary and the administration. The general simply admitted that all his troops would not be ready for "combat activities" by January 15 and that he couldn't "imagine" the president ordering an offensive so soon.⁸ Despite White House denials, General Waller had not erred; many of the VII Corps' units and soldiers would not have shipped into the theater or have had an adequate time to train and acclimatize by January 15. The next day DoD press spokesman, Pete Williams, told the press that the secretary would not draw any conclusions until he had completed his five-day stay in the AOR. In the meantime, General Waller's statement continued the American pattern of sending contradictory messages to Saddam, who undoubtedly found solace in it and may have discounted later, firmer messages because of it.

On December 20 General Glosson briefed Secretary Cheney, Under Secretary Wolfowitz, General Powell, General Schwarzkopf, and General Horner on the latest variant of the four phases of the offensive air campaign. Phase I, the strategic air campaign, would be the primary focus for approximately three to six days; Phase II, air supremacy in the KTO, would overlap Phase I and last one or two days; Phase IIIA, battlefield preparation attacks on the

8. Barton Gellman, "General: U.S. Troops Won't Be Ready," *Washington Post*, Dec 20, 1990, p. A1.

On Target

Republican Guard, would have first priority next and continue in full force until day ten. Phase IIIB, battlefield preparation attacks on Iraqi forces in Kuwait, would begin day eight and would continue until initiation of Phase IV, ground attack, sometime between days fourteen and eighteen. The ground offensive would last approximately two weeks. The times and duration of each phase assumed average weather. While each phase was identified with a number for days of duration, those were the days of maximum effort, with some degree of effort in each phase at all times.⁹ From December 18 to January 15 an additional 373 U.S. aircraft (218 USAF and 155 USN) would reinforce the theater, which would increase the first day's planned strike sorties by almost 800. Strategic targets almost tripled from the original 84 to 238, showing large increases in leadership (from 5 to 32), railroad and bridge (3 to 28), and airfield (7 to 28) target systems. The Iraqis had 20 primary airfields, 13 active dispersal fields, and 19 additional available dispersal fields. Intelligence credited the Iraqis with 500 (including 262 interceptors and 177 attack models) first-line aircraft, almost all of Soviet manufacture, and 37 Soviet attack helicopters. For air defense, they had complete coverage of their airspace from 478 early warning radars, 75 high-frequency radars, and 154 acquisition radars. Ground air defenses included 3,679 SAMs, 972 AAA sites, 2,404 guns, and 6,100 mobile guns.¹⁰ The Baghdad area alone had 522 SAMs, 380 AAA sites, and 1,267 guns, making it more heavily defended than Murmansk and giving its defenses twice the density of the most heavily defended target in Eastern Europe. The Iraqi IADS was a key target.¹¹

The briefing explored two sensitive target systems in depth: Scuds and CW and BW production and storage. (The following information, undoubtedly known to those attending, is intended to help the reader put the briefing in context.) Intelligence credited the Iraqis with 550 to 700 short-range ballistic missiles (SRBMs) divided into three types, all based on the same Soviet design: the Scud B, or R-300E. In 1986 Iraq purchased 300 Scud Bs from the Soviet Union. The design of the missile had originated in the late 1950s or early 1960s and attained initial operational capability in 1965. It had a single-stage storable-liquid rocket engine and weighed 6,300 kilograms (approximately 7 tons). It employed an inertial guidance system with three gyros, used internal graphite jet-vane steering, and had a warhead that detached from the missile body during the final fall toward its

9. MemoRec, Lt. Gen. Buster C. Glosson, DCS, Plans & Ops, Lt. Col. David A. Deptula, and Dr. Richard G. Davis, CAFH, "Review Session on The Offensive Air Campaign," Dec 11, 1993.

Two years after General Glosson delivered this briefing, both he and Colonel Deptula vehemently insist that in this briefing the number of days associated with each phase was approximate and did not constitute a firm commitment by the USAF to fulfill the full objectives of each phase in the specified time limit.

10. For a more detailed breakdown of Iraqi SAM and AAA defenses, see the section, "The Offensive Air Campaign: The Opposing Forces," beginning on page 166, this volume.

11. Brfg Slides 1-9 and 6m, Brig. Gen. Glosson to SecDef Cheney, "Offensive Air Campaign," Dec 20, 1990 [File No. Black Hole/GWAPS notebook 18 General Glosson Briefs/tab 5, 20 Dec 90].

target. With a normal warhead its range was 290 to 300 kilometers (about 183 miles) and its nominal circular error of probability (CEP) was 1,250 meters (¾ mile). It usually deployed on the Soviet-built MAZ-543 eight-wheeled transporter-erector-launcher (TEL).¹² Iraq, possibly with outside assistance, heavily modified the original Scud B design and produced and manufactured two improved models: the Al Husayn (named for Prophet Mohammed's martyred grandson, a Shia saint) and the Al Hijarah. The two Iraqi-built missiles could use the MAZ-543 TEL or an indigenously manufactured trailer-mounted mobile erector-launcher (MEL). In early December, DIA estimated that the Iraqis possessed nine to twelve MAZ-543s.¹³ September estimates from Checkmate indicated an upper limit of forty-four TELs/MELs,¹⁴ but six weeks later a combined U.S. intelligence agencies estimate put the number at nineteen.¹⁵

Unlike the Scud B, the Iraqi missiles could also launch from fixed sites. The Al Hijarah had a range of 750 kilometers (465 miles), and the Al Husayn, 600 kilometers (370 miles). The Iraqi modifications had not increased the missile's accuracy; their variants had nominal CEPs of perhaps 3,000 meters (nearly 2 miles).¹⁶ Given their inaccuracy and small payloads, the Iraqi missiles had little military value, but their political worth outweighed a negligible conventional military potential. When aimed at a heavily populated area, they made a loud noise coming in, created a big bang, broke many windows on impact, and panicked civilians. During the War of the Cities in 1988 when Iraq and Iran had exchanged missiles aimed at each other's major cities, the Iraqis had maintained a rate of fire triple that of their opponent's—a result of a larger inventory rather than superior ability. In any case, the peppering of the Iranian capital with missiles had caused more than a million persons to evacuate the city and lowered the morale of those left behind.

Every nation in the Persian Gulf area had absorbed the Iranian lesson on missiles. The use of similar missiles in Afghanistan by the communist government in Kabul had further made its mark. The morale of Saudis and the other Arabs might plummet in the face of a sustained bombardment, making the maintenance of the Coalition more problematic. U.S. concern for possible Israeli reaction to missile firings probably exceeded its worries over an Arab reaction. The Israelis had a standard and uncompromising response to acts of terrorism—retaliation against the perpetrators. The U.S. government, because of its long-standing support of the state of Israel and the large amounts of annual military and

12. Anthony H. Cordesman and Abraham R. Wagner, *The Lessons of Modern War*, Vol. 2, *The Iran-Iraq War* (Boulder, Colo.: Westview, 1990), pp. 496–497.

13. Msg, 070600Z Dec 90, DIA, Washington D.C., to DIACURINTEL.

14. Msg, 012100Z Sep 90, HQ USAF [Col. Warden] to Brig. Gen. Glosson, Subject: SRBM Threat [File No. CK/A-Staff/Out-Msg].

15. Special National Intelligence Estimate (SNIE) 36.2–5–90, CIA, "Iraq As a Military Adversary," October 1990, p. 14 [T/CT/76/Iraq].

16. DoD, *Conduct of the Persian Gulf War* (2d ed.), pp. 13–14, p. 14 Chart "Iraqi Missile Capabilities."

On Target

economic backing granted to Israel, had much diplomatic leverage on the Israelis and could use that leverage to restrain them. However, the government of Israel had domestic as well as international pressures. If enough missiles landed on Israeli soil, the government might feel compelled to strike back at Iraq, performing the very action that Saddam had hoped to provoke.

One Israeli attack on Iraq, depending on the circumstances, might or might not shatter the Coalition. Not only would Israel be attacking an Arab state, but Israel would have to violate either Jordanian, Syrian, or Saudi airspace to do so. The Jordanians had already made it clear they would defend their airspace, as had the Syrians. The Saudis had greatly strengthened their air defenses in the areas near Israel, a result of Israel's violation of their airspace on the way to bomb the Iraqi Osirak nuclear reactor. The Saudis would have to defend their airspace or appear to be in league with the Israelis. Repeated Israeli attacks on Iraq would cause Syria and other Arab states to abandon the Coalition and discredit all Arab governments that supported action against Saddam. In such an event, Saddam would win a political victory. In the Middle East, as elsewhere, political victory can prove of more consequence than can a force of arms. In a sense, Scuds gave Saddam his best, and possibly only, chance for victory. As a result, the U.S. government would have no choice but to pay almost any price to deny Saddam the full use of his missiles.

Another facet of the Iraqi SRBMs offered an additional threat. In a speech on April 1, 1990, Saddam announced that Iraq had developed binary CWs, heretofore possessed by only two other countries in the world: the United States and the Soviet Union. Later in the same speech, he clearly articulated the threat by warning Israel that, if she struck Iraqi weapons plants, "By God, we will make the fire eat up half of Israel."¹⁷ Further, the Iraqis were known to be working on BW and nuclear weapons. They had employed CW extensively against the Iranians. If their SRBMs could take NBC warheads, inaccuracy would not remain a serious problem. This added to the sense of panic in the civilian populations that surrounded Iraq. It also complicated the military problem in that a half-dozen or more SRBMs impacting on the same base might contaminate and disable it. Of course, a nuclear warhead, which seemed least likely given what the Coalition had learned about the Iraqi nuclear weapons program, presented the greatest civilian and military difficulty. If Saddam, by some dark miracle, had actually acquired an atomic weapon or two, one could only hope that a sense of self-preservation would prevent him from using it. Postwar reports from UN inspection teams have shown that the Iraqis had a more advanced nuclear weapons program than had been suspected. Also, Saddam is reputed to have personally handed U.S. satellite imagery to Soviet defense officials and asked for and *received* Soviet training on deception of satellite and other intelligence collection means for his armed forces.¹⁸

17. Oberdorfer, "Missed Signals in the Middle East," p. 23.

18. William Scott Malone, "Did the U.S. Teach Iraq to Hide Its Terror Arms?" *Washing-*

The Decision for War

The briefing itself did not include all of this background information. Rather, it explained how CENTAF proposed to counter the SRBM menace. The Iraqis had established fixed launch sites in western Iraq.¹⁹ These facilities, of questionable value in a conflict because of their immobility, constituted Saddam's open threat to Israel. At his pleasure he could have the launchers armed and pointed at Tel Aviv, Haifa, and the nuclear facility at Dimona in the Negev desert, all within range. CENTAF proposed an initial attack of eighteen F-15Es, without self-designating laser targeting pods, which would strike the area at H-hour. In southern Iraq, west of Basra, the Iraqis had both mobile launch sites and presurveyed mobile launch sites. The Iraqis had established two more launch sites in Kuwait. From Jalibah airfield in southern Iraq, SRBMs could reach Riyadh and Bahrain, putting civilians, vital Coalition debarkation and supply ports, close-in air bases, and most Coalition ground forces under the gun. Coalition air forces would hit all the airfields in the first day as part of the air defense suppression missions. Current intelligence estimates gave the Iraqis an estimated thirty-six mobile Scud launchers. At H-hour plus one hour (H+1), F-111Fs, F-16Ls (F-16s equipped with the LANTIRN navigation pod), F/A-18s, and A-6Ms (USMC A-6s) would attack mobile Scud storage facilities in the west and the airfield storage areas in the south and in Kuwait. At first light (0600) on day 2, F-16s would strike Scud production, assembly, propellant, and test facilities near Baghdad. Such facilities offered a large enough target to obviate the need for PGMs. Within thirty-six hours Coalition air would strike every facet of Scud production and launch.²⁰

LANTIRN-equipped F-15



As discussed in Chapter 3, CW and BW production and storage presented a difficult bombing problem because of the consequences of possible widespread dispersion of toxic and infectious agents. After assessing the risks associated

ton Post, Nov 3, 1991, pp. C1, C4.

19. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 14.

20. Brfg Slides 9-12, Brig Gen Glosson to SecDef Cheney, "Offensive Air Campaign," Dec 20, 1990.

On Target

with CW targets as low, the special air campaign planners had scheduled CW production and storage for attack. But not until this briefing did the Black Hole planners receive authoritative permission to destroy the BW storage bunkers. BW production involved somewhat less risk because the manufacturing facilities did not store large amounts of the finished products. As part of their trip to the theater, the secretary and the chairman gave final approval of the decision to bomb the bunkers. In any case, the four major CW and BW production and storage centers would come under attack on day 1. (The details of the actual attack on January 17, 1991, would differ slightly from those proposed in this briefing.) Night-flying F-15Es would smash key portions of the Salman Pak research facility at H+1, while F-16s would pulverize the Habbaniyah CW production facility during the day, at H+14. Also on day 1, eleven USN-launched TLAMs would impact on the Samarra CW and BW research, production, and storage facility to the north of Baghdad, out of range of aircraft flying from Saudi Arabia, and seven more would explode in the Taji CW and BW research facility, an extremely large, heavily defended military industrial complex also to the north of Baghdad. The thirteen identified CW storage bunkers and the four BW storage bunkers (two each at Karbala ammunition facility and Salman Pak CW and BW research facility) would come under attack by H+2, mostly by F-117As. (New intelligence would change these target identifications by January 17.) F-111Es from Turkey would dust the two farthest north, Kirkuk West ammunition depot and Tikrit ammunition depot, with CBU-89²¹ mines at H+10 minutes and at H+17 minutes. (Aircraft did not fly from Turkey until the second night of the war, causing the cancellation of these attacks.) During the second night, F-117As or F-15Es, probably refueling from tankers flying inside Iraq, would finish the



A destroyed underground bunker

21. The CBU-89 cluster bomb (Gator) contains 72 BLU-91/B antitank mines and 22 BLU-92/B antipersonnel mines. Within two minutes of landing, the mines arm themselves and will detonate upon target detection, mine disturbance, low battery voltage, or self-destruct time-out. The antitank mine is effective against tanks and armored vehicles. The antipersonnel mine consists of eight tripwires and tripwire sensors, four per face. The tripwires can deploy up to 40 feet in length; detonation occurs when a target actuates a tripwire.

job. The BW storage bunkers offered a ticklish problem, and the briefing went to great lengths to describe the vulnerabilities of the agents, the attack techniques, and the possible damage.

The discussion seemed more upbeat than the one occurring in the Black Hole at the same time. As mentioned previously, the method of attack initially chosen was a mixture of timed strikes and carefully selected munitions. By the beginning of the conflict the planners had modified the attack scheme and increased its accuracy.²² The aircraft would not begin the attack until just before dawn. Destruction would preclude military use but would not totally destroy the agents, which would decay in sunlight.²³ The area of possible contamination depended on the wind speed—a twenty-knot wind would produce an eighty-mile-long cloud. But, as a slide demonstrated, the weather and the wind in Iraq conformed to the norm in the northern hemisphere and traveled from west to east, carrying contamination away from Baghdad. The briefing further justified pounding the BW bunkers with a reference to the protocols to the 1949 Geneva Convention, Articles 56 and 57. The slide interpreted the articles as follows: “installations containing dangerous forces (such as biological warfare production facilities and storage bunkers) lose their protection against attack if they are used in direct support of military operations and an ‘...attack is the only feasible way to terminate support.’” In addition, the plan took “all feasible precaution in the choice of means and methods of attack with a view to avoiding, and in any event minimizing incidental loss of civilian life.”²⁴

By the end of the sixth day²⁵ of the strategic air campaign, the briefing claimed air power would have:

- Destroyed the Iraqi leadership’s military command and control,
- Destroyed Iraq’s NBC capability,
- Disrupted and attrited the Republican Guard,
- Disrupted the Iraqi leadership’s ability to communicate with the populace,
- Destroyed key electrical grids and oil storage, and
- Limited the resupply capacity of the Iraqi military in Kuwait.²⁶

Phase II had one goal: establishment of air supremacy over Kuwait and adjoining regions of Iraq containing Iraqi forces capable of intervention in

22. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 20.

23. Brfg Slide 14, Brig. Gen. Glosson to SecDef Cheney, “Offensive Air Campaign,” Dec 20, 1990.

24. Brfg Slides 13–16a, Brig. Gen. Glosson to SecDef Cheney, “Offensive Air Campaign,” Dec 20, 1990.

25. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 21.

Colonel Deptula recalls: “No one was hung up on six days. That was an approximation, and partially an indicator that we wanted to conduct these operations quickly. The *key* to achieving the results stated in the briefing was *completion* of the strategic air campaign—not six days.

26. Brfg Slide 17, Brig. Gen. Glosson to SecDef Cheney, “Offensive Air Campaign,” Dec 20, 1990.

On Target

Kuwait. This would provide an environment conducive to the conduct of air and ground attacks. At the end of two days, USAF F-4G Wild Weasels, F-16s, F-15Es, F-111Fs, and EF-111As, and USN F/A-18s and EA-6s would destroy all radar-controlled surface-to-air threats with AGM-88 HARMs and CBU-71s.²⁷

In this type of fighting—aircraft against ground radar—the F-4G had a distinct advantage over the other two airframes that fired HARMs—the F/A-18 and the F-16.²⁸ During Phase II, the planners hoped that the use of HARMs and other electronic countermeasures would decapitate the Iraqi air defense system in the south and over Kuwait. Once those defenses ceased to operate effectively, their lack would expose Saddam's ground forces to the full fury of Coalition air attack in a battle of concealment, spade, and sandbag versus IR seeker, laser designator, and cluster bomb.

In Phases IIIA and IIIB, CENTAF claimed it could render the Republican Guard only 50-percent effective with five days of effort and only 10-percent effective with nine days of effort. As General Glosson informed his wing commanders in mid-December, the Coalition intended to expend approximately 600 sorties per day on the Republican Guard.²⁹ With twelve days of additional effort, CENTAF could disable, destroy, or render ineffective 50 percent of the armored fighting vehicles, artillery tubes, and troops in Kuwait. With eighteen days' effort, it could reduce to only 10-percent effectiveness Saddam's remaining armor, artillery, and troops in Kuwait. Such actions would leave the KTO prepared for the offensive ground campaign to liberate Kuwait and would achieve the president's objectives with a minimal loss of life.³⁰ The ground force assault should be like toppling an undermined wall.

These seemingly ambitious assertions actually represented declarations scaled down from those of a few weeks earlier. On December 1, 1990, General Glosson had briefed General Schwarzkopf on Phases II and III. CENTAF claimed the same level of destruction but estimated that Iraqi forces in Kuwait would become ineffective as a fighting force.³¹ Apparently General Schwarzkopf rejected this contention. For both the December 1 and December 20 briefings, Phase IV showed the fruition of Army planning. Both briefings showed the so-called Hail Mary envelopment of the Iraqi right flank. The Hail Mary required the XVIII Corps, on the extreme Coalition left flank, to break through lightly

27. Brfg Slides 18–21, Brig. Gen. Glosson to SecDef Cheney, "Offensive Air Campaign," Dec 20, 1990.

28. Intvw, Maj. Mike Leggett, HQ TAC Directorate of Operations, Electronic Combat Division, with TSgt. Marcus R. Walker, CENTAF/HO, at RSAF HQ, Riyadh, Oct 16, 1990.

29. Brfg, Brig. Gen. Glosson to USAF wing commanders, Dec 18, 1990 [File No. Black Hole/GWAPS notebook 18 General Glosson Briefs].

30. Brfg Slides 28–30, Brig. Gen. Glosson to SecDef Cheney, "Offensive Air Campaign," Dec 20, 1990.

31. Brfg Slide, Brig. Gen. Glosson to Gen. Schwarzkopf, "Theater Campaign: Summary, Phase III—Kuwait," Dec 1, 1990 [File No. Black Hole/GWAPS notebook 18 General Glosson Briefs].

The Decision for War

held Iraqi lines and drive due north to An Nasiriyah in order to seal off the battlefield from the west. Concurrently, the armor-heavy VII Corps, to the right of XVIII Corps, would pierce through more heavily defended Iraqi positions, just to the west of Wadi al Batin and the Kuwaiti-Iraqi border. The VII Corps would then drive north and wheel to the east, either to flank the Republican Guard forces or to engage them in an encounter battle should they move to the west and south to confront the Coalition thrust. The briefing given to Secretary Cheney also illustrated the final ground arrangements along the Kuwaiti borders—the U.S. Marine Expeditionary Force sandwiched between two Arab Corps.³²

Finally, the briefing addressed the effects of weather and moonlight on the air campaign. Using historical weather data, based on the previous fourteen years, General Glosson stated that on average a weather front passed west to east through Iraq every three to five days. On two of those days, clouds would produce ceilings of 10,000 feet or less; on the other three to five days, relatively clear conditions would predominate. For Baghdad, ceilings of 10,000 feet or greater with visibility of five or more statute miles should occur at least 62 percent of the time in January and 69 percent of the time in February. If all went according to schedule, as seldom happens in warfare, the Coalition could mount its air and ground offensives in favorable weather and lunar conditions.

In all, the air briefing promised Secretary Cheney that air power would:

- Establish air superiority over Iraq,
 - prevent air attack,
 - preclude Scud attack,
- Destroy leadership communication,
 - with military,
 - with populace,
- Destroy NBC research, production, and storage,
- Destroy transportation nodes that resupply Iraqi forces in Kuwait,
- Destroy 50% of Republican Guard's armor, artillery, and personnel,
- Shape the battlefield for the ground forces, and
- Provide constant firepower for the ground forces.³³

During the briefing, if not earlier, General Schwarzkopf probably informed Secretary Cheney that the Saudi Joint Forces commander, General Prince Khalid, had on December 13 already agreed to the outline of the offensive plan and that the CENTCOM staff and Joint Force's staff had begun to develop an OPLAN for a combined operation, Operation Desert Storm, which he expected to issue in draft form shortly.³⁴

32. Brfg Slide 34, Brig. Gen. Glosson to SecDef Cheney, "Offensive Air Campaign," Dec 20, 1990.

33. Brfg Slide 35, Brig. Gen. Glosson to SecDef Cheney, "Offensive Air Campaign," Dec 20, 1990.

34. Cvr Ltr, Maj. Gen. R. B. Johnston, USMC, CENTCOM C/S to U.S. Component Commanders, Subj: Combined OPLAN Review, Dec 30, 1990.

On Target

The campaign sketched by this briefing demonstrated the difficulty of mounting prolonged, strategic air operations within the context of a ground campaign. As history had shown in the Normandy Invasion of June 1944, strategically oriented air power will always be called upon “to shape” the battlefield in order to avoid excessive ground casualties.³⁵ Neither general nor politician finds it easy to resist the attractive but doubtful proposition that bombing which directly assists ground forces reduces casualties, at least in the short run, while bombing the enemy’s resources will only bring the war to a halt slowly. The war in the Persian Gulf would prove no exception. Phases III and IV called for the widespread use of F-117As, F-111Fs, and F-15Es against ground troop targets. The use of these aircraft would hamper the fulfillment of the goals of the strategic air campaign. After six days of concentrated bombing, followed by several weeks of a 15-percent effort (including a far greater percentage of PGMs), the strategic air campaign was to have destroyed 238 key targets, wiped out Iraq’s weapons of mass destruction, isolated its leadership, and damaged key sections of its industry. But once the Army had finalized its offensive ground campaign planning, it, like the USAF, would have to justify the national treasure expended on its upkeep in the past, present, and, most of all, in the fiscally restrained future by visibly delivering some of the heaviest blows against Saddam. The strategic air campaign could succeed completely only if American leadership could avoid the temptation to divert too many of its air resources to assist the ground campaign. Given the inexorable pressure from the ground forces to proceed from Phases II and III into the full-fledged ground assault of Phase IV, such an outcome seemed problematic.

Once again, air power’s flexibility might prove its undoing. The accuracy and range of aerial firepower, from just beyond the range of ground-based artillery to hundreds of miles deep inside enemy territory, offer a plethora of employment options. Some air services, such as the Soviets in World War II, found it impossible to resist the pull from the ground forces for maximum assistance. The USAAF in World War II, except for the significant Normandy decision previously mentioned, finessed the question of tactical versus strategic apportionment by providing an overwhelming number of specialized aircraft for both tasks. Yet one of the implications of having fewer, more versatile, more expensive, more capable aircraft in the future is that those aircraft will always be shifted from deep strategic missions to support and interdiction missions for the ground forces because the nation possesses no other aircraft capable of performing such missions. The NCA and theater CINCs will have to discipline themselves not to make the inevitable switch from strategic to tactical employment too precipitately.

35. For a discussion of this controversy, see W.W. Rostow, *Pre-Invasion Bombing Strategy: General Eisenhower’s Decision of March 25, 1944* (Austin, Tex.: University of Texas Press, 1981).

The Decision for War

Secretary Cheney and General Powell found the plan satisfactory. They told General Schwarzkopf to expect execution of the air phases soon after January 15. When General Powell visited his old unit, the 2d Brigade, 101st Air Assault Division, he told them, “be ready for war.”³⁶ The next day Secretary Cheney told the men and women of the 354th TFW(P) that the Coalition approached the “moment of truth” when “we may have to use force to get him [Saddam] out” of Kuwait.³⁷ Upon his return to Washington, December 23, the secretary stated: “One has to conclude that the situation is not improving and that the days are drawing closer when we may be forced to resort to military force.”³⁸ On Christmas Eve, Secretary Cheney and General Powell briefed National Security Advisor Scowcroft and the president at Camp David. Supposedly, they informed the president that General Waller had spoken the plain truth; the ground forces could not attack until mid-February. However, Secretary Cheney noted the professionalism of the air campaign and his satisfaction with its details. Both the secretary and the chairman assured the president that the air campaign could begin by January 15, before the ground forces had been built up to full strength. Their visit to the theater had also apparently convinced them that the troops’ morale would suffer if they had to wait too long after the January 15 deadline. The president agreed and told them to think seriously about beginning the air campaign at the best and soonest point after January 15. The three further agreed that the beginning of the ground war would require a separate presidential decision. After the meeting, on December 26th General Powell talked to General Schwarzkopf, informed him of the president’s intention to launch the air offensive soon after January 15, and obtained his recommended execution date and time.³⁹ General Schwarzkopf recommended 0300 Saudi time on January 17, 1991—a moonless night, perfect for the F-117As. General Glosson had suggested this exact date to General Schwarzkopf in August 1990.⁴⁰ By December 28 senior administration officials stated to the press that the president had decided the United States would launch a massive military attack on Iraqi forces if Iraq did not withdraw from Kuwait by January 15. Because delay would increase American casualties, the president would act regardless of public or congressional opinion.⁴¹ The next day, as the president spoke to a congressional delegation at the White House on the Gulf crisis, the CJCS received President Bush’s authorization to send the warning order for Desert Storm (which contained the recommended start time) to General Schwarzkopf.⁴²

36. Woodward, *Commanders*, pp. 348–349.

37. CRS, *Chronology: Iraq-Kuwait Crisis*, p. CRS-32.

38. Thomas Lippman and Barton Gellman, “Cheney Ends Gulf Tour on Fiery Note,” *Washington Post*, Dec 24, 1990, p. A1.

39. Schwarzkopf, *It Doesn’t Take a Hero*, pp. 399–400.

40. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 21.

41. Jack Nelson, “Bush Determined Not to Delay Gulf Attack,” *Los Angeles Times*, Dec 28, 1990, p. 1.

42. Woodward, *Commanders*, pp. 352–353. Woodward gives the specific time of the warn-

On Target

Time remained for diplomatic and political maneuvering. Reversing his previous insistence that he would not engage in talks with the Iraqis after January 3, the president, as noted earlier, had offered on that date to have Secretary Baker meet with the Iraqi Foreign Minister in Geneva on January 8, 9, or 10. The Iraqis accepted on January 4 the offer for a January 9 meeting. Also on January 4 the leaders of the House and Senate announced they would begin a debate on U.S. policy in the Persian Gulf on January 10, with especial reference to the president's authority to go to war without a congressional declaration of war. Four days later the president responded with a blunt letter to Congress asking for a resolution approving the use of "all necessary means" to remove Iraq from Kuwait. This would put Congress on record as concurring with UN Resolution 678 (1990). The president's request risked a chance for a humiliating and damaging congressional rebuff, but a more likely result would be an open-ended debate on policy with no responsibility attached. Asking Congress for a specific resolution forced it to stop debating and go on record as "yea" or "nay." President Bush assumed that a majority of both houses could not bring themselves to publicly oppose him against such a foe as Saddam. For his part, on January 7, Iraqi Army Day, Saddam addressed his nation and braced his people for war stating: "We do not believe the sacrifices will be small" and promised "the mother of all battles."

The January 9th six-and-a-half-hour meeting between Secretary Baker and Foreign Minister Aziz produced the international drama of two nations meeting to avert war. The tension was heightened by the strain of a long meeting with no news to the press, seemingly pointless haggling over the acceptance of a personal letter from President Bush to President Saddam (which showed how much Saddam's own people feared to be the bearers of bad news), profoundly gloomy press conferences, and absolutely no movement by either side from positions held at the beginning of the meeting. Neither party had come to negotiate, only to confirm current positions. Afterward Secretary Baker stated, "Regrettably, I heard nothing that suggested to me any Iraqi flexibility." For his part, Foreign Minister Aziz said his country was "preparing for the worst" and would "absolutely" respond by attacking Israel.⁴³ Both parties intended to use the Baker-Aziz meeting as a stone in their own propaganda slings in order to display to the Gulf nations, to their own internal domestic audiences, and to the rest of world their own reasonableness and desire for peace, while demonstrating their enemy's intractability. That same day, President Bush held a press conference in which he stated that Saddam's rejection of a diplomatic solution discouraged him. Saddam told a Baath Party gathering that the Iraqi armed forces would

ing order (CJCS to USCINCCENT) as 291612Z Dec 90. General Schwarzkopf says he did not receive a verbal warning order until January 8, 1991. Schwarzkopf, *It Doesn't Take a Hero*, p. 407.

43. Thomas Friedman, "Baker-Aziz Talks on Gulf Fail," *New York Times*, Jan 10, 1991, p. 1.

defeat U.S. forces in the Gulf. The January 9 meeting had little practical significance, but as a psychological harbinger it effectively set the stage for armed conflict by demonstrating the uselessness of further dialogue.

After this illusory peace opportunity, the events of the final week of peace in the Gulf region marched to their denouement. On January 10, as both houses of Congress began their debate on whether or not to give economic sanctions more time to work or instead to authorize the president to use U.S. armed forces to expel Iraq from Kuwait, the press reported that Coalition ground forces had begun to move in strength toward the Kuwaiti border. At the same time, Secretary Baker, who had flown directly from Switzerland to Saudi Arabia, apparently officially obtained the Saudis' agreement to offensive operations against both Kuwait and Iraq. On January 12, President Assad of Syria informed Secretary Baker that his forces would defend Saudi Arabia but would not attack Iraq. Also on that date, the United States closed its embassy in Baghdad and requested that all but four Iraqi diplomats accredited to the United States leave Washington. The House of Representatives and the Senate concluded their debates. In the House, a large majority voted 302 to 131 for House Concurrent Resolution 32, which affirmed Congress' constitutional authority to declare war and stated that U.S. offensive action against Iraq must have congressional approval. However, the House defeated the resolution in favor of sanctions and voted 250 to 183 for House Joint Resolution 77 which authorized the president to use force to implement UN Resolution 678. Also on January 12, the Senate followed a similar course of action. By a vote of 46 to 53 its members defeated Senate Joint Resolution 1, which continued sanctions and stated that Congress must approve future use of U.S. military force, and by a vote of 52 to 47 they passed Senate Joint Resolution 2, which authorized the president to use force to expel Iraq from Kuwait in accordance with UN Resolution 678. (A three-vote change would have defeated this authorization.) Then, with unanimous consent, the Senate voted to substitute the House version, House Joint Resolution 77, for Senate Joint Resolution 2. House Joint Resolution 77 required that the president certify both that the United States had used "all appropriate diplomatic and other peaceful means to obtain compliance by Iraq with the" UN Security Council Resolutions, and that those means had failed.⁴⁴ The president signed the resolution into law (Public Law 102-1) on January 14, the same day the Iraqi National Assembly unanimously granted President Saddam Hussein all necessary authority needed to confront the Coalition. On January 13 the Secretary General of the UN, Javier Perez de Cuellar, left Baghdad after having failed to obtain hope of a settlement. On the 14th and 15th of the month, last-ditch French, European Community, Libyan, and Yemeni peace efforts either collapsed or achieved nothing. On the day the UN deadline to Iraq expired, Egyptian President Mubarak

44. U.S. House of Representatives, Joint Resolution 77, Section 2(b) REQUIREMENT FOR DETERMINATION THAT USE OF MILITARY FORCE IS NECESSARY [capitalization in original], 102d Cong., Jan 3, 1991.

On Target

followed Syria's lead and stated that Egyptian troops would defend Saudi Arabia but would not attack Iraq. The next day, January 16, large majorities in the French and British parliaments approved the use of their armed forces to eject the Iraqis from Kuwait. Apparently, the opposition of the French Minister of War led the French Assembly to authorize the use of French troops or aircraft inside Kuwait but not in Iraq proper.⁴⁵

In the forty-eight hours before 1900 EST January 16, 1991, when the first bomb should explode, President Bush took the steps necessary to begin armed conflict between the United States and Iraq. On the morning of January 15 he signed National Security Directive 54 (NSD-54), "Responding to Iraqi Aggression in the Gulf." In its first words, NSD-54 justified the U.S. presence in the Gulf, declaring: "Access to Persian Gulf oil and the security of key friendly states in the area are vital to U.S. national security." Then NSD-54 designated Iraq as "clearly a power with interests inimical to our own" and noted that economic sanctions had not ended the occupation of Kuwait and gave no prospect of doing so. Delaying action to permit sanctions to take full effect "would increase the costs of eventual military action, threaten the political cohesion of the coalition of countries arrayed against Iraq, allow for the continued brutalization of the Kuwaiti people and the destruction of their country, and cause added damage to the U.S. and world economies." The document also set guidelines for the defense of vital U.S. interests when confronted with "the unacceptable Iraqi aggression and its consequences." In NSD-54, citing his constitutional authority, House Joint Resolution 77, and the appropriate UN resolutions, the president stated, "I hereby authorize military actions designed to bring about Iraq's withdrawal from Kuwait. These actions are to be conducted against Iraq and Iraqi forces in Kuwait...." The president did not authorize an exact time and date for commencement of hostilities.

He gave the armed forces permission to use force for four "purposes":

- To effect the immediate, complete and unconditional withdrawal of all Iraqi forces from Kuwait,
- To restore Kuwait's legitimate government,
- To protect the lives of American citizens abroad, and
- To promote the security and stability of the Persian Gulf.

These objectives repeated the goals the president had stated as early as August 20, 1990, in NSD-45. They represented no expansion of his original aims.

To attain those purposes he directed U.S. and Coalition forces to "seek to" fulfill the following "missions," many of which simply restated objectives already advanced by the services:

- Defend Saudi Arabia and other GCC states against attack;
- Preclude Iraqi launch of ballistic missiles against neighboring states and friendly forces;

45. CRS, *Iraq-Kuwait Crisis: Chronology*, pp. CRS-27-CRS-29.

- Destroy Iraq's NBC capabilities;
- Destroy Iraq's C³ capabilities;
- Eliminate the Republican Guards as an effective fighting force; and
- Conduct operations designed to drive Iraq's forces from Kuwait, break the will of Iraqi forces, discourage Iraqi use of NBC weapons, encourage the defection of Iraqi forces, and weaken Iraqi popular support for the current government.

In acting to achieve the above purposes and missions, the president instructed the armed forces to take "every reasonable effort" to minimize U.S. and Coalition casualties and to "reduce collateral damage incident to military attacks, taking special precautions to minimize civilian casualties and damage to non-military economic infrastructure, energy-related facilities, and religious sites."

The document laid out additional administration policy for the AOR. The United States would seek the maximum participation of all members of the Coalition in all aspects of operations against both Kuwait and Iraq. The United States would encourage Syria and Turkey to increase their forces along their borders with Iraq in order to draw off Iraqi forces from the KTO. The United States would discourage Israel from participating in any military action, especially a preemptive attack. "Should Israel be threatened with imminent attack or be attacked by Iraq, the United States will respond with force against Iraq and will discourage Israeli participation in hostilities." Likewise the United States would discourage Jordanian participation in hostilities, Jordanian aid or support for Iraqi military efforts, and violation of Jordanian airspace or territory. The U.S. government recognized "the territorial integrity of Iraq and will not support efforts to change current boundaries." Only in the event that Saddam employed weapons of mass destruction, supported terrorist acts against the Coalition anywhere in the world, or destroyed Kuwait's oil fields would it become "an explicit objective of the United States to replace the current leadership of Iraq." The president reserved the option to authorize further punitive measures against Iraq. Next, he asked the appropriate U.S. governmental organizations to present to him all measures necessary to stabilize energy supplies and prices during hostilities. The president closed by stating: "Military operations will come to an end only when I have determined that the objectives [purposes] set forth above have been met."⁴⁶

The necessity of a unitary Iraqi state as a barrier against Iranian expansionism formed the basis of U.S. policy toward Iraq since the fall of the Shah in 1979. Presidents Reagan and Bush had no fondness for Saddam and his regime, but they tolerated and even assisted it when it looked as if the Iranians might overwhelm it. Saddam's initiation of the Kuwait crisis had presented the Americans with a quandary: how to restrain Iraq without destroying it. The optimum solu-

46. National Security Directive 54, "Responding to Iraqi Aggression in the Gulf," Jan 15, 1991.

On Target

tion lay in a change in regime, or at least the head of regime. American policy desired a strong Iraqi state to prevent fragmentation along ethnic lines and to serve as a buffer for the weaker Persian Gulf states against Iran. This need for a centralized Iraqi state accounts for NSD-54's seeming magnanimity toward Iraq and its desire to separate Saddam from the people (if Saddam is separated from his populace, will he not fall of his own weight?). NSD-54's desire to retain Iraq, but not Saddam, reflected part of the appeal of Instant Thunder and its successors to the highest levels of American policymaking. The strategic air campaign plan consistently promised to eliminate or weaken the regime without making war on the average Iraqi in the street.

After signing NSD-54, the president authorized Secretary Cheney to sign a formal execution order for Desert Storm for immediate transmission to General Schwarzkopf. On January 16 at 0735 EST, seven ALCM-equipped B-52Gs of the Eighth Air Force's 2d Bombardment Wing (BW) began the longest combat mission ever flown (thirty-five hours flight time, four refuelings, and a 14,000-mile round-trip) by departing Barksdale AFB, Louisiana, to attack electrical power plants in Iraq.⁴⁷ With the B-52Gs already in the air, President Bush certified to Congress, in accordance with House Joint Resolution 77, that diplomacy, economic sanctions, and all other peaceful means had failed to remove the Iraqis from Kuwait; only force remained.⁴⁸ That morning Secretary Baker reputedly informed Ambassador Bandar of the exact time of the beginning of the offensive. Prince Bandar quickly passed the information to King Fahd. At 1700 EST, two hours before H-hour, Secretary Cheney notified Israeli Defense Minister Moshe Arens of the impending air assault. The administration had given Secretary Cheney the responsibility of overseeing military coordination with the Israelis, a delicate task of balancing the Israeli's need to know against the necessity of keeping them separated from the Coalition. One-half hour later, the U.S. Navy fired the first unrecalable shots of the war in the Gulf. The Aegis-class cruiser USS *Bunker Hill* and the battleship USS *Wisconsin* began firing TLAMs, timed to begin landing at 0306L on Iraqi targets.⁴⁹ This act, unlike the B-52Gs launched from Barksdale AFB, committed the Coalition to hostilities.

The Offensive Air Campaign: The Opposing Forces

The forty-three-day Coalition campaign against Iraq could have only one outcome: the total military defeat of Iraq. Strategically, qualitatively, operationally, tactically, and aeriaily, the Iraqi armed forces confronted severe disad-

47. Msg, 170831Z Jan 92, SecDef, Washington, D.C., to AIG 8798 et al, Subj: DoD Press Conference, Jan 16, 1992. Also see George Leopold and Barbara Opall, "AF Cites 14,000-mile Raid As Proof of 'Global Reach,'" *Air Force Times*, p. 23 Feb 3, 1992.

48. Ltr, President George Bush to Robert C. Byrd, President Pro Tempore of the Senate, Jan 16, 1991, plus enclosure, "Report for Use in Connection with Section 2(b) of the Joint Congressional Resolution Authorizing the Use of Military Force Against Iraq."

49. Woodward, *Commanders*, pp. 370-371.

vantages when they opposed Coalition forces. USAF and other Coalition air forces quickly compounded these difficulties with a coordinated strategic bombing campaign, which opened the conflict. By establishing immediate control of the air, Iraqi ground forces were left open to around-the-clock air attacks. We will now begin to examine the air operations of the six-week offensive air campaign directed against Iraq and gauge their effectiveness and significance.

Iraq faced a hopeless strategic situation—isolated from its major arms suppliers; blockaded by land, sea, and air from most arms and industrial imports; its overseas assets frozen; and unable to export oil or other goods. Coalition forces stood opposite its southern borders; neutral powers of varying hostility surrounded it on the east, north, and northwest. Only the economically and militarily weak state of Jordan on its western border assumed a friendly stance, and it even paid lip service to the UN-imposed embargo and sanctions. Qualitatively, the Iraqi armed forces would operate at irreversible disadvantage when compared to Coalition forces. With the possible exception of raw numbers of men, tanks, and artillery pieces, the Iraqi armed forces were inferior in every way to the forces they opposed. Most Iraqi air and ground equipment consisted of 1950s and 1960s Soviet designs, probably two generations or more behind their U.S. and Coalition equivalents. Even the best Iraqi ground equipment, such as the T-72M tank and the towed GC-45 155-mm artillery, had operational shortcomings when compared with Coalition arms. The bulk of Iraqi ground force personnel consisted of inadequately trained conscripts and reservists who had little motivation, many of whom came from portions of the population somewhat disaffected from the ruling Baath Regime. They demonstrated their disaffection with high desertion and AWOL rates. The Republican Guard, which constituted one-fifth of the Iraqi manpower in the theater, had the best weapons, the most complete training, and the most loyal and high-quality personnel. Three Republican Guard heavy divisions and five infantry divisions occupied reserve positions in the KTO at the rear of all other Iraqi forces, positions farthest away from Coalition aircraft. This added distance and concomitant logistical consumption made them the most difficult units for Coalition air to attack. An additional four newly raised Republican Guard divisions (one heavy and three infantry) remained within Iraq serving internal security duties. The Republican Guard divisions within the KTO represented a possible threat to Coalition ground operations. Of course, all Iraqi equipment suffered from poor, if any, maintenance and inadequate operator training. The departure of foreign technicians left the Iraqi Army unable to perform depot-level maintenance.⁵⁰ The Coalition ground forces had many qualitative advantages. Three of the largest components—the American, Saudi, and British forces—were composed of volunteers, as were the French, whose conscription law forbade overseas service for draftees. Personnel of the American, British, and French forces had far higher

50. *GWAPS*, Vol 1, pt. 1, *Planning* (2d ed.), pp. 78–79.

On Target

training, motivation, and overall readiness than their Iraqi foes, and the deployed units were famous for their esprit and accomplishment, for example the U.S. 1st Infantry Division (the Big Red One), the U.S. 82d Airborne Division, units of the U.S. Marine Corps, the British 7th Armored Brigade (The Desert Rats), and portions of the French Foreign Legion. The cutting edge of the Coalition ground forces—the American ground forces—had superior armor equipment, such as the M1A1 tank, artillery fire control, intelligence, battlefield communications, and combat helicopters.

In the KTO and in southern Iraq the Iraqi ground forces confronted the classic dilemmas of desert warfare—an open flank impossible to close and lack of cover or concealment to protect friendly forces from enemy air operations. When the British had fought the Germans and Italians in the Egyptian desert almost fifty years earlier, they had encountered the offensive advantages and defensive problems of an open flank. In Lt. Gen. Sir Richard O'Connor's smashing offensive against the Italian Tenth Army, O'Connor's troops employed flanking attacks to destroy a force many times their size. But when confronted with German General Erwin Rommel, a master of movement warfare, they had repeatedly failed to resolve the obstacle. At the decisive battle of El Alamein in July–October 1942, terrain proved a key factor in the British success because it allowed the British to establish a compact defensive line with one flank resting on the Mediterranean and the other resting on impassable ground, which the Axis mobile forces could not bypass. This produced a battle of attrition that favored the British because it minimized the Axis advantage in maneuver combat, maximized British logistical strength, and compelled frontal attacks on prepared defenses. Saddam's army had no such favorable terrain. While the Persian Gulf anchored the Iraqi left, their right flank extended hundreds of miles along the Iraqi-Saudi and Iraqi-Jordanian borders. If the Iraqis stretched their forces thin to cover the entire line, they offered the Coalition the opportunity to penetrate the defenses at will. If the Iraqis kept their defensive line thick and let the flank hang in the air, the Coalition forces could go around it. In either case, the mobility and firepower of Coalition ground forces, once they had broken or circumvented Iraqi lines, would enable the Coalition to mount a devastating assault on the main Iraqi forces.

In fact, Saddam worsened the Iraqi position by fixating on the defense of Kuwait. In a manner somewhat reminiscent of Hitler's preoccupation with Stalingrad, he poured his divisions into the Emirate to create a defense in depth while leaving his exposed flank thin. Coalition deception operations, designed to foster an Iraqi belief in a USMC amphibious invasion of Kuwait, succeeded in convincing the Iraqis to devote considerable resources to defending the coastline, which diverted their forces from the front-line defenses but still left them sitting in a potential trap in Kuwait. As late as January 15, two days before the opening of the conflict, American intelligence reported the movement of artillery to the

JSTARS aircraft



Kuwaiti shoreline.⁵¹ In the region of the northern Kuwaiti border and where that border curves south, the Iraqis placed their theater reserve forces, approximately eight divisions of the Republican Guard. From that position, the reserves could either counterattack Coalition breakthroughs in Kuwait or swing to the west to confront a Coalition flank attack. The placement of the Republican Guard also allowed them to block the retreat of their own forces, should that become necessary. The positioning of the Iraqi operational reserves showed their underestimation of air power. During their eight-year war with Iran, they had seldom encountered an Iranian air-ground attack and had never had a significant land movement halted or delayed by air attack. They appeared to assume their good fortune would continue.

Like all desert terrain, the area of Kuwait and southern Iraq offered highly favorable conditions for air-to-ground attacks, almost all of which would accrue to the possessor of air superiority or supremacy. Lack of cover and the difficulty of concealment for armored vehicles, trucks, artillery, supply dumps, and all types of military facilities allowed Coalition IR and other high-tech sensors on tactical aircraft to work in target-rich, uncluttered, and nearly ideal conditions. Likewise JSTARS, TR-1s, RF-4Cs, satellites, and other Coalition reconnaissance assets would operate under excellent conditions. An army operating in a desert had increased logistical needs for water and other items, which made it more vulnerable to air interdiction and offered more targets for air power. By its nature, slightly populated desert terrain freed air attackers from the constraints imposed by the requirement to avoid collateral damage. Finally, lack of jungle and mountains made it easier for tactical airlift to assist advancing forces by landing on roads and by flying slower and lower on supply drops. Unlike Vietnam where the rain forest proved a formidable opponent, the desert in Iraq and Kuwait would maximize USAF combat strengths and Iraqi vulnerabilities.

At the tactical level, the Iraqi Army established a line of tank traps—high sandbanks and interconnected strongpoints defended in depth and immediately

51. Msg, 170632Z Jan 1991, DIA, Washington, D.C., Iraq Regional ITF, to DIACURINTEL [File No. T/HO/3/JAN].

On Target

supported by numerous towed artillery pieces and organic armored formations. These traps extended along the Kuwaiti coastline, the Kuwaiti-Saudi border, and approximately 40 miles along the Iraqi-Saudi border, 175 miles in all.⁵² They heavily mined the approaches to the positions with antipersonnel and antiarmor devices and employed razor wire. Iraqi combat engineers built 2,000 kilometers (1,240 miles) of tactical roads behind Iraqi positions, constructed a 150-kilometer (993-mile) spur rail line to connect Kuwait City with the Iraqi national railway at Az Zubayr, installed a 100-kilometer (62-mile) water pipeline connecting southern Iraq with Kuwait, and demonstrated their expertise in massive works of combat engineering.⁵³ The Republican Guard and other reserve units benefited by receiving particularly well laid-out, concealed, deep, and damage-proof vehicle and personnel shelters. Front-line units had much less protection. However, in many cases the Iraqis failed to lay their minefields properly and neglected to cover them and other obstacles with supporting fire. The Iraqi reliance on towed artillery with little or no overhead cover left it extremely vulnerable to counter-battery fire and air attack. Without massive artillery support, which had formed the basis of their successful defensive tactics against Iran, Iraqi front-line units lost much of their effectiveness. The Coalition made the Iraqi Army's artillery one of its prime objectives in the preparatory air campaign. To launch prompt counterattacks or reinforce advanced units, the Iraqis emplaced mechanized and armored reserves a few miles behind the front lines. As they had done in the their war against Iran, they dispersed their artillery and armor and dug them in, limiting their mobility but providing them with a measure of increased protection.

In theory this scheme of defense would give the Iraqis all the advantages traditionally accruing to the defender. The defense had worked reasonably well against the frontal assaults of a lightly armed Iranian infantry that lacked the discipline and mobility to fully exploit breaks in its enemy's defenses. However, heavily armored Coalition forces with their great mobility, tremendous firepower, and high-technology weapons proved an altogether different foe. The static defensive front line of the Iraqis, with extremely limited or no lateral movement of the front-line units, gave the Iraqis certain defensive strengths but conceded offensive advantages to the Coalition. Western newspaper accounts, which published charts attributing the Iraqis with a manpower advantage of tens of thousands of men in the theater, erred on two accounts: first, they overestimated the strength of Iraqi units, many of which entered the theater understrength; second, they seemed to imply, to those unschooled in warfare, that every attacker would encounter one if not more defenders. Because of Iraq's static defenses and lack of military intelligence (Coalition control of the air prevented Iraqi aerial surveillance, as did their own inability to mount effective ground reconnaissance patrols), the Coalition instead had little difficulty in massing overwhelming force

52. Schwarzkopf, *It Doesn't Take a Hero*, p. 408.

53. *GWAPS*, Vol 1., pt 1, *Planning* (2d ed.), p. 73, citing U.S. intelligence reports.

The Decision for War

against selected Iraqi sectors and units—scattering them, breaking into their rear areas, and engaging them, if necessary, in mobile combat. To their advantage, the Western forces in the Coalition had trained for more than forty years to fight a mobile Soviet force; the Iraqis had shown only a limited capability for mobile action in the previous Iran-Iraq War.

Air power increased the Coalition's strategic, operational, and tactical advantages manifold. Coalition air forces had superior numbers and far better technology and training than the IZAF had. As of January 16, 1991, the USAF had 47,731 personnel in the AOR⁵⁴ with approximately 2,900 assigned to CENTAF HQ in Riyadh.⁵⁵ These personnel supported the 1,131 USAF aircraft deployed in Desert Storm as of January 16, 1991:⁵⁶

Combat Aircraft		Support Aircraft	
A/OA-10	144	C-20	1
AC-130	4	C-21	8
B-52G	20	C-130	128
EC-130 (CC)	5	AWACS	10
EC-130 (VS)	2	EC-130E	6
EF-111A	18	HC-130	4
F-4G	48	JSTARS	2
F-15C	96	KC-10	30
F-15E	48	KC-135	194
F-16	210	MC-130	4
F-111F	64	MH-53	8
F-117A	36	MH-60	8
		RC-135	6
		RF-4C	18
		TR-1	4
		U-2	5

The USN and USMC supplied 724 more aircraft, including 99 F-14s, 213 A-6s and A/V-8s, and 168 F/A-18s. As of January 11 the individual Coalition partners had also contributed considerable air strength. A CENTCOM situation report credited them with supplying 1,386 fighters and fighter-bombers, 849 helicopters, and 256 civilian transports.⁵⁷

Iraq could counter this aerial juggernaut with an inventory of approximately 1,000 fixed-wing aircraft. Upon close examination, however, the total tally of

54. Msg 162115Z Jan 91, USCINCENT to AIG 904, Subject: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 212.

55. Intvw, Comdr. McSwain, Apr 7, 1992.

56. Msg. 162115Z Jan 91, USCINCENT to AIG 904, Subject: Sitrep, cited in Michael, *Desert Shield Chronology*, p. 213.

57. *GWAPS*, Vol., 5, pt 1, *A Statistical Compendium*, Table 10 "Allied Order of Battle" (2d ed.), p. 44.

On Target

combat-capable aircraft reduced much of the IZAF's apparent potency. Included in the Iraqi inventory were trainer aircraft like L-29 Mayas and L-39 Albatrosses that had only a dubious combat value, or MiG-17 fighter/trainers that had become totally obsolete except they were employed against lightly armed Kurdish irregulars. Of greater concern to the Coalition forces were Iraq's obsolescent Tu-16 and Tu-22 bombers, not because of their minimal combat value, but because of their capacity to deliver CW and possibly BW and because of their range, 1,850 and 1,570 nautical miles respectively. Still, one such bomber, skillfully flown a few feet off the ground and aided by Coalition inattention and overconfidence, might sneak through the defenses and, with a great deal of luck, inflict much mischief. Of course, the chances for success for the Iraqi ground attack force depended on its ability to survive on its fields, to fly unimpeded to the ground battle area, and to operate with freedom against enemy forces. Without air superiority or parity, the Iraqi ground attack force could not significantly affect the outcome of ground operations.

The Iraqi interceptor forces faced the enormous task of defending their nation's airspace against an enemy numerically, qualitatively, and technologically superior. On January 12, 1991, a meeting of the Iraqi Tactics Analysis Team held under the aegis of TAC and the Electronic Security Command, with attendees from the Air Weapons Center, Navy Fighter Weapons School (TopGun), Naval Strike Warfare Center, U.S. Air Forces Europe (USAFE), SAC Tactics School, DIA, and various USAF intelligence organizations, examined the Iraqi interceptor force. It assessed the MiG-29 as the Iraqi's best interceptor "comparable to the latest U.S. fighters" because of its performance, its ability to "look-down" and "shoot-down" low-altitude aircraft over land and its ability to carry the AA-11 advanced IR missile. However, they noted that the MiG-29's pilots had recently transitioned to the aircraft from MiG-23s and Su-25s and did not yet measure up to the Coalition F-1E pilots. Some variants of the Mirage F-1E could also serve as capable fighters. The MiG-23Gs and MiG-25s had front-quarter IR and depressed-angle capability. They and the F-1Es compared to the F-4/Phantom II in capability. The radar capability of the remainder of the interceptor force—MiG-21s, F-7s, and MiG-23Es—was limited, forcing these aircraft almost exclusively into day and point-defense roles. The analysis team thought their quality dramatically less. In the team's opinion, the IZAF was "essentially out of its league in facing U.S./Allied air power." Overall it found Iraqi combat training "extremely basic and mission execution is GCI [ground-controlled interception] dependent and apparently rigid." Although the team recognized that "some competent pilots exist," longtime observation had confirmed that Iraqi training and tactics "lack rigor and sophistication." Nonetheless, the team cautioned that Iraq possessed sufficient hardened aircraft shelters to house its entire fighter inventory, which would make it difficult to be knocked out in a single blow. Also, because of their disadvantages, the fighters would work close-

ly with the SAM and AAA air defenses.⁵⁸ This report indicated, by its tone and predictions, that the Coalition air forces anticipated speedy establishment of air supremacy over Iraq. Once the Iraqi fighter force no longer contested Coalition control of the air, the remainder of the Iraqi air effort, if any, would cease because it could not survive.

Within Saudi Arabia, CENTAF/IN had even more optimistic assessments. The MiG-29 seemed less formidable close-up. It had below-average pilots, even the Soviet advisors judged them as not as good as Soviet pilots, and it lacked the AA-11 advanced missile. In addition, its pilots spent little time in training for look-down, shoot-down engagements. MiG-29 pilots, like most Iraqi fighter pilots, flew only nine hours a month, most of the time with visual flight rules. Iraqi fighter pilots were weak on maneuver combat, disliked high-G and high-power moves, and overly depended on GCI. Even the F-1E pilots, the Iraqis' best, received ratings of below average from their instructor pilots. CENTAF/IN did not consider the MiG-29 to "pose a major threat to multinational force air operations" because of the low proficiency of its pilots, their rudimentary tactics and reliance on GCI, and the lack of spares and Soviet maintenance support.⁵⁹ The Coalition gained further insight into the workings of the MiG-29 from the West German Air Force which had inherited several of the advanced aircraft when it absorbed the East German Air Force upon the second unification of Germany. The RAF, with five USAF representatives present, flew its Tornados and Jaguars for a week against the German MiGs at the Ingolstadt Flight Test Center.⁶⁰ Presumably, all three air forces gained useful information. A week after the start of the war, on January 22, the USAF took delivery of a MiG-29 on loan, possibly from the Germans. Intensive exploitation of its electronics and other features followed.⁶¹ Thus even the most modern of Iraq's interceptors had given up many of its secrets to the Coalition before the first aerial engagement, or soon thereafter.

After subtracting the more than 200 MiG-21s in its interceptor inventory, which had only a marginal capability against Coalition aircraft, Iraq possessed approximately 170 modern interceptors. These aircraft were all inferior export versions of Soviet or French aircraft and all suffered from spare parts shortages and maintenance shortfalls. Approximately one-third of the pilots of the modern aircraft met average Western pilot standards of proficiency; the remainder had varying degrees of inadequate training. General Glosson put it most succinctly,

58. Msg, 161800Z Jan 91, 99th Strategic Weapons Wing, Ellsworth AFB, S.D., to AIG 9471, retransmission of msg, 120422Z Jan 91, HQ ESC, Subj: Iraqi Tactics Analysis Team Report (ITAT 91-1) [File No. SAC/HO, DS Working Archives, File 9.0 Intell].

59. Msg, Oct 90, CENTAF INTREP 90-92, Subj: Iraqi Fulcrum Capabilities and Employment and MiG Tactics Response to IIR [File No. T/CT/folder #2].

60. Msg, 061550Z Nov 90, HQ USAF to Bonn, FRG, Subj: IIR 6 834 0075 91/ Military Cooperation for MiG-29 Evaluation, Desert Shield [File No. CK/AS/IAF].

61. Msg, 161130Z Feb 91, HQ USAF Systems Command, Andrews AFB, Md./IN to HQ USAF, D.C./IN, Subj: HAVE LOAN SPOT Report No. 3 [File No. T/CT/74/IN].

On Target

declaring, “the Iraqis don’t have fifty pilots worth a damn.”⁶² Almost all Iraqi pilots lacked aggressiveness and were overly dependent on GCI techniques. If the Iraqi interceptor fleet lost its GCI capability, its effectiveness would fall to practically nil.⁶³ With GCI capability, its modern fighters might interfere in Coalition operations in the short run, but Coalition aircraft would soon drive them from the skies. If the Iraqi interceptors refused to engage in combat and stayed in their hardened shelters, they would have conceded air supremacy to the Coalition, but their very existence and potential for harm would impose some check on Coalition air operations.

As discussed previously, the Iraqis had a complex air defense system consisting of thousands of SAMs;⁶⁴ 7,000 AAA pieces, 4,000 no larger than 23 mm; and hundreds of search radars controlled by an interlocking chain of hardened operations centers directed from a single facility in Baghdad. The head of the IZAF also served as chief of Iraq’s integrated air defenses. The system’s design optimized SAM capabilities for medium and higher altitudes, minimally 10,000 feet AGL, while the AAA covered the altitudes below 10,000 feet AGL. Unlike the popular image, Iraq did not possess enormous numbers of SAMs. Iraqi air defense doctrine differed profoundly from Soviet doctrine inasmuch as the Iraqis’ emphasized point, not area, defense. Approximately 3,700 SAMs distributed among 105 batteries defended strategic points within Iraq, and almost 65 percent of the SAMs defended the Baghdad area. In addition, the Iraqis assigned 52 percent of their AAA belonging to their air defense force and consisting mostly of ZSU-23-4 and S-60 (57-mm) AAA pieces (1,276 guns) to the Baghdad region. Few of the guns had radar guidance. The system employed four types of second-line Soviet SAMs—the SA-2 (Guideline), SA-3 (Goa), SA-6 (Gainful), and SA-8 (Gecko)—and the Franco-German Roland. They represented a mix of differing capabilities and effectiveness. The SA-2, designed in the early 1950s, had an operational range of 22 to 32 miles and an effective maximum altitude of 80,000 to 120,000 feet (depending on the model). The SA-3, which first became operational in 1961, had an effective range of 11 miles and an effective maximum altitude of slightly over 55,000 feet. The Soviets had designed and used both missiles for point and area defense of strategic targets. Both types employed external guidance. The Soviets designed the SA-6 and SA-8 as low- and medi-

62. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 21.

63. SNIE 36.2-5-90, Oct 1990, p. 18.

64. See Brfg Slide 8, “SAM/AAA Threat,” Brig. Gen. Glosson to CJCS and SecDef, Dec 20, 1990. This briefing, and one given two days earlier to the AOR wing commanders, credited Iraq with a total of 3,679 SA-2, SA-3, SA-6, SA-8 and Roland radar directed missiles, some of which had backup electro-optical and IR capabilities—all allotted to point defenses in Iraq and available to oppose the air offensive. The point defenses did not include 6,500 SA-7s, 400 SA-9s, 192 SA-13s, and 288 SA-14s, most of them organic to the air defense formations of Iraqi ground units. Like their combat aircraft inventory, the Iraqi SAM force contained many older missiles approaching obsolescence; the design of the SA-2 went back to the early 1950s, and the SA-6 had seen action against the Israelis in 1973.

um-altitude tactical systems to accompany its ground forces. The Iraqis incorporated them into their domestic air defenses instead. The SA-6, probably the most dangerous system to Coalition aircraft, became operational in the 1970s. It had capabilities against high-performance aircraft, a semiactive homing capability, a maximum operational range of 15 miles, and a maximum effective altitude of 30,000 to 45,000 feet (depending on the model). The SA-8 reached its IOC in 1974. Its maximum operational range was 8 miles and its maximum effective altitude was 20,000 feet.⁶⁵ The Soviets had fielded upgraded replacement systems for all four missiles. By mid-January, the Iraqis may also have deployed two batteries of U.S.-designed and -manufactured Hawk anti-aircraft missiles that they had captured from the Kuwaitis and placed in the Baghdad area.⁶⁶ Lack of training and familiarity with this system probably limited its Iraqi operator's ability to attain its maximum performance of a 25-mile range and 50,000-foot altitude. The Hawk possessed modern guidance and countermeasure capabilities and offered a potentially severe threat to Coalition operations.⁶⁷

The configuration of the Iraqi missile defenses had several implications. The Iraqis lacked sufficient missiles to cover both their large army and the strategic targets in their homeland. Apparently as a result of practices adopted during the war with Iran, they choose to concentrate their higher performance missiles to defend their population and key targets, in particular Baghdad, Basra, the western Scud launching sites, and the northern oil fields. This meant that Coalition aircraft flying against those targets would face relatively stiffer defenses. But the concentration of defenses in a few areas left much of the rest of the country undefended and allowed Coalition aircraft to approach targets from different directions. The Republican Guard units and Iraqi armored divisions retained some organic SA-6 and SA-8 batteries. The Iraqi ground forces' possession of numerous low- to medium-altitude missiles reinforced the Coalition's determination to limit friendly aircraft losses by conducting ground support operations at medium altitudes above 15,000 feet unless they found it absolutely necessary to do otherwise. By declining to position their higher altitude missiles to cover their army, the Iraqis granted Coalition air power a medium-altitude sanctuary from which to devastate their ground forces. Conversely, the presence of a multilayered missile defense over portions of Iraq forced most of the Coalition aircraft flying strategic missions against Iraq to fly in packages employing electronic countermeasures and HARM-carrying aircraft. Fortunately, the Iraqis' highest altitude missiles, the SA-2s and SA-3s, approached the end of their operational life spans, and the thirty years since their initial deployment had allowed the USAF

65. DIA, *Fact Book: Communist World Forces* (DST-2660Z-013-90, Sep 1990), pp. 5-63-5-74.

66. Msg, 120136 Jan 91, DIA Serial 36-91, Subj: Iraq: Readiness of Iraqi Forces for War on 15 January, DOI 11 Jan 91 [T/HO/3/Jan].

67. For details on the HAWK, see *Jane's Weapon Systems, 1987-1988* (London: Jane's Publishing, 1987), pp. 181-182.

On Target

and several allied air forces to develop effective countermeasures to them. Like those Coalition aircraft committed against the Iraqi ground forces, aircraft carrying out strategic missions would find it expedient not to descend below 15,000 to 20,000 feet into the range of AAA and tactical SAMs.⁶⁸

In the middle to late 1980s, the Iraqis designed and the French built a sophisticated automated C³ system for its air defense known as the Kari system (Iraq spelled backwards in French). The Iraqis configured the Kari system to counter the most likely regional threats: Iran, Israel, and Syria. Consequently, the layout of the western and central sectors created a dead zone pointed directly at Baghdad from Saudi Arabia.⁶⁹

In Exercise Internal Look 90 and elsewhere, the Ninth Air Force had begun to examine the Iraqi air defenses even before the crisis broke. CENTAF continued and expanded these efforts. Destruction of the operations centers and neutralization of key radars would blind the Iraqis' GCI fleet and force Iraqi AAA and SAM batteries into an autonomous mode of operation in which they would fall back on their own individual radars or use optical sighting with little or no cooperation with any other air defense units. The inability to direct fighter interceptions and the loss of capacity to both pool tracking information and concentrate fire would significantly degrade the effectiveness of Iraq's air defenses.

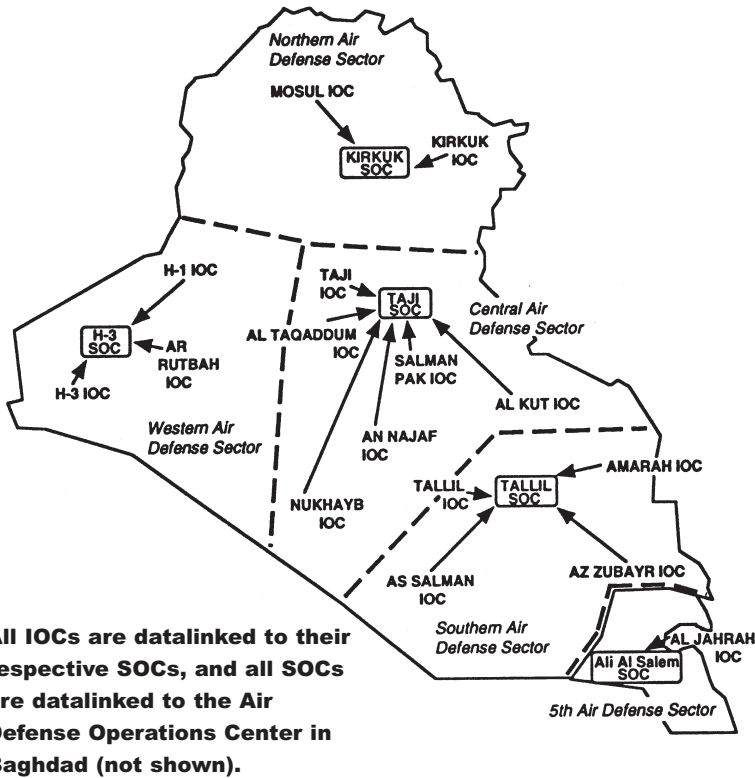
The philosophy underlying the USAF plan of attack on the Iraqi IADS paralleled that of the overall offensive air plan. The first bombs dropped on Iraq would hit an IOC, and much of the rest of the first day's missions would be aimed to disrupt and shock the air defense system into inoperability with a series of simultaneous, widespread strikes.⁷⁰ An air defense system without integration quickly becomes an organization whose capabilities equal far less than the sum of its parts. Obviously, to hamstring the Iraqi air defense system was a high priority. To dissipate it would lower Coalition casualties and increase the accuracy of Coalition pilots who, if they stayed above 10,000 feet AGL, would not have their attention distracted by a constant need to avoid SAMs and AAA. The first Coalition air attacks of January 17, 1991, struck portions of the Iraqi IADS.

The Coalition air attacks of January 17 and 18 closely followed the MAPs and ATOs prepared by the Directorate of Campaign Plans for the first two days of the campaign. Since the special campaign planners and others had worked twenty-four-hours a day on these plans for five months and the units had practiced their portions of the plan for almost as long, the MAP and the ATO corresponded in every detail. Success has many fathers, but the bulk of the cred-

68. Brfg Slide 8, "SAM/AAA Threat" CENTAF/CC Brief to the SECDEF, Dec 20, 19 90; DIA, *Fact Book*, pp. 5-75-5-82.

69. Intvw, Brig. Gen. Larry Henry, USAF, with GWAPS personnel, "Electronic Combat in Desert Shield/Storm," Aug 28, 1992 [GWAPS, National Archives, Record Group 358].

70. Intvw, Maj. Steve Satchwell, USAF, HQ USAF, ACS/Studies & Analysis, with Dr. Richard G. Davis, CAFH, Apr 29, 1992, at the Pentagon, Washington, D.C. Major Satchwell served in the Black Hole and GAT Division from October 1990 to February 1991. He worked as an expert on aircraft attrition and as a consultant to the Iraqi Air Defense targeting cell.



it for spectacular achievements of the first forty-eight hours of Desert Storm must go to the men in cockpits who repeatedly risked their lives and bodies to accomplish their assigned tasks. Yet, without careful planning, the Coalition might have consumed the courage and skill of the air crews for naught by sending them to incorrect targets or failing to properly suppress enemy air defenses. Phase I of the Coalition air plan, the air offensive against Iraq, ensured that such waste did not occur. Phase I descended directly from the Instant Thunder campaign plan of August 1990 and reflected the air power philosophy and ideas of Col. John A. Warden III and his fellow workers in the Deputy Directorate of Warfighting Concepts in the Air Staff's Directorate of Plans. Phase I struck Iraqi centers of gravity such as leadership, strategic weapons, and NBC production and storage with the intention of disrupting the Iraqi chain of command and shocking the Iraqi nation. But the offensive air campaign had matured since leaving the Pentagon, and many of its details differed from the original. The target base had almost tripled, from 84 to 238 sites, and the plan itself had become only the lead phase in a joint assault on Iraq and the Iraqi ground forces in Kuwait.

On Target

The creation of the plan from its conception through its final permutations required the combined effort of dozens of persons in Riyadh, in Washington, and in the field in Saudi Arabia. One officer directed the plan's formation almost continuously from August to H-hour, Lt. Col. David A. Deptula. His tireless efforts to perfect the plan while holding it true to the ideals of the Warden group earned him, within CENTAF, the nickname "ProAP," "prophet of air power." Like Commander Minoru Genda, the naval aviator who did much of the planning for the Japanese attack on Pearl Harbor, Colonel Deptula's impassioned belief in the decisiveness of air power and in the necessity of carrying the offensive air plan to the achievement of its objectives converted some of his superior officers, such as General Glosson, into champions of the plan, or at least convinced others to support it.

Colonel Deptula and the other air campaign planners faced a situation Commander Genda would have envied. The Coalition's first strikes formed the spearhead of the major strategic focus rather than their being a sideshow. From the plan's inception, air would make repeated attacks to gain the initial objectives. Colonel Deptula's superiors not only supported the intent and methodology of the plan, but General Horner had made it his own, General Schwarzkopf had asked for its creation and approved it, and Secretary Cheney had accepted it since October 1990. By the first of November 1990, if not earlier, the force available for operations outnumbered the IZAF in terms of raw numbers and had decisive advantages in technology and quality of personnel. Not only did Colonel Deptula have big battalions, his were better. In addition, unlike the 1941 Japan confronting the continental United States, Coalition air forces found that all but the northern part of Iraq lay open to air attack from Saudi Arabia, making Baghdad—surrounded by air bases, the hub of Iraqi leadership, of Iraq's C³ structure, of its NBC and military production and research facilities, and the center of its heavy air defenses—vulnerable. Once Iraq's interceptor-based air defenses cracked and the Coalition adopted medium-altitude tactics to neutralize much of its SAM and AAA capability, Iraq lay open to assault.

The Coalition campaign air plan would strike Saddam and his defenses from two directions: one was conventional, the other was not. The conventional attack sought first to immobilize the Iraqi air defenses and then to use the Coalition's conventional aircraft to destroy or damage many of the 238 strategic targets as well as numerous tactical ones. The TLAMs, ALCMs, and the F-117As formed the unconventional arm of the assault. They had no need to wait for the breakdown of the Iraqi air defenses because they carried their own specialized form of air superiority: near, but not complete, invisibility to Iraqi radar or other forms of detection. They would begin an immediate attack on Iraq's most sensitive targets. The F-117A with its sharpshooting weapons delivery and near invulnerability would create a legend in Desert Storm with incalculable effect on future opponents of the USAF. At 0022L on January 17, 1991, ten F-117As from the 415th TFS, 37th TFW(P), headed north from Khamis Mushait. They intended to attack

The Decision for War

sixteen targets including air defense SOCs, IOCs, and facilities in Baghdad such as the ADOC, IZAF HQ, telephone centers, and presidential grounds at Abu Ghurayb.⁷¹

The MAP laid out the missions of the F-117As and all others for the first attack wave. Although at the time a highly classified document, the first day's MAP had relatively wide distribution. From Saudi Arabia to Washington, civilian officials such as Secretary Cheney, National Security Advisor Scowcroft, President Bush, and military officers that included Generals Powell and Horner, the CENTAF staff, and Checkmate officials sat with their copies in front of TV monitors, watching the Cable News Network (CNN) which had reporters broadcasting directly from Baghdad. When the American bombs began to go off in the Iraqi capital at the H-hour of 0300L January 17, Iraqi time, which was 1900 EST January 16 in the United States, viewers would participate in a unique experience, the first BDA direct via live commercial television.

71. Harold P. Myers, "Nighthawks Over Iraq: A Chronology of the F-117A Stealth Fighter in Operations Desert Shield and Desert Storm," HQ 37th FW/HO 12 AF, TAC: Special Study 37FW/HO-91-1, Jan 9, 1992.

Chapter Six

Thunder and Hail over Baghdad: The Initial Attacks

The First Twenty-Four Hours

In Baghdad at 0230L on January 17, an hour when the human body seems to reach both a physiological and psychological nadir, Iraqi radar operators peering 150 to 200 miles deep into Saudi Arabia saw nothing they had not seen dozens of times before. From early September, the Coalition had begun to move a nightly tanker track (a series of aircraft refueling from the same group of tankers) slowly west until it stopped opposite the portion of the Iraqi border closest to Baghdad. Since August, the AWACS orbits and the CAPs had maintained standard locations. Now, however, four F-15Cs sought not only to protect their own HVAA, but they would shoot down the Iraqi AWACS (which could serve as IOCs for the air defense system) if it put in an extremely rare appearance. The Iraqi operators may not even have noticed that on this night the tanker track came within thirty miles of the border before turning for home. At 0235L (H-25 minutes) they almost certainly did not notice ten F-117As drop off the tankers, button up, place themselves in the stealth mode, and continue north. Two of the F-117As (Thunder 36 and Thunder 37) veered to the northwest to strike air defense control centers. One (Thunder 6) flew east to bomb the SOC controlling the Iraqi southern air defense sector. The remaining seven F-117As pointed toward thirteen targets in the Baghdad area. Other nonstealthy aircraft also hurried to participate in the first wave of the first attack.¹ During the first night of the conflict, the weather cooperated by supplying almost cloudless skies over

1. MAP, First 24 Hours, 2121 Jan 16, 1991, p. 1; Intvw, Lt. Col. David A. Deptula, USAF, Chief, Iraqi Cell, GAT Division, Directorate of Campaign Plans, CENTAF HQ, with Drs. Richard G. Davis, Diane T. Putney, and Perry D. Jamieson, CAFH, at the Pentagon, Jan 8, 1992. In this interview, Colonel Deptula describes the first twenty-four hours of the attack and its related MAP on a line-by-line basis.

On Target

northern Saudi Arabia and Iraq.² The first wave of aircraft would find its targets in the clear.

At 0220L Task Force Normandy, consisting of twelve American helicopters, crossed the Iraqi border. Three MH-53J Pave Lows of the 20th Special Operations Squadron, using specialized night-operating equipment and equipped with GPS receivers, led nine Army AH-64 Apache gunships of the 101st Air Assault Division to their target. Nineteen minutes later, at H-21, after flying in low to avoid radar detection and taking a roundabout route to miss Bedouin camps and Iraqi ground observers, the Apaches used AGM-114 Hellfire missiles, Hydra 70 (2.75-inch) rockets, and cannon fire to destroy two Iraqi early warning radar sites.³ There are unconfirmed indications that one of the targets may have gotten off a message before its destruction, or the radars may have had “deadman” circuits with their associated IOC. If this permanently open circuit were to shut off, alarms would sound at the IOC, alerting it to possible trouble. Videotapes reveal that Iraqi AAA in the Baghdad area began to fire heavily at H-20 when no Coalition aircraft were overhead.⁴ In addition, subsequent American intelligence noted that by H-15, numerous radars associated with Iraqi SAMs had become active in the Baghdad area, apparently in reaction to the Coalition attacks.⁵ Nonetheless, the elimination of these two western radar sites created a gap in local Iraqi coverage that allowed three separate groups of American and British aircraft to cross the border with less chance of detection as they penetrated Iraqi airspace en route to their targets. One group, consisting of three of the 366th TFW(P)’s EF-111As, headed for an area southwest of Bagh-

2. Memo, 1st Lt. James A. Cotturone, Jr., USAF, Weather Officer 33d TFW(P), to 33d TFW/HO, Subj: Weather History for Operation Desert Storm, 17 Jan 91–19 Jan 91, n.d. [ca. Jan 20, 1991] [File No. T/UH]. Three types of information have been most difficult to procure for this study: 1) data on scheduled missions actually flown or canceled by specific units; 2) BDA data, particularly for specific missions flown by specific aircraft; and 3) comprehensible day-to-day weather data for conditions affecting air operations. Lieutenant Cotturone compiled a day-by-day weather history for the campaign that not only included the regions in which the 33d TFW(P) operated, i.e. much of western and central Iraq, but, in a separate analysis, also gave a daily weather picture for the entire theater. Information on missions flown or aborted or from specific BDAs has come to light in an extremely piecemeal, nonsystematic fashion. Regrettably, such information is available to the historian for only a small fraction of the missions.

At this point in the narrative the reader is forewarned that he or she is about to encounter one of the principal methodological obstacles to the preparation of this volume. As of the date of its composition, August 1992, *there were no reliable figures as to CENTAF and Coalition sorties, strikes, and missions*. The USAF units employed used different reporting systems and completed them with varying degrees of diligence. The reader should keep in mind that the following mission descriptions are based on what the planners wanted to happen—not, in all cases, on what actually happened. Consequently, the specific number and type of aircraft sent on a particular mission or flown may be at variance from the number cited in the text.

3. Draft Historical Study, HQ AFSOC/HO, “Air Force Special Operations Command in Operations Desert Shield and Desert Storm,” [ca. Jan 1992], p. 25.

4. Intvw, Lt. Col. Deptula, Jan 8, 1992.

5. Msg, 170632Z Jan 1991, DIA, Washington, D.C., Iraq Regional ITF, to DIACURIN-TEL.

Thunder and Hail over Baghdad: The Initial Attacks

dad from which to provide electronic jamming support for the second wave of attacking F-117As. The initial wave of F-117As over Baghdad relied solely on stealth and surprise. Another group, a strike package of twenty-two F-15Es of the 4th TFW(P), headed for five Scud launching areas containing fixed launchers in northwest Iraq and one at H-2 airfield. To avoid attention, the F-15Es of the 4th TFW(P)'s 336th TFS would fly without top cover. After takeoff from Al Kharj AB they flew northwest, hitting their tankers at 20,000 feet in Saudi airspace, 300 miles from the Iraqi border and beyond detection range of Iraqi radars. The tankers had their lights off and were difficult to locate. Once they released from the tankers, approximately 100 miles from the border, the F-15Es lost altitude until they barreled along, 300 to 500 feet above deck.⁶ With this mission, the planners hoped to demonstrate to Israel that the Coalition intended to strike the SRBM complex from the opening instant of operations.⁷ A third package of two EF-111A jammers and four Tornado GR-1s, carrying the highly effective air-launched antiradiation missile (ALARM), coordinated their actions with the F-15Es.⁸

The F-15Es carried LANTIRN navigation pods but not LANTIRN laser-targeting pods. The initial attack on twenty-six permanent Scud launchers in western Iraq, scheduled for H+5 minutes, would use Mk-20 Rockeyes delivered at low level to increase accuracy.⁹ The Rockeye contained 247 Mk-118 shaped-charge submunitions each weighing 1.32 pounds and designed to penetrate hard targets such as tanks and buildings. As the F-15Es entered Iraqi airspace the USAF E-3 AWACS aircraft in the western orbit detected no Iraqi aircraft air-

6. Intvw, Lt. Col. Steven L. Turner, 336th TFS/CC, with Frederick D. Claypool, 4th TFW/HO, Seymour Johnson AFB, Jul 19, 1991, pp. 8-9.

7. Audiotape, Col. Warden, "Review and Comments on Draft Manuscript," Mar 2, 1993.

8. Annotations on Colonel Deptula's copy of the MAP, First 24 Hours, indicate that three of these F-15Es may have aborted at H-0030 and did not participate in the mission.

9. The LANTIRN system consisted of a navigation pod and a targeting pod. The navigation pod, carried by all forty-eight F-15Es in the AOR and a few F-16s (designated in the MAP as F-16Ls), contained a forward-looking infrared (FLIR) sensor to create daylight-quality video images of terrain and utilized terrain-following radar to enable the aircraft to operate in all weather conditions, day or night. The first targeting pod came into service on the F-15Es in mid-September 1990, and nine reached the theater when the 335th TFS deployed to Al Kharj AB, Saudi Arabia, south of Riyadh, in late December 1990. The targeting pod gave higher-definition images than the navigation pod, and it contained laser designator and tracking systems. It made the aircraft that carried it capable of controlling PGMs. Because of the shortage of targeting pods, the 4th TFW(P)'s 336th and 335th TFSs routinely employed "buddy-lasing" in which an F-15E with a targeting pod would designate and control for its Laser Guided Bombs (LGBs) and then do the same for smart weapons being carried by its wingman who did not have a targeting pod. This doubled the number of passes over an objective, but accomplished the mission. The 336th TFS, which arrived in the AOR in August 1990, had to familiarize itself with the targeting pod during combat. In mid-February the wing possessed fifteen targeting pods, but only ten functioned properly. For additional information on LANTIRN and the 4th TFW(P), see Frederick D. Claypool, "4th Tactical Fighter Wing in Southwest Asia (Desert Shield/Desert Storm): August 1990-June 1991," Vol. 1, Nov 12, 1991, pp. 10, 29, 54-55. For the armament of the F-15Es, see First 24 Hours, Sequential Target Flow, 0200 January 8, 1991 [File No. CK/Deptula Box 9/Master Target List].

On Target

borne.¹⁰ Planners scheduled this attack on the first wave, fearing that Saddam, in his first retaliation, would lash out at Israel.¹¹ He would employ his most effective weapons in range of it—the Scuds situated in the western part of his territory. To minimize the possibility of Israeli intervention, the Americans struck the permanent or fixed Scud sites there at once.

Thunder 36 and Thunder 37 widened the breach begun by Task Force Normandy by dropping at H-9 the first bombs on Iraq, successfully landing one bomb on each of the two bunkers of the Nukhayb IOC, which supervised the Iraqi air defense and warning net that included the two stations the helicopters had destroyed.¹² The IOCs consisted of two separate bunkers (the IOC and associated reporting post). Each required a hit to be rendered ineffective or destroyed. The two F-117As proceeded west-northwest to their next targets, the Iraqi western sector SOC and the air defense communications sector headquarters, both at airfield H-3, which controlled the Nukhayb IOC. Unfortunately, neither aircraft scored a hit. In the meantime, the F-15Es roared in on their targets. The commander of the 336th TFS, Lt. Col. Steven L. Turner, USAF, led the six-aircraft cell assaulting H-2 airfield. Defenses included 150 AAA pieces and 10 SAM sites. On the flight in he reported,

It was like flying over North Carolina. Lights were on, people were driving down the highway, and when I climbed up to roll in on H-2 airfield...it looked like RDU [Raleigh Durham Airport]. The lights were on, the strobe lights were on leading the way to the runways, I actually didn't need to use my FLIR [forward-looking infrared]...I could see what I was going to bomb.¹³

The atmosphere changed abruptly when the first bombs hit at H+5. Within three minutes the remaining aircraft of Colonel Turner's cell delivered their weapons. Wildly and, as it appeared to the colonel, without direction, the Iraqis filled the air with AAA and SAMs. Many raids against the Scuds would follow this one as the conflict wore on. The NCA, anxious to avoid Israeli intervention, had directed CENTCOM to maintain a permanent air presence over the H-2 and H-3 areas.¹⁴ Postraid intelligence found that the mission inflicted no damage to the H-2 airfield fixed Scud sites or to the Wadi al Jabariyah, Wadi ar Ratqa, and Wadi Amij SRBM launch complex.¹⁵ Postwar analysis indicates that the Iraqis never used the fixed sites. Nonetheless, from a political standpoint the United

10. Msg, 171700Z Jan 91, 552d Airborne Warning and Control Wing (AWCW), Subj: Special Misrep AWACS West [File No. T/CT/60/33 TFW].

11. Intvw, Lt. Col. Deptula, Jan 8, 1992.

12. Printout, F-117A Mission Results, Days 1-34: Day, ATO Mission Number, Target Name, DMPI, BE Number, Weapons, Hit or Miss, Reason for Miss, Aircraft Tail Number, and Pilot, n.d. [ca. late Feb 1991] [File No. CK/Deptula 7/37 TFW].

13. Claypool, "4th TFW in Southwest Asia," Vol. 1, p. 44, citing draft intvw, Lt. Col. Turner, Jul 19, 1991.

14. Intvw, Lt. Col. Deptula, Jan 8, 1992.

15. Msg, 180600Z Jan 91, DIA to DIACURINTELL, Subj: Iraq-Kuwait: Situation Update [File No. T/HO/3/JAN].

Thunder and Hail over Baghdad: The Initial Attacks

States had demonstrated its intent, from the opening gun, to do its utmost to suppress Scud targets within launch distance of Israel.

On the return flight, at approximately fifty miles from the Saudi border, the F-15Es encountered far more dangerous threats. An Iraqi MiG-29¹⁶ had left the Baghdad area, probably from Al Taqaddum airfield, and headed south on a course to intercept. Several miles northeast of Mudaysis airfield a flight of F-15Cs of the 33d TFW(P) picked it up. Capt. Jon K. Kelk, USAF (callsign Pennzoil 63), acquired the bandit on his radar, and the AWACS declared the aircraft hostile. Captain Kelk used his F-15C's look-down, shoot-down capability and fired one AIM-7 missile at the fighter below him. A few seconds later he observed a "sparkling flame," and the aircraft disappeared.¹⁷ The captain had made the first air-to-air kill of the conflict. A few minutes later several F-1 interceptors¹⁸ scrambled from Mudaysis airfield apparently to down the Strike Eagles. American AWACS in the western orbit promptly vectored a four-ship flight of F-15Cs from the 33d TFW(P) to interfere with the enemy's plans. These fighters, other F-15Cs of the 1st TFW(P), and F-14s of the USN had swept across several portions of the Iraqi border at H-hour to catch any fighters that might intrude into Coalition operations. Intelligence had indicated that pairs or flights of Iraqi fighters stood on alert at ten airfields.¹⁹ The B Flight Commander, Capt. Robert E. Greater, USAF (callsign Citgo 65), targeted the enemy leader. After his first radar lock-on failed, Captain Greater reestablished lock at about the same time the AWACS declared the aircraft hostile. Captain Greater fired one AIM-7M at the interceptor below him. He saw the missile detonate and its target turn into a fireball that impacted the ground ten seconds later. He and his wingman, 1st Lt. Scott G. Maw, USAF, both locked onto a trailing aircraft that crashed into the ground thirty seconds later, untouched by the Americans. It seems that the fate of his companion and the reaction of his radar warning receiver to the F-15C lock-ons so rattled the pilot, supposedly one of Iraq's finest, that he reacted into the ground. An interested observer, twenty miles from the shoot-down, Colonel Turner, saw the two fireballs and assumed that the Iraqi wingman had accidentally blasted his leader and had then run himself into the ground. Likewise, Capt. William Bruner, USAF, a member of the CENTAF Directorate of Plans, flying that night with the ACE of the western AWACS, observed the engagement and concluded that "if that was the best the Iraqis could do, it would not be nearly good enough."²⁰

16. *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium*, Table 206 "Coalition Air-to-Air Kill Matrix" (2d ed.), p. 653.

17. Ltr, Col. Rick Parsons to CENTAF DO, Subj: Air-to-Air Kill Confirmation, n.d. [ca. Mar 1. 1991] [File No. T/CT/60/33].

18. *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium*, Table 206 "Coalition Air-to-Air Kill Matrix" (2d ed.), p. 653.

19. Intvw, Lt. Col. Deptula, Jan 8, 1992.

20. Memo, Col. Rick N. Parsons, Comdr 33rd TFW, to CENTAF/DO, Subj: Air-to-Air Kill Confirmation, n.d., includes statements of Captain Greater and 1st Lt Maw and KILL-

On Target

Even before the F-15Es released over the Scud targets, two F-117As sent the first bombs into downtown Baghdad at H-hour. Thunder 10 and Hail 1 scored direct hits on the Baghdad AT&T Building (this building had no connection with the similarly named U.S.-based company) and the Baghdad telecommunications center. At 1901 EST CNN noted a hit on the city. Then Hail 1 turned west to place a bomb squarely on the southwest bunker of Al Taqaddum IOC, and Thunder 10 continued north where it hit the Iraqi C² bunker No. 2 in the vast Taji military complex. The bomb landed on target but failed to penetrate it. The air planners were confronted with a substantial technical complexity in that the F-117A needed precise intelligence in order identify the correct target and determine a precise aiming point. For this reason and others, the F-117As appeared to skip in and out of Baghdad. F-117As often hit a target in downtown Baghdad and continued on to a facility a few miles beyond the capital's limits.

At H-hour (1900 EST) CNN announced that an explosion had occurred at the telecommunications center and showed AAA spraying the air. The bombs of the remaining six F-117As began to land five minutes later. Simultaneously, 175 miles to the southeast, Thunder 6, sent against the southern sector SOC at Tallil airfield, the IZAF's most important southern base, hit its target twice. Five of the remaining bombs found their marks—the southeast edge of one of the bunkers of the Taji SOC, Ar Ramadi Radio Relay No. 2, the Abu Ghurayb Presidential Palace, and twice more, the AT&T Building. On hardened targets the F-117As used GBU-27s; on other buildings they used GBU-10s. As they would throughout the conflict, all the F-117As returned safely to base.²¹

The 37th TFW(P) had requested jamming support for its first missions over Baghdad. On these missions, which promised to be the most difficult, the 37th TFW(P) would encounter the enemy's strong and, as yet, undamaged air defenses. Although hard to detect, the stealthy aircraft were not completely invisible. On the correct radar, they might appear as a faint flickering return, which the operator might pick up and pass on to the IOC. There is no evidence that the Iraqis successfully tracked or targeted stealth flights; however, the numerous operating radars and plentiful means of communications around the capital on the first night increased the odds that favored their detection. Electronic jamming would reduce such odds to nil as the operators sought to overcome the interference by turning up the gain on their radars (something akin to adjusting the contrast on a TV), which would cause the flickering to fade away. In a sense, the F-117A gained more from jamming than any other aircraft because this aircraft tended to disappear, whereas other aircraft still produced some return. In this

REPS; Msg, 171700Z Jan 91, AWACS West Orbit Misrep; Claypool, "4th TFW in Southwest Asia," Vol. 1, p. 44, citing draft intvw, Lt. Col. Turner, Jul 19, 1991; Intvw, Capt. Bruner, Mar 19, 1992. During the conflict Captain Bruner served in the Special Planning Group and the GAT Division.

21. Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991, p. 15; Printout, F-117A Mission Results, Days 1-34, p. 1.

Thunder and Hail over Baghdad: The Initial Attacks

instance the F-117As gained little from the three EF-111As. One EF-111A departed station before setting up jamming because he detected an Iraqi aircraft closing in. The other two appear to have set up jamming at a range so far from Baghdad that they may have accomplished little.²²

In the meantime, Capt. Steven W. Tate of the 1st TFW(P), leading a flight of four F-15Cs in support of the EF-111As, had established a CAP position approximately fifty miles west of Al Jarrah airfield. He locked onto a target. After employing appropriate recognition techniques, he identified the target as an Iraqi Mirage F-1.²³ He fired one AIM-7 and closed before the missile impacted and the target exploded.²⁴ His kill came shortly after Captain Kelk's kill to the west.

On the heels of the F-117As, Navy TLAMs streaked into the Baghdad area from the east. From H+6 to H+11, six slammed into Baath Party Headquarters and eight into the Presidential Palace. The missiles could not penetrate, but they could destroy soft structures. In an even more destructive blow, three TLAMs exploded in six of the power plants and electrical transformer yards surrounding the capital, including Baghdad's largest, the Dawrah plant. At 1910 EST CNN reported the loss of electricity throughout the city of Baghdad. This thrust damaged the power plants producing 14 percent of Iraq's total electric output and may have shut down temporarily the transformer yards connecting the city to the national power grid. The air planners had specified the aiming points for the electrical targets as the center of the transformer yards or the center of the switching yards. Coalition planners hoped to deprive the capital and the national leadership of electric power, add to any confusion, and complicate communications. The Kari system's computers and communications depended on commercial electricity. Loss of electricity would disrupt the air defense control system, forcing individual SAM batteries to operate in autonomous modes with their own radars. It would also force many government, military, and air defense units to fall back on inconvenient and inadequately maintained backup generators. Several minutes after this barrage ceased, at H+30, up to twenty additional TLAMs crashed into the Scud missile support facility in the Taji complex.²⁵

Some of TLAMs used special warheads. Eyewitnesses to the attacks on the Taji and Dawrah plants claim that on January 17, 1991, Coalition aircraft "dropped metallic nets" that "short-circuited" the electrical network.²⁶ Actually,

22. Intvw, Lt. Col. Deptula, Jan 8, 1992; [Point Paper], [Lt. Col. Deptula], "F-117s and Electronic Combat Support During the Gulf War," n.d., [ca. Nov 1991].

23. *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium*, Table 206 "Coalition Air-to-Air Kill Matrix" (2d ed.), p. 653.

24. Msg, 191444Z Mar 91, 1st TFW Deployed to USCENTAF Deployed/DO, Subj: Air-to-Air Kill Confirmation [File No. T/CT/60/1 TFW].

25. MAP, 1st Day, Jan 16, 1991; Brfg Slide "0002-0025," in intvw, Comdr. McSwain, Apr 7, 1992. For aiming points, see First 24 Hours, Sequential Target Flow, 0200 Jan 8, 1991.

26. Rpt, Harvard Study Team, "Public Health in Iraq After the Gulf War," May 1991, pp. 22-24. Members of this study team made an extensive survey of the damage inflicted on the Iraqi power system and interviewed many Iraqi eyewitnesses to power plant bombings to support their thesis. They contend that the poor state of the postwar power industry contributes to

On Target

some of the TLAMs had employed highly secret special warheads filled with thousands of small, $\frac{3}{4}$ - by $\frac{1}{2}$ -inch rolls of long, fine carbon fibers. (Not until a year after the conflict did news of the warheads leave the black world and enter the public domain.) When they arrived at their target, the missiles scattered spools of carbon that unrolled over the outdoor portion of the switching system that transferred electricity from generators to the power lines. When automatic circuit breakers detected power surges in the switching yard, they shut down the generators. Carbon fibers also festooned the plants' exteriors, producing short circuits in power lines and transformers. Plant employees noted that within a day, wind blew the rolls and fibers from surrounding fields back over whatever portion of the outside electrical facilities that had been cleared. The use of carbon fibers enabled the Coalition, according to the air planners, to put the Iraqi electrical system out of action for military purposes without so damaging it that it could not be speedily repaired in postwar reconstruction.²⁷ In any case, the fibers cut the flow of electricity to Baghdad and its ADOC immediately, perhaps more surely than conventional means. After the first day, the Americans do not appear to have employed these fibers again. Nor did they employ them on every power plant in Iraq. At that particular time, the carbon-fiber warheads proved the most effective weapon. After the first days of the conflict, conventional attacks put the plants out of action for longer periods.

Coalition planners hoped that the damage, disruption, and shock spread by initial F-117A and TLAM sorties would help prepare the way for strikes by the nonstealthy bulk of their aircraft. As the first bombs landed in Iraq, Coalition aircraft, which had queued up just beyond range of Iraqi early warning radar to top off their tanks from 160 tankers, pushed forward. From 0345L (H+45) to 0420L (H+120) on January 17, more than 160 USN, RAF, and USAF combat aircraft aided by drones went after targets in western, central, and eastern Iraq. They concentrated on SEAD, air base, and Scud targets. In the west, a force of three EA-6Bs, ten A-7s, four ground-attack variant Tornados, six F-111Fs, four F-14s, and three BQM-74 drones attacked facilities at H-3 airfield.²⁸ The EA-6Bs and A-7s provided electronic jamming and SEAD, while the Tornados using specialized munitions, such as the JP-233, attacked the main H-3 runway and a subsidiary highway airstrip. The F-14s flew CAP for the EA-6Bs. The F-111Fs had the ticklish job of eliminating the H-3 airfield CW storage facility; the last two mined the area of the CW storage with CBU-89s.²⁹

the decline in public health by depriving Iraq of the ability to purify its water. Water purification plants require electricity to operate.

27. David A. Fulghum, "Secret Carbon Fiber Warheads Blinded Iraqi Air Defenses," *Aviation Week & Space Technology*, Apr 27, 1992, pp. 18-20.

28. After Action Rpt, CENTAF/EC, "Desert Shield and Desert Storm," Oct 1991, sec. 5, p. 11. The USAF acquired and launched thirty-seven BQM-74 drones against Iraq, all in the first two days and all in support of missions against heavily defended targets such as Baghdad and H-3 airfield. Drones formed a large percentage of the downed aircraft claimed by the Iraqis.

29. MAP, First 24 Hours, Jan 16, 1991.

Thunder and Hail over Baghdad: The Initial Attacks

In the Baghdad area, from 0348L to 0355L the wave's largest mission consisting of one package each of USN and USAF aircraft flew a combined SEAD operation. The Red Sea carriers sent three F-14s, three EA-6Bs, ten F/A-18s with HARMs, eight A-7s with HARMs, two A-6s with tactical air-launched decoys (TALDs—aircraft-launched gliders used to deceive enemy air defenses), and three KA-6 tankers. They entered the capital's air defense area from the west while the USAF package of three EF-111As and twelve F-4Gs entered the defense area from the south. Six BQM-74 drones, launched from Saudi Arabia by the USAF, preceded the SEAD force.³⁰ The planners expected this mission to evoke a substantial Iraqi response. When the wave of 160 conventional aircraft (dubbed the "Gorilla" package because of its size and destructive potential) appeared on enemy radar screens and spread out to attack targets over a broad area, the planners hoped that the Iraqis would "pull out all the stops." If the two packages heading straight for Baghdad seemed particularly threatening, the Iraqis might well light them up with radar and hurl their SAMs and fighters. But the packages heading to the Baghdad area were a ruse, unable to drop any bombs. The Americans had configured them with drones, TALDs, and HARM-carrying A-7s, F/A-18s, and F-4Gs expressly to counterattack Iraqi air defenses. At 1946 EST and 1955 EST, CNN reported extensive AAA fire as the Iraqis opened up on the drones preceding the package. During Desert Shield the Iraqis had maintained well-disciplined emissions control of their systems. Indeed, strict emissions control had actually interfered with their training. However, the onset of hostilities and associated disorientation might break their regimen and give the SEAD forces the opportunity to punish Iraqi air defenses. Since the TLAM carbon-fiber attack had apparently turned off the Kari network's electricity, the packages' antiradiation missiles should have a field day against the SAM batteries' organic radars. If this joint USAF-USN SEAD ploy succeeded in weakening Iraqi defenses, especially at the medium altitudes covered by SAMs, then other Coalition strike aircraft, such as the F-16, would be able to hit targets west of the capital without excessive concern over any remaining Iraqi resistance. The packages were timed to assist a group of F-117As scheduled to hit targets in downtown Baghdad at 0420L.³¹ Unfortunately, the Navy package suffered the first Coalition pilot killed in action when it lost an F/A-18, possibly to an Iraqi MiG-25.³² Given the nature of the attacks' targets—mobile radars, AAA batteries, and SAM sites—intelligence during and after the conflict was unable to exactly assess the degree of damage inflicted.

Anecdotal evidence from U.S. pilots flying subsequent attacks in the area indicates that this attack impaired Iraqi air defenses. Lt. Col. George W. Walton, Commander, 561st TFS, 35th TFW(P), led the flight of twelve F-4Gs on the mis-

30. Ibid.

31. Intvw, Lt. Col. Deptula, Jan 8, 1992.

32. Initial reports attributed this loss to a SAM, but subsequent investigation revealed a MiG-25 as the probable culprit. The cause of the loss has yet to be confirmed.

On Target

sion. He noted, "It was a target-rich environment. The emitters came on and stayed on for the entire flight of the missile." He added that they went as deep as they could, almost into central Baghdad, to take out as many defenses as possible. Conditions combined to produce "HARM Heaven"; for a space of twenty minutes the Americans loosed antiradiation missiles at a rate of almost one every fifteen seconds (the Navy package fired 45 HARMs and the Wild Weasels loosed 22).³³ In all probability the effort did contribute to a decline in Iraqi air defenses. During the first two days of the war, the F-4G HARMs were used to their greatest effect.³⁴ Surviving enemy operators adjusted their tactics. Such measures may have preserved Iraqi radars, but they reduced the SAMs they serviced to electro-optical or IR guidance. For the remainder of the conflict, Iraqi SAM batteries appeared to rely on nonradar-directed barrage fire thus rapidly consuming their missile stocks. Furthermore, the Iraqis seemed untrained in operating their SAMs without radars, and in effect launched a great many "flying telephone poles," or undirected missiles. Most Iraqi AAA did not have radar direction.³⁵

Other aircraft attacked targets in central Iraq to the north and south of Baghdad. At 0350L two GR-1s with ALARMs supported four more GR-1s attacking the runway of Al Asad airfield to the northwest of Baghdad. Five minutes later, two F-15Es struck the An Najaf IOC, the only nonhardened IOC, to the south of Baghdad. At the same time and for the next fifteen minutes, thirteen B-52Gs of the 4300th Provisional Bombardment Wing from Diego Garcia, five GR-1As (Tornados carrying reconnaissance pods), four GR-1s, and six F-15Es swept in low over five Iraqi aircraft forward operating locations (FOLs). Coalition intelligence had noted recent air activity at all of them.³⁶ The big bombers had entered Iraq flying low and left the same way to minimize their exposure to Iraqi early warning radar.³⁷ These FOLs may not have had completely developed facilities, but some had hardened aircraft shelters, and all could support aircraft. The five fields—Mudaysis, Al Khafi highway strip, Wadi al Khirr, Ghalaysan, and As Salman—stood relatively close to the border and were not heavily defended. Not under the main Iraqi air defense umbrella, they made safe targets for the B-52Gs, which would not have to fly into a dense, fully operating missile belt. The last aircraft spread CBU-89s over the field's mainte-

33. James P. Coyne, *Airpower in the Gulf* (Arlington, Va.: Air Force Association, 1992), p. 71. Also see *GWAPS*, Vol. 2, pt. 1, *Operations* (2d ed.), p. 132.

34. After Action Rpt, CENTAF/EC, "Desert Shield and Desert Storm," Oct 1991, sec. 5, p. 3.

35. Intvw, Maj. Satchwell, Apr 29, 1992.

36. Intvw, Lt. Col. Robert Eskridge, USAF, *GWAPS*, with Dr. Richard G. Davis, CAFH, May 28, 1992, at Crystal City, Arlington, Va.

37. Worksheet, 17th Air Division, B-52 Mission, Jan 17, 1991 [File No. AFHSO microfilm reel 10240]. This worksheet and later ones in the series supply numbers of aircraft, times over target, weapons, targets, tactics (flight profile), and supporting aircraft, plus a small outline map showing target locations for each B-52 mission.

Thunder and Hail over Baghdad: The Initial Attacks

A B-52 loaded with bombs



nance areas; the first two had released their bombs on the taxiways at the ends of the runways.³⁸

The first two B-52Gs of each cell carried special British 1,000-pound bombs (UK 1000s) armed with British Thorne multifunction bomb fuses. These bombs had stronger cases than U.S. general-purpose bombs and could therefore withstand and survive impacts that U.S. weapons could not. The UK 1000 could deny the Iraqis the use of the bases for a longer period than any iron bomb in the U.S. inventory. Mid-October tests proved that the B-52G could carry the weapon and verified that the Thorne fuses could function with the bombs. The RAF supplied 500 bombs from its own stocks, which arrived in Diego Garcia on December 6. They certainly caused headaches for the Iraqi emergency ordnance disposal teams and made the fields dangerous to use. The B-52Gs did not employ this munition again.³⁹

The planners hoped that the combination of UK 1000s and CBU's would prevent the Iraqis from exploding the minelets with high-pressure fire hoses and thus easily clearing the fields.⁴⁰ At Ghalaysan, As Salman, Wadi al Khirr, and Mudaysis, GR-1s and F-15Es attacked the runways with penetrating munitions. After the raids, the GR-1As flew a reconnaissance mission over each location to determine damage. Between 0400L and 0420L, six F-111Fs, supported by three EF-111As (which had also assisted the western Baghdad SEAD package), struck facilities at Balad SE airfield to the northeast of Baghdad. Five minutes earlier, eight A-6s, four GR-1s, and one GR-1A, taking pictures, hit facilities and the runway at one of Iraq's most important bases, Al Taqaddum.⁴¹

As Coalition air forces exploded bombs throughout central Iraq, they did the same to eastern Iraq and Kuwait. Their aircraft sought out airfields, Scud facili-

38. Capt. Doug Fries, USAF, "The BUFF at War," *Air Force Magazine* 75, No. 6 (Jun 1992), p. 44.

39. Hist, SAC, Jan 1–Dec 31, 1990, Vol. 1, Narrative, pp. 220–221, 227, 484–485.

40. Intvw, Lt. Col. Deptula, Jan 8, 1992.

41. MAP, First 24 Hours, Jan 16, 1991.

On Target

ties, and CW bunkers. At 0340L, eleven F-111Fs carrying GBU-24s and CBU-89s, and four Tornado interdictor/strike variants (IDSs) carrying JP-233 munitions and aided by two EF-111s and four F-4Gs attacked runways, Scud shelters, and CW storage bunkers at Jalibah airfield between Nasiriyah and Basra and at Al Jarrah airfield, to the northwest of Nasiriyah. The first two F-111Fs attacking the CW bunker at Al Jarrah carried penetrating munitions. The last F-111F carried CBU-89s. CW bunkers at airfields, especially those at southern airfields, offered a serious potential hazard to the Coalition. If the Iraqis chose to initiate CW, aircraft could deliver these weapons most quickly to Coalition units and bases flying from southern airfields. From 0357L through 0420L on January 17, a SEAD and strike package of four F-4Gs; three USMC EA-6Bs and two USN EA-6Bs; ten USMC F/A-18s and seven USN F/A-18s carrying HARMs; four A-6s and Tornado IDSs carrying bombs; and four F/A-18s flying target CAP—all supported by BQM-74 drones—attacked Kuwait and Shaibah airfield in Iraq to the south of Basra. Such a large package with its high ratio of SEAD and escort-to-strike aircraft (30 to 8) was in stark contrast to two F-117As that might well have accomplished the identical task. At the same time, another package of eight F-16s equipped with LANTIRN navigation pods, two A-6s and 8 F-111Fs supported by BQM-74 drones, four F-4Gs which aided the strike on Shaibah as well, and one EA-6 with an escort of two F-14s attempted to destroy the Scud shelters at Ahmed al Jaber and Ali al Saleem airfields in southern Kuwait. Scuds launched from these areas could reach important Coalition airfields, vital unloading ports on the Persian Gulf, and Saudi centers of population. The destruction or immobilization of Scuds in Kuwait had a high political and military priority. The 48th TFW(P)'s F-111Fs carried GBU-24s to destroy or damage the shelters while the 388th TFW's F-16s all carried CBU-89s with delayed fuse settings to impede damage control and possible launches. Within minutes of the Kuwait mission, a USN and USMC package of eight F/A-18s with bombs, six F/A-18s with HARMs, four F/A-18 flying CAP, one F/A-18 employing TALDs, four EA-6Bs, eight A-6s, eight GR-1s, and one GR-1A swept over Tallil airfield (adjacent to the ruins of Ur, and Iraq's most important southern base), attacking the runway and Scud shelters. It also hit the Scud shelter at Qurnah airfield to the west of Basra. Four of the package's F/A-18s struck at the Nasiriyah power plant to the north of Tallil airfield.⁴² In coordination with the previous package, four F-15Es attempted to pick off the two solar-powered fiber-optic repeater stations at Tallil and As Samawah airfields.⁴³ The USAF continued its fusillade against the southern Scuds by sending F-111Fs to destroy their shelters at As Salman airfield to the west of Basra and at Qalat Salih airfield to the northwest of Basra. These attacks lasted from 0410L to 0445L.⁴⁴

42. Ibid.

43. Msg, 111500Z Jan 91, CINCCENT to COMUSCENTAF, Subj: Iraq; Possible Dedicated Scud Command and Control Capability [File No. T/CT/10/15].

44. MAP, First 24 Hours, Jan 16, 1991.

Thunder and Hail over Baghdad: The Initial Attacks

The aircraft of the Gorilla package exited Iraq by crossing its border within a twenty-mile corridor over six points coordinated in advance with Coalition air defenses. Red Sea carrier-based USN aircraft which bombed targets in the vicinity of H-3 airfield or Baghdad left Iraq from the far southwest and from an area south of Wadi al Khirr. USAF and RSAF planes smiting central Iraq left from two points, one at the Wadi al Khirr and one somewhat farther to the east, south of Ghalaysan airfield. USAF, RSAF, and RAF aircraft working over southern Iraq exited at a point at the west end of the former neutral zone, while USAF, RAF, and USMC aircraft cutting up eastern Iraq and Kuwait exited at a point at the east end of the former neutral zone. USN aircraft flying against Kuwait and southern Iraq from the carriers in the far Persian Gulf or in the Gulf of Oman went directly to the Persian Gulf from the Iraqi coast.⁴⁵

After thrusting at targets all around Baghdad, the USAF returned to the capital area at 0420L when the commander of the 37th TFW(P) led a flight of ten F-117As to hammer communications, leadership, and air defense objectives. The colonel could not hit his first target, but he did strike the Baghdad sector SOC at Taji military complex, as did two other F-117As. Other pilots landed bombs on the northeast bunker of Al Taqaddum airfield IOC, the Maiden Square telecommunications and automated telephone exchange, North Taji C² bunker No. 2, the presidential bunker, the Habbaniyah troposcatter station, IZAF Headquarters (New), and the eastern bunker of the Salman Pak IOC. IZAF Headquarters (New), not only had four major above-ground structures, including the main headquarters building, but five large, hardened bunkers.⁴⁶ Spectacular tape footage released a few days later in the war of an F-117A sending a GBU through the center of the headquarters building roof and the subsequent explosion blowing debris from all four sides of the building revealed a virtuoso achievement. This footage, however, led the uninformed into believing that the headquarters building was a soft target. The F-117As failed to hit key communications targets. Nonetheless, CNN went off the air for four minutes during this attack. The Iraqis were left with a greater C³ capacity than anticipated. Individual F-117As penetrated western Iraq and the Kuwait and Basra regions, achieving mixed results. One walloped his air defense targets with direct impacts on the western bunkers at both Ar Rutbah IOC (near H-3 airfield) and H-3 airfield IOC; weather prevented another from dropping on the east bunker of the Az Zubayr IOC and the command bunker of the "V" sector (Kuwait) SOC.⁴⁷

45. Brgf Slide, "RTF Flow," in intvw, Comdr. McSwain, Apr 7, 1992.

46. DIA Directorate for Imagery Exploitation, *Desert Storm BDA: Imagery Review*, Defense Imagery Reference Series, Apr 1991, Vol. 1, pp. 36-37. This publication's cover shows four sequenced frames from the F-117A videotape of the shot down the center of the roof of the main IZAF Headquarters building. DIA's selection of a videotape sequence, rather than any of the numerous other photos available to it, to illustrate a DIA BDA publication has implications for the BDA dispute within the AOR.

47. Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991; Printout, F-117A Mission Results, Days 1-34, p. 1.

On Target

The third flight of F-117As to enter Iraq on the first night intended to defang a goodly proportion of the bunkers reported to contain BW weapons.⁴⁸ At approximately 0500L, an hour before sunrise, seven F-117As carrying GBU-27s were to attack BW bunkers Nos. 1 and 2 at Salman Pak (just to the south of Baghdad), and six bunkers at four other locations. Ten minutes later, four F-117As were to drop their second bombs on four other BW bunkers on an Iraqi airfield. As noted, the BW bunkers presented technical and possible public health problems. In conjunction with the F-117A strike and just subsequent to it, four F-111Fs carrying CBU-87 combined-effects munitions and CBU-89s were to ignite and mine the Salman Pak BW bunkers. The CBU-87 carried 202 BLU-97/B combined-effects bomblets. A SEAD force of four EF-111As and eight F-4Gs was to back up the F-111Fs. This force was large in relation to the unit it would support; the planners anticipated opposition and wanted to ensure the delivery of the CBU-89s. Fourteen other F-111Fs, loaded with CBU-87s and CBU-89s would come in behind the F-117As at the other targets.⁴⁹ Since these objectives had lighter defenses, a SEAD package would not accompany the remaining F-111Fs. Soon after the F-111Fs finished, the sun would rise and, if all went well, complete the destruction of the bunkers' contents.

In terms of the F-117A's usual performance, this crucial mission misfired badly.⁵⁰ Thunder 62 landed his two bombs on Salman Pak BW bunker No. 1 and Hail 53 landed his first bomb on the southeast bunker at Diwaniyah. It is possible the raids encountered a regional weather phenomenon that reaches its height in the month of January. Most Iraqis live within a few miles of the two major rivers and established their cities and towns accordingly. Therefore, the Iraqis, without any thought of thwarting Coalition air operations, had placed logistical resources, ammunition dumps, and most important, the majority of the BW bunkers scheduled for the mission within a few miles of fog-producing rivers. Coalition aircraft were plagued by a dilemma during this mission and others throughout the campaign against Iraq: the stillness of the early mornings an hour or two before dawn would maximize the development of fog over the targets but would minimize the dissipation of toxic agents released over populated areas.

48. See DIA, *Desert Storm BDA*, Vol. 1, p. 50, for an excellent aerial photo and discussion of this type of bunker.

49. MAP, First 24 Hours, Jan 16, 1991, p. 9; Intvw, Lt. Col. Deptula, Jan 8, 1992. In his interview, Colonel Deptula states that the MAP listing of these bunkers is in error. All are BW bunkers; none is a CW bunker.

50. Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991, p. 17 chart, "Day One Targets and Results, January 16-17, 1991, Wave 3." The report contains a discrepancy in the narrative that applies to this chart. It states that five of sixteen bombs found their mark. A careful examination of the chart, however, shows only three hits for the sixteen bombs loaded for the mission. Of the sixteen bombs loaded, the chart lists three hits, ten misses, one hung bomb, and two bombs unaccounted for. Both aircraft listed with only one bomb dropped were either targeted with two bombs for the same target (and as having missed) or diverted and already missed with their first bomb. These aircraft may not have dropped a second bomb. It would seem that, at best, the F-117As hit three of thirteen targets, or 23 percent success rate.

Thunder and Hail over Baghdad: The Initial Attacks

An F-111 with CBU-87 cluster bombs ready for loading



This raid highlighted two aspects of the F-117A's performance. In any previous air campaign the air officer in charge would have begged for a bomber that could place one of ten bombs precisely on target. In fact, the raid's bombs on target represented an order of magnitude of improvement over the standard American bombing of World War II. Still, the laws of Clausewitzian friction in warfare applied as much to the F-117A, whatever its bombing accuracy, as to any other weapon. The unanticipated does happen. In fact, the F-117A's almost uncanny ability to deliver ordnance on target may have given the planners unwarranted faith and led them to depend too heavily on it. Overdependence on a single weapons system or source of information and neglect of the alternatives has, in the long run, almost always resulted in defeat.

The USN maintained the pressure as night turned to day. At 0525L aircraft from the USS *Ranger* raided targets at the main Iraqi naval base, Umm Qasr. Four F-14s, two A-6s, and an EA-6 supplied escort and SEAD to six attacking A-6s. An hour and a half later, four F-14s from the USS *John F. Kennedy* in the Red Sea swept the H-3 airfield. The Americans maintained a visible presence over western Iraq to guard against Iraqi moves designed to bring Israel into the conflict. The air planners dubbed this exercise, part of a larger effort to reassure the Israelis, "Israeli presence."⁵¹ In addition, two RF-4Cs examined the western Scud launching areas for damage and possible activities. Between 0700L and 0900L, two TLAMs struck the helicopter ramps at Shaibah airfield. The Coalition naval forces hoped to discourage the enemy's use of French-built helicopters equipped with antiship missiles.⁵²

As the sun rose on the morning of January 17, 1991, Coalition aircraft specializing in daytime combat took to the skies to continue the around-the-clock scourging of Iraq's defenses and defenders. However, the sun also brought clouds to northern Saudi Arabia, southern Iraq, and Kuwait. This made air-to-air refueling over those areas more difficult, but it did not significantly affect oper-

51. Intvw, Lt. Col. Deptula, Jan 16, 1992; Brfg Slide, "0530-0900," in intvw, Comdr. McSwain, April 7, 1992.

52. MAP, First 24 Hours, Jan 16, 1991.

On Target

ations.⁵³ At 0730L sixteen F-16s, preceded by a sweep of four F-15Cs, unloaded on the As Samawah oil refinery (approximately halfway between Baghdad and Basra). The refinery did not have heavy defenses and was a large target. Twelve more F-16s hit microwave antennas and communications revetments in eastern Iraq at 0800L.

The air planners had received word during the late stages of their work, straight from General Horner to Colonel Deptula, that all aircraft must participate when the days of combat replaced the days of preparation. The general hated the thought that low morale might be created as combat pilots sat on the ground eating their hearts out while their compatriots flew against the foe. Fortunately, the Iraqi armed forces offered sufficient targets to employ all pilots and aircraft. Between 0810L and 1130L twenty-four A-10s working in pairs shot up eight Iraqi early warning sites between the southern Iraqi-Kuwaiti and the central Iraqi-Saudi borders, an attack warning site at As Salman, the Nukhayb GCI site, and the already bombed Nukhayb IOC. This mission promptly became known as “Wart Weaseling”—a play on the A-10’s unofficial nickname, the “Warthog,” and the nickname of the F-4G, “Wild Weasel.”⁵⁴ Wart Weaseling demonstrated the versatility of any airframe used with imagination and an understanding of its vulnerabilities. The A-10s with their 30-mm guns and the AGM-65s could chew up radar sites as easily as armored fighting vehicles could.

Finally, the turn of the Barksdale B-52Gs arrived. Carrying thirty-eight of the USAF’s total of forty-four conventional ALCMs, they launched thirty-four of them, of which at least eight failed to function properly.⁵⁵ From 0830L to 1200L, the ALCMs impacted eight targets—five communications points spread from Taji to Basra that included four radio relays and the Latifiya satellite communications station, plus three electric power plants, the one at Al Musayyib, 70 kilometers (43 miles) south of Baghdad, the second largest power plant in Iraq, and two in northern Iraq, at Mosul.⁵⁶ Coalition aircraft flying from Saudi Arabia would have had difficulty reaching such northerly targets. Over the Mosul plants, the ALCMs aimed for the switching and transformer yards. Over the Al Musayyib plant they aimed for the power substation.⁵⁷ Official BDA data on the precise results of this first use of the ALCM is unavailable (in large part because the highly classified nature of the program did not allow the education of BDA analysts in what type of damage to look for). The SAC intelligence staff claimed that the mission destroyed seven of its targets and damaged the eighth.⁵⁸ In any

53. Memo, 1st Lt. Cotturone, Subj: Weather History for Operation Desert Storm, n.d. [ca. January 20, 1991].

54. MAP, First 24 Hours, Jan 16, 1991, p. 9; Intvw, Lt. Col. Deptula, Jan 8, 1992.

55. Brfg Slide, “0530-0900,” in intvw, Comdr. McSwain, Apr 7, 1992.

56. MAP, First 24 Hours, Jan 16, 1991; DIA, *Desert Storm BDA*, Jul 1991, Vol. 3, pp. 48-49.

57. First 24 Hours, Sequential Target Flow, 0200 8 Jan 1991.

58. Rpt, HQ SAC, “Black Weapon, Covert Mission: The Conventional ALCM, Desert Shield and Desert Storm, 1986-1991,” May 29, 1992, p. 39.

Thunder and Hail over Baghdad: The Initial Attacks

case, eyewitnesses at the Al Musayyib facility told a team of visiting American public health experts that on January 17 Coalition attacks destroyed three of the plant's four generating units and damaged the other, in addition to destroying a power substation. The MAP of January 17 schedules no attacks other than the ALCMs for the Al Musayyib plant on that date.⁵⁹

Over Kuwait from 0835L to 0850L sixteen F-16s of the 401st TFW(P) planned to attack two Scud sites. An additional thirty-six F-16s would begin the Phase II air campaign, SEAD in Kuwait, by striking nine SA-2, SA-3, and SA-6 sites. The MAP even specified bomb loadings. Ten F-4Gs of the 35th TFW(P) and two EF-111As provided SEAD. On each of the Scud sites at Ahmed Al Jaber and Ali al Saleem airfields, four F-16s would drop 2,000-pound MK-84 general-purpose bombs and four F-16s would drop CBU-89s with forty-eight-hour delays. Against the SAM sites, including two at Kuwait International Airport, flights of four F-16s would employ three aircraft carrying standard Mk-84s, one of which would be carrying 500-pound Mk-82 and Mk-84 bombs armed with FMU-113 nose fuses. The FMU-113 was a proximity fuse, factory preset to explode at approximately fifteen feet aboveground. Under this kind of bombing, SAM crews lacking sufficient overhead cover might find themselves and their equipment full of shrapnel. However, in this instance the attack failed. When the Iraqis detected the incoming F-16s, they launched a volley of SAMs with minimal radar guidance. The volley caused no physical damage, but when the F-16s saw the missiles emerging from the clouds below, they broke off their attack. The Iraqis' short on-air-time technique surprised the Wild Weasels, which did not launch any HARMs.⁶⁰ The Iraqis continued such SAM operations, founded on a fear of HARMs, for the remainder of the conflict.

With the Iraqis at the SAM sites in Kuwait forced to keep their heads down, Coalition air units could operate at medium altitudes freed of missile fire and more safely attack other targets in the area. Furthermore, the Iraqis, as a matter of doctrine, reserved most of their radar-guided SAMs for the point defense of strategic assets rather than defense of their ground forces. Iraqi Regular Army armored and mechanized divisions had SA-9s and ZSU-23-4 guns in their air defense batteries. The three Republican Guard armored divisions deployed in reserve in northern Kuwait and adjacent portions of Iraq had SA-13s in place of SA-9s.⁶¹ Nonetheless, by NATO and Soviet standards, the Iraqi ground forces had inadequate SAM defenses.

Not all of the A-10s indulged in Wart Weaseling. Starting at 0920L and continuing at half-hour intervals until dusk (1800L), flights of eight A-10s each attacked targets of opportunity within the Iraqi ground forces occupying the tri-

59. Rpt, Harvard Study Team, "Public Health in Iraq After the Gulf War," May 1991, p. 23; MAP, First 24 Hours, Jan 16, 1991.

60. After Action Report, CENTAF/EC, "Desert Shield and Desert Storm," Oct 1991, sec. 7, p. 2.

61. *Ibid.*, sec. 2, p. 6.

On Target

border area. They gave priority, in decreasing order, to troops; petroleum, oil, and lubricant (POL) dumps and targets; artillery; and armor. Colonel Deptula, Chief Planner, had logically argued that destruction of POL targets deserved top priority because it would result in greater disruption and damage to the enemy. Killing fuel trucks would stop tanks and other vehicles whereas killing individual soldiers, among hundreds of thousands, would have little effect. General Horner overruled him. Iraqi troops in the triborder area had the potential to mount a hasty and immediate ground assault across the Saudi border in response to the opening of hostilities. Air attacks might either discourage such a move or damage and weaken it before it commenced. Three eight-plane flights of F-16s from the 388th TFW(P) aided by four BQM-74 drones attempted to compound confusion and disorder by bludgeoning three important Republican Guard targets—the Shaibah ground forces command facility, the General Headquarters, Forward, of the Republican Guard at Basra, and the Al Rafirinah C² center near Az Zubayr. Two RF-4Cs would follow up this raid to record results. This bombing began the softening up of Iraqi forces in the KTO in preparation for future ground actions and initiated Phase III, preparation of the battlefield, of the air campaign plan. Henceforward, the first three phases of the air campaign plan would proceed with the weight of Coalition air effort shifting from one to the other.⁶²

As the A-10s and F-16s began to harass the enemy in and near Kuwait, Marine air flew deeper into Iraq to punish Tallil. From 0930L to 0945L, a strike of eight F/A-18s carrying bombs, four F/A-18s flying target CAP, and two EA-6B jammers and four F/A-18s with HARMs flying SEAD, all from the 3d Marine Air Wing, hit the Tallil IOC and the An Nasiriyah troposcatter station. An offensive counterair sweep of eight F-15Cs from the 1st TFW(P) aided the USMC package. Simultaneously, a USMC-RAF package tackled the southwest runway of Ar Rumaylah airfield near the northern Kuwaiti-Iraqi border. Four F/A-18s flew target CAP while two EA-6Bs and four F/A-18 (HARMs) provided SEAD for four GR-1s damaging the runway. Iraqi defensive fire downed one GR-1. At 1100L, F-14s and F/A-18s swept the H-3 area of western Iraq. At 1230L USMC aircraft attacked targets on the Kuwaiti-Iraqi coast and on Failake Island. Six bomb-carrying F/A-18s, with eight F/A-18 (HARMs), two EA-6Bs, and two A-6 (TALDs) suppressing air defenses, and four F/A-18s escorting the EA-6Bs struck two SAM sites on the coast and a radar station of Failake Island. The SAMs and the radar represented a particular threat to USN aircraft flying to and from their carriers in the Gulf.⁶³

Throughout the daylight hours Navy TLAMs (at \$1.35 million apiece) roiled the pot in central Iraq. From 1000L to 1500L they attacked seven different targets, landing at randomly timed intervals to spread out the attack and give Iraqi

62. MAP, First 24 Hours, Jan 16, 1991, p. 13; Intvw, Lt. Col. Deptula, Jan 8, 1992.

63. MAP, First 24 Hours, Jan 16, 1991, p. 14; Intvw, Lt. Col. Deptula, Jan 8, 1992.

Thunder and Hail over Baghdad: The Initial Attacks

nerves and bomb shelters no respite. The air planners, who developed this tactic to satisfy General Horner's desire to apply force throughout Iraq continuously rather than at peak periods,⁶⁴ scheduled three TLAMs for the Baghdad East-Southeast transformer station, ten for the Baghdad Ministry of Defense/Army Headquarters, six for the Az Zubayr petroleum pumping station and manifold near Basra, eleven for the Samarra CW production and storage facilities to the north of Baghdad, three for the Ajaji turbine power plant Bayji north of Samarra, ten for the Latifiya solid propellant plant to the south of Baghdad, and twenty for the Taji tactical strategic missile-support facility to the north of Baghdad.⁶⁵ The air planners specified the transformer yards as the aiming point for the electrical targets. The attack on the Ajaji turbo electric plant, the largest power plant in Iraq, which supplied 13 percent of Iraq's total electric power, again used the carbon-fiber warheads with their special properties against electrical generating systems. Eyewitnesses told the Harvard Public Health Team that Coalition aircraft "dropped metallic nets on Beiiji [*sic*], short-circuiting the plant's electrical network." They added that the plant ceased operations at that moment, on January 17, and did not regain partial capacity until March 31, 1991.⁶⁶ The damaging of the oil pipeline and refineries in southern Iraq would, in theory, deny immediate POL to the Iraqis, forcing them to limit movement to conserve stocks on hand and to bring in fuel from the north. This necessity would expose the fuel and its transport to destruction and impose greater strains on Iraqi transport and logistical systems.

At 1400L the planners had scheduled a large USN-USMC package to work over the IOC and railyard at Az Zubayr. Az Zubayr possessed the last Iraqi rail marshaling yard before Kuwait, an oil refinery, and crucial oil pipeline facilities. It served as a major logistics facility and supply head for the entire Kuwaiti front. However, weather forced the fourteen F/A-18 (HARMs), four EA-6Bs, ten F/A-18 escorts, three KA-6 tankers, and ten F/A-18 bomb carriers to divert to a target of opportunity—Iraqi patrol boats. At the same instant, the USN attacked western Iraq as well. The Red Sea carriers sent a force to the H-2 and H-3 areas. As in any force of conventional aircraft going into heavily defended enemy territory, the supporting aircraft far outnumbered the attack aircraft. The eighteen attackers (the fourteen F/A-18s striking the H-3 petroleum pumping station, H-3 SOC, H-3 IOC, and the H-3 troposcatter site as well as the four A-7s attacking H-2 airfield facilities) required thirty-eight support aircraft: eight KA-6 tankers, sixteen F-14s flying sweeps, and fourteen assorted aircraft flying

64. Intvw, Lt. Col. Deptula, Jan 8, 1992.

65. Brfg Slide "0900-1400 TLAM," in intvw, Comdr. McSwain, Apr 7, 1992. The MAP states that this effort would expend fifty TLAMs. But Commander McSwain states, presumably from USN sources, that it took sixty-three. He added thirteen TLAMs to the total expended on the Taji SSM support facility. In this case, I have given the after-the-fact USN report more weight than the MAP.

66. Rpt, Harvard Study Team, "Public Health in Iraq After the Gulf War," May 1991, p. 22.

On Target

SEAD—a ratio of better than two to one. Twenty minutes later, flying as far as it possibly could without additional air-to-air refuelings (an absolute premium on the first day; the tanker fleet was strained to its limits), USMC air attacked the Al Amarah IOC near the Tigris River a little more than one hundred miles from Basra. The USMC fliers used twelve F/A-18s and EA-6Bs to aid four attacking USN F/A-18s. The Coalition air forces could afford to whack the Amarah IOC somewhat late in the day because it tended a network aimed in the wrong direction, at Iran. Still, the built-in redundancy of the Kari system allowed the Amarah IOC to serve as a backup for other already disrupted Kari modules in the southern sector. The Amarah IOC was not crucial enough to blast on the first wave, but it was not insignificant enough to ignore permanently.⁶⁷

At 1500L the F-16s revisited Kuwait. One group of sixteen F-16s swooped down on the runway and facilities of Ali al Saleem airfield while another group of sixteen F-16s, with a group of four F/A-18s escorting one EA-6B from the USS *Midway* and with four F-4Gs flying shotgun, peppered the runway and adjacent facilities of Ahmed Al Jaber airfield. The F-16s dropped Mk-84s with nose plugs to achieve greater penetration and destruction of the runway's concrete. The F-16s punishing the facilities dropped Mk-84s with proximity fuses (FMU-113s). After these airfields were suppressed, any Iraqi aircraft on raids directed at Coalition bases would be forced to fly from more distant bases without refueling or stopping in Kuwait. So would Iraqi aircraft carrying CW or BW. A half-hour later eight F-16s of the 401st TFW(P) with four F-15Cs sweeping in front and four F-4Gs providing SEAD struck two CW bunkers at Tallil airfield. The planners directed that the last F-16 over each bunker carry CBU's. The Coalition wished to retard or eliminate the ability of the Iraqis to load their aircraft with CW.⁶⁸

Then CENTAF took advantage of the large SEAD operation conducted the previous night west of Baghdad. Around 1700L forty F-16s of the 363d TFW(P) preceded by four BQM-74 drones, four EF-111As, and eight F-4Gs giving SEAD support and accompanied by sixteen sweeping F-15Cs pummeled the runway and facilities at Al Taqaddum airfield and the petroleum storage site at Habbaniyah. The last two F-16s over the Al Taqaddum runways and facilities dropped CBU's.⁶⁹ During this mission's flight into the target area, the central-orbit AWACS aircraft (the middle of three AWACS orbits maintained full-time by the Coalition) detected two MiG-29s⁷⁰ flying northeast of Mudaysis. The Iraqis probably originated at Al Asad airfield. The AWACS alerted the flight of eight F-15s, four of which continued with the package while the other four turned toward the MiG-29s. The F-15Cs picked up the MiG-29s flying south.

67. MAP, First 24 Hours, Jan 16, 1991, pp. 15-16; Intvw, Lt. Col. Deptula, Jan 8, 1992.

68. MAP, First 24 Hours, Jan 16, 1991, p. 16; Intvw, Lt. Col. Deptula, Jan 8, 1992.

69. MAP, First 24 Hours, Jan 16, 1991, p. 17; Intvw, Lt. Col. Deptula, Jan 8, 1992.

70. *GWAPS*, Vol. 5, pt. 2, *A Statistical Compendium*, Table 206 "Coalition Air-to-Air Kill Matrix" (2d ed.), p. 653.

Thunder and Hail over Baghdad: The Initial Attacks

The Iraqis immediately turned north and increased speed. A stern chase closed the distance to eighteen miles when the MiGs turned on their pursuers. Capt. Charles J. Magill, an exchange pilot from the USMC, launched two AIM-7s, and Capt. Rhory R. Draeger, USAF, launched one AIM-7. All of the missiles hit their targets, destroying both. Neither victorious pilot spotted parachutes.⁷¹ The package continued unmolested to its destination, attacking oil storage facilities on the way. (The Coalition wanted Iraq's domestic oil industry out of commission, not completely destroyed because the country would need this commodity to earn capital through export when rebuilding after the war.) Al Taqaddum airfield was one of the largest and best-equipped fields in Iraq. It also served as one of the centers of advanced flight training for the IZAF (Rasheed airfield to the east of Baghdad served as another). The special campaign planners assumed that the presence of so many available instructor pilots, presumably among the best in their service, would increase the likelihood that any Iraqi aircraft flown from Al Taqaddum would have competent if not better hands at their controls.⁷² These factors encouraged CENTAF to keep the airfield suppressed.

In mid-January night comes early. Baghdad itself sits on approximately the same latitude as Charleston, South Carolina. At 1830L, not long after sunset, twelve F-111Fs (three groups of four each) swept over three of the four Iraqi FOLs hit the previous evening—As Salman North, Wadi al Khirr, and Mudaysis. Ninety minutes later, four F-14s, an EA-6B, and eight A-6s from the USS *Ranger* attacked air defense reporting posts and a control van for the Chinese-manufactured CSSC-2 (Silkworm) antiship missile at Al Faw and Mina Al Bakr on the Iraqi coast. Then, between 2015L and 2030L stealth fighters of the 37th TFW(P) returned to the skies over Baghdad. Massive Iraqi AAA barrages fired blindly into the air and filled the first few thousand feet over the capital with an expensive and ineffective display of pyrotechnics. Only the so-called golden BB, an extremely lucky one-in-several-million shot, might damage or down one of the F-117As. But that did not stop the Iraqis from trying to get that shot or the American pilots from anticipating an unwanted object going bump in the night. After takeoff at 1739L, twelve F-117As of the 415th TFS left Khamis Mushait for the Iraqi capital. One aborted en route when its antenna failed to retract. Of the remaining eleven F-117As, one went west, where it hit the H-3 SOC and failed to drop on the Ar Rutbah IOC; another went east to strike the Al Kut and Al Amarah IOCs. However, an air abort caused it to return to base before dropping any bombs. Nine F-117As attacked targets in or near Baghdad. The aircrafts' videotape recorders (VTRs) revealed bomb strikes on several important targets—the Khan Al Mahiwil AM transmitter, the Salman Pak AM transmitter, Iraqi Intelligence Service (IIS) HQ on the North Taji military-related facility No.

71. Statement, Capt. Charles J. Magill; Msgs, 171700Z Jan 91, 33d TFW(P)/IN to USCENTAF FWD/IN/DO, Subj: Killrep #2, and 172359Z Jan 1991, Subj: Special Misrep AWACS Central Orbit.

72. Intvw, Maj. Satchwell, Apr 29, 1992.

On Target

2 (civilian command bunker), the Ministry of Defense National Computer Center, IZAF HQ (two hits), and one of the Iraqi AWACs (Baghdad-1, an Il-76) aircraft at Saddam International Airport (two hits). The IIS collected foreign intelligence, conducted operations against dissidents, and monitored Iraqi students. It also played a major role in securing foreign technology, foreign R&D, and foreign equipment for Iraq's NBC and missile programs. The Ministry of Defense National Computer Center reportedly housed battle management computers and helped coordinate operations between the Iraqi military services.⁷³ The elimination of the Iraqi AWACs deprived them of airborne IOC.

Because of their extraordinary capabilities, the F-117As were invariably sent against the most difficult and crucial targets. When they destroyed or damaged their objectives, as they did far more often than not, their achievement became, over time, a given. Thus their misses have seemed magnified in part because they were so unexpected. Such seems the case with at least one of the targets not hit on this raid. The bird that had air-aborted earlier in the evening carried a couple of eggs destined for two of Iraq's three known nuclear reactors, the Osirak and Isis units at the Iraqi nuclear complex at Tuwaita. Of the four bombs on four different aircraft destined for the Abu Ghurayb C³ bunker, three missed and one was not dropped. Two bombs missed targets in the Taji complex, others missed the Al Taqaddum and Taji IOCs, and a last bomb missed VIP bunker No. 25 (a possible location for Saddam). VIP bunker No. 25, one of thirty-five hardened-concrete bomb shelters constructed by two Scandinavian firms in Baghdad, had opulent accommodations and reportedly rested on steel-spring shock absorbers. It seemed likely, therefore, that Saddam or others of the highest leadership levels would use it. The planners had known of its purpose since October 1990.⁷⁴ Of eighteen bombs dropped, ten found their mark (56 percent).⁷⁵

One hundred miles north of Baghdad and a few minutes after the F-117As departed the Baghdad region, four F-111Fs, with two EF-111As flying SEAD, approached Saddam's hometown, Tikrit. To reach such a deep target they had risked conducting an air-to-air refueling over south-central Iraq from KC-135 tankers escorted by F-15Cs.⁷⁶ If the Iraqis had dared to turn on their radars they might have located and disrupted the vulnerable refueling operation. Instead, the F-111Fs took on fresh fuel, and the tankers returned to base without incident. At 2040L the F-111Fs scored a direct PGM hit on the leadership bunker at Saddam's Tikrit residence (Saddam built such C² bunkers at all of his palaces and

73. DIA, *Desert Storm BDA*, Vol. 1, pp. 18-19, 22-23.

74. TDFIRDB-315/27389-90, Msg, 221913Z Oct 90, CIA to DIA, Subj: Comments on Reinforced Bunker Construction in Iraq [File No. Deptula Box 11C/No. 3]; Conversation notes, Lt. Col. Ben Harvey, XOXWF, with CIA Representative, Oct 24, 1990; MemoRec, Capt. Leeper, XOXWF, Subj: Imagery Questions with CIA/DIA, Nov 5, 1990 [File No. CK/AS/12-Leadership C³].

75. Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991, pp. 12, 18; MAP, First 24 Hours, Jan 16, 1991, p. 18.

76. Brfg Slide, "1700-1735[Z]," in intvw, Comdr. McSwain, Apr 7, 1992.

Thunder and Hail over Baghdad: The Initial Attacks

retreats).⁷⁷ This mission and the raid coming in just behind it sent a message to the people of Tikrit and possibly to Saddam—the conflict has found you; if the raid had picked off Saddam, well and good. With the start of hostilities Saddam became a legitimate target. Colonel Deptula stated, however, that the planners never expected to get Saddam; they hoped that if they wrecked his personal and governmental command facilities, they might so undercut him that he would fall of his own weight.⁷⁸

Then, a few minutes before 2100L, two B-52Gs penetrated into northern Iraq. Aided by the two EF-111As that had flown in with the previous mission, they struck the Al Sahra undergraduate pilot training base, approximately one hundred miles north of Baghdad.⁷⁹ Al Sahra airfield had a significance that somewhat belied its prosaic function. It housed the Iraqi Air Academy and was close to Tikrit. Saddam and his clan, from which he drew much of the leadership of the regime and the armed forces, hailed from Tikrit and its environs. The regime considered the residents of Tikrit its most trustworthy supporters. They had confirmed Saddam's opinion with loyal service. Consequently, the city enjoyed a favored status and benefited from many public works and pork barrel projects. Saddam had even transferred the IZAF Academy from Baghdad to Al Sahra in one such scheme, which removed the students from the relatively open atmosphere of the capital to a far more closed location under tighter mental and physical controls. The targeting of Tikrit or its environs suited the planner's intentions to bomb for psychological effect. Since September 1990, Checkmate and others had suggested the northern Iraqi town for special treatment.⁸⁰ The special campaign planners wished to drive home to the Tikritis that the consequences of what Saddam had done would affect all of Iraq.⁸¹ Downtown Tikrit offered no target lucrative enough to justify the possible collateral damage a raid might cause. Likewise, bombing the Air Academy itself, with its freshly scrubbed and youthful students might not convey to the Tikritis, or the world, the proper impression. Therefore, by process of elimination, the planners set their sights on Al Sahra airfield.

They chose to send the B-52G against this target. The B-52G fit the requirements of the mission. First, it could go deep inside Iraq, where the target was located; second, because the target did not justify the use of PGMs, it was accu-

77. See Msg, 181347Z Jan 91, CENTAF/IN to AIG 12982, Subject: CENTAF Air Combat Assessment/Current Bomb Damage Assessment [File No. T/CT/59/-]. This early assessment reports a direct hit on the target.

78. Intvw, Lt. Col. Deptula, Jan 8, 1992.

79. MAP, First 24 Hours, Jan 16, 1991, p. 17.

80. MemoRec, Lt. Col. Ben Harvey, Targeting Tikrit, Oct 14, 1990; Msg, 192105Z Sep 90, HQ USAF/XOXOC to CENTAF FWD [Brig. Gen. Glosson], Subj: Iraqi Contingency Targets [File No. CK/Deptula Box 13/Planning Material]. Marginalia on the message indicates that General Glosson approved B-52 raids on the Tikrit Ammunition Dump (seven miles NNW of the city) and the Tikrit East Airfield and a F-16 raid on the Tikrit Military Barracks (twenty miles NNW of the city), if the pilots "make sure only Iraqi mil[itary] personnel!"

81. Intvw, Lt. Col. Deptula, Jan 8, 1992.

On Target

rate enough to hit a large airfield, whereas it might not successfully bomb a lesser sized complex. The B-52Gs further fitted the essentially psychological character of the mission because its bombload, the largest in the AOR, would make a big enough bang and, perhaps, rattle enough windows to create within the Tikritis their first stirrings of doubt. The two bombers made low-altitude runs in to the target. The first aircraft dropped his ordnance successfully, which, if nothing else, alerted the defenders. To escape unnecessary risk, the second B-52G turned away at sixty seconds before its scheduled time-to-go because of a "curtain of AAA" fire.⁸²

As the B-52Gs flew north of Baghdad, eight F-111Fs and four GR-1s, with four F-4Gs and two EF-111As riding SEAD and four F-15Cs on a sweep, bombed the runways and base facilities at Al Jarrah to the south of Baghdad. At 2100L three B-52Gs supported by four F-4Gs and four F-15Cs made the first bombing mission against combat troops of the Republican Guard, hitting the Tawakalna Mechanized Division from high altitude. From that time until the end of the conflict CENTAF promised to have at least three B-52Gs on some portion of the Republican Guard every three hours.⁸³

Just forty-eight hours earlier, this particular mission had provided the occasion for one of the CINCCENT's celebrated flare-ups. On January 15, Colonel Deptula, with Generals Horner, Glosson, and Caruana present, briefed General Schwarzkopf on the first day's operation. When Colonel Deptula began to describe this mission at the tail end of the first twenty-four hours' operations, General Schwarzkopf, who had apparently become angrier and angrier as the briefing continued, erupted. He began to vent his anger at what he regarded as a betrayal by the Air Force. "You've deceived me," he stormed. "For five months," he added, "you've been telling me that you'd start on the Republican Guard from the first instant." When the colonel attempted to explain that CENTAF first had to suppress Iraqi defenses before it could bring in the vulnerable B-52Gs, General Schwarzkopf would have none of it. General Horner, as the CINCCENT's air component commander, bore the brunt of a tirade that seemed to go on and on. "If I don't have someone here that does what I want [him] to do," growled General Schwarzkopf, "I'll find somebody that does." After everyone but Generals Schwarzkopf and Horner had left the room, one of the air officers observed that he had never in his career seen a four-star general give a three-star general such a chewing-out. For a few hours General Glosson and Colonel Deptula sat in RSAF HQ in an agony of anticipation, fearing that they would have to

82. Draft Rpt, SAC/DO, "Operations Desert Shield & Desert Storm: The Bomber Story," p. 29 [File No. SAC/HO, Historians Working files]. The evidence on whether this mission actually flew as scheduled is somewhat contradictory. The ATO, which has a block to indicate if a mission actually flew, says "yes." STRATFOR records have no documentation on it, but they seem to imply that it did not fly. "The Bomber Story," prepared in Omaha, contains details of the second aircraft turning back. This made it more probable, in my judgment, that the raid flew as scheduled.

83. MAP, First 24 Hours, Jan 16, 1991, p. 18; Intvw, Lt. Col. Deptula, Jan 8, 1992.

Thunder and Hail over Baghdad: The Initial Attacks

F-111F from RAF Lakenheath's 48th TFW(P)



rearrange, at this extremely late hour, the first day's MAP and ATO. The preparation and distribution of the two top secret documents presented a very labor-intensive and time-sensitive project that might well become undone. To procure aircraft that could survive against the more intense Iraqi defenses to be encountered early in the day, the planners would have to take F-15Es and F-111Fs off Scuds. In hopes of salvaging the situation, the two officers set up the briefing map they had used during the past five months for General Schwarzkopf in General Horner's office. They annotated the map to show that what they had just briefed to General Schwarzkopf did not differ from what they had always briefed to him. They waited and waited. The changes never came. Shortly thereafter Colonel Deptula met General Horner and others in the headquarter's elevator. General Horner stated that there would be no changes. General Schwarzkopf had eventually cooled off, apologized, and stated that he understood the problem.⁸⁴ Apparently when the CINCCENT had an attack of nerves, he did not suffer alone.

From 2227 to 2320L, three packages of aircraft smashed up targets in the Basra area. Preceded by the last four BQM-74 drones, a large USMC strike of ten A-6s and eighteen F/A-18s attacked the Basra petroleum factory, three highway and rail bridges near Basra, the Shaibah airfield facilities, and the marshaling yard at Az Zubayr. Four GR-1s plowed up the runways at Shaibah, and four EA-6Bs and six F/A-18s (HARMs) provided SEAD. As the attack ceased, two new missions hit the Basra area. First, sixteen F-15Es placed a second attack on the Basra petroleum refinery, hit the Al Qurnah highway bridge (west), and the Al Basra turbine power plant Hartha. Then, six USN A-6s bombed the Ash Shuaybah railroad station and its aircraft maintenance and repair facilities while two EA-6Bs and six F/A-18 (HARMs) with four F/A-18 escorting the EA-6Bs flew air defense suppression.⁸⁵

The three strike packages furthered several Coalition goals. They began the bridge-bombing campaign in the south. This campaign had two objectives—

84. File 201, Desert Storm Monograph Project, AFHSO.

85. MAP, First 24 Hours, Jan 16, 1991, p. 19.

On Target

restrict the flow of logistics and reinforcements into Kuwait and, perhaps even more important, prevent the Republican Guard from deploying out of the KTO. General Schwarzkopf and many others regarded the Republican Guard as one of their prime objectives because its loss would remove a crucial prop to Saddam's regime and destroy the cream of his army. Likewise, the immediate hitting of railroad marshaling yards closest to the KTO would create logistical and redeployment bottlenecks. Iraq had only one single-line railway through Baghdad, Basra, and Umm Qasr. Az Zubayr, which had a rail junction of lines to Basra, to Umm Qasr, and a bypass link around Basra to the main line, was the chief supply transshipment point to Kuwait. The town stood astride the only paved highway connecting Basra and Kuwait, and only trucks could carry supplies south. Furthermore, an armored force such as the Republican Guard does not travel great distances on its own relatively delicate treads. It moves most efficiently on large trucks with specially designed flatbed trailers, known as tank or heavy-equipment transporters, or by railroad flatcar. The Iraqis had an inordinately large number of tank transporters. Thus damaging the roads and rails would delay the movement of the Republican Guard. The bombing of the petroleum refinery would remove the source of refined oil products closest to the Iraqi ground forces in the KTO. The halting of refinery production would eventually affect the mobility of the Iraqi ground forces and the IZAF. However, achieving these classic goals would take time and might not bear fruit during the conflict. Turning off the spigots at the refineries would have a more immediate effect on Iraqi civilians. They would face bothersome gasoline lines, shortages of kerosene for heating and cooking (in winter), and lack of diesel and other fuels for back-up generators used to replace the downed electrical facilities. Saddam's populace would have yet more reasons for dissatisfaction and would certainly feel the bite of the conflict more keenly.

Decommissioning Basra's chief power plant, the 800,000 kilowatt Al Basra turbine power plant Hartha which supplied 8 percent of all of Iraq's power,⁸⁶ plunged Iraq's second-largest city into gloom, both spiritual and physical, denied power to the national Iraqi electrical grid, and further worsened the general chaos and confusion in southern Iraq. As they did only during the first two days of the war, the Strike Eagles of the 4th TFW(P) came in on the deck. The big fighters achieved results commensurate with their courage and skill: eyewitnesses at the plant reported a devastatingly thorough and accurate attack. The Harvard public health team learned that "on January 17, missiles [*sic*] hit all four steam boilers, the fuel station, the plant's water treatment unit, water cooling and distribution pumps, the power house, and the administration building." The severely damaged plant ceased to operate and did not regain any capacity until April 1, 1991.⁸⁷

86. DIA, *Desert Storm BDA*, Vol. 3, pp. 50-51.

87. Rpt, Harvard Study Team, "Public Health in Iraq After the Gulf War," pp. 24-25. I could discover no record of TLAMs or ALCMs scheduled to impact this plant on January 17.

Thunder and Hail over Baghdad: The Initial Attacks

The Iraqis extracted a price in return. Maj. Thomas E. Koritz, the aircraft commander, and Lt. Col. Donnie P. Holland, the weapons systems officer, failed to return. Other members of the flight had last seen them as they climbed out of the target area. Initial reports attributed their loss to possible AAA. At conflict's end the Iraqis returned the bodies of the two officers to the USAF.⁸⁸ Koritz and Holland were the first USAF casualties in the war. Some question exists as to the aiming points of the F-15Es. Planning documents indicate that they should have hit the plant's transformer yard.⁸⁹ The planners selected the transformers because intelligence indicated that knocking them out would put the entire plant out of production. (After the war, they would be less troublesome for the Iraqis to replace.) The planners originally intended not to damage the electrical plants more than necessary. The air units, however, may not have been privy to this intention and may have done their own planning on aiming points. Postwar BDA, after eleven additional raids on the plant, still shows only moderate damage to the transformer yard.⁹⁰

At 2300L to 2315L a USN-RAF package returned to three airfields in western Iraq: Nine A-6s attacked H-2 and H-3 airfields while eight GR-1s attacked the runways at Al Asad. Two sweeps of F-14s, nine aircraft total, and SEAD support consisting of five EA-6Bs, three A-7s, and four F/A-18s (HARMS) assisted the strike aircraft. A second package of Tornados immediately followed the first mission. Eight Tornado IDSs supported by four GR-1s (ALARMS) attacked runways at H-3 and H-2 and the petroleum pumping station at H-3. At 2315L six F-111Fs with jamming support from two EF-111As struck Scud shelters at Qalat Salih while GR-1s rehit the runways at Mudaysis and Wadi al Khirr between 2330L and 2400L. These FOLs of the IZAF came in for special attention on the first day because their aircraft posed the greatest potential threat to Coalition air operations. These aircraft offered, at best, a minimal threat to head south and disrupt tanker and HVAA operations, and their presence and location gave them some capacity to interfere with ongoing offensive operations. At 0100L on January 18 two TLAMs were scheduled to hit government control centers in Baghdad. At 0100L and again at 0250L, a cell of B-52Gs, escorted by F-15Cs and F-4Gs, bombed the Tawakalna Division of the Republican Guard. The USN canceled the final mission of the first twenty-four hours, a strike of six F/A-18s carrying standoff, land-attack missiles (SLAMs) on an important communications link in the Kari system.⁹¹

Air operations during the first day naturally reflected the targeting philosophy of their planners. As discussed in Chapter 3, the air power theories of Colonel Warden of the Air Staff and of the other members of his deputation had evolved toward a new method of applying air power for effect and shock, not just

88. Claypool, "4th TFW in Southwest Asia," Vol. 1, pp. 74-75.

89. First 24 Hours, Sequential Target Flow, 0200 Jan 8, 1991.

90. DIA, *Desert Storm BDA*, Vol. 3, pp. 50-51.

91. MAP, First 24 Hours, Jan 16, 1991, pp. 20-21; Intvw, Lt. Col. Deptula, Jan 8, 1992.

On Target

destruction. They did not deny the value of destruction but thought that current USAF attack planning methodology overemphasized it. They were interested in exploring more thoroughly the value of creating chaos, confusion, and lowered morale and efficiency by striking a wider range of targets. Colonel Deptula, the chief planner for Phase I of Desert Storm, had not only worked closely with Colonel Warden but had also, in planning the offensive air campaign against Iraq, initiated the concept of simultaneity. Additionally, he pushed to their logical conclusions the concepts of targeting for effect and strike sequencing, discussed but not fully matured by the Warden group. Bombing for effect, by its very nature, requires wide-ranging, carefully timed, well-coordinated attacks. In the first twenty-four hours alone, Coalition air forces struck more than 100 targets, divided among 10 target systems, in 248 separate attacks. They concentrated on leadership, C³, the strategic air defense system, airfields, electricity, domestic oil production, LOCs into Kuwait, and the Republican Guard. The Coalition air forces, aided by TLAMs, hit three-quarters of Iraq on an around-the-clock basis and, from Tikrit to Basra, brought the conflict to the populace without significant collateral damage.

The failure to take out the Iraqi BW bunkers constituted the most significant shortfall of the first day's execution. Depending on Iraqi capabilities, which no intelligence could describe with absolute certainty, that failure had the potential for catastrophic consequences. A target system such as nuclear weapons R&D and production or BW, the poor man's A-bomb, may point to the Achilles heel of a pure application of the bombing-for-effect theory. Some targets simply must be destroyed. In the meantime, the Coalition rendered much of the electrical industry inoperative, and the Iraqis shut down the remainder of their capacity. The loss of electricity in the first hours of the conflict represented an important success for the theory of bombing for effect. Only a few bombs and missiles of thousands dropped and 13 targets of 160 attacked inactivated the electrical system without demolishing it and produced an outcome far greater than the Coalition's expenditure.

The Second Twenty-Four Hours

In the second twenty-four hours of the conflict the preplanned attacks, which were not finalized until January 12, continued. Two other significant events occurred—the advent of USAF attacks on Iraq from the territory of the Republic of Turkey and the successful Iraqi launch of SRBMs against Israel. Weather left most of Iraq under fair skies, but southern Iraq and Kuwait came under low clouds, causing some mission cancellations.⁹² In the first attack, from 0400L to 0420L on January 18, twelve F-117As struck in the west, in the east, and in the

92. Memo, 1st Lt. Cotturone, Subj: Weather History of Desert Storm, n.d. [ca. Jan 20, 1991].

Thunder and Hail over Baghdad: The Initial Attacks

Baghdad area. They concentrated on air defense targets. In the west, a single F-117A hit both the H-3 and Nukhayb IOCs. Two others hit both the SOC and the IOC at Tallil.⁹³ In the center of Iraq, roughly fifty miles to the west of Baghdad and close to the Al Taqaddum airfield, three F-117As smashed BW bunkers at Habbaniyah and Fallujah. Two F-117As used GBU-27s to damage the BW depot at Habbaniyah and BW bunker No. 1 at Fallujah, but the plane that had dropped on Habbaniyah could not drop on its second objective because the target could not be precisely identified. The other F-117A had just come from the west where it pounded the BW bunker at Qabatiya, approximately 150 miles from Baghdad. The five remaining F-117As pressed on to the national capital. Fog 02 achieved two hits on an I-Hawk battery that the Iraqis had captured from the Kuwaitis and employed in the Baghdad defenses. Its capabilities and its American-designed electronic defenses made it potentially more effective than any other SAM in the Iraqi inventory, and therefore a prime target. Mist 03 placed two GBU-27s on the Baghdad air defense SOC at Taji. The last F-117A dropped one of its GBU-27s on the Baghdad radio relay terminal but the guidance system on the other failed.⁹⁴

As AAA filled the air over the capital, far to its north the aircraft of JTF Proven Force began their initial bombing runs on Iraqi electronic warfare (EW) sites north of Mosul at 0410L. Flying through overcast at 3,000 feet and with three-mile visibility and fog, ten F-111Es of the 20th TFW carrying CBU-58s attacked radars at Basiqah Northeast, Machurah Dawg North, and Sununi. Eight F-15Cs of the 36th TFW, two F-4Gs of the 52d TFW, and an EC-130 Compass Call of the 66th Electronic Combat Wing provided fighter escort and SEAD for the strike aircraft.⁹⁵ JTF Proven Force's first raid and the ones that followed complicated the Iraqis' already overwhelming air defense problems by requiring them to deal with air attacks from two different directions and to actively defend their northern region, which most Coalition planes in the south did not have the range to reach.

JTF Proven Force came into existence as a result of initiatives by the U.S. European Command (EUCOM) and enjoyed singular command and control

93. Printout, F-117A Mission Results, Days 1-34, p. 2. The printout lists "PE, NO TAPE" [pilot error, no videotape of bombing] and records the delivery as a miss for the mission against the Al Kut IOC. This reflects peacetime record-keeping, which did not recognize a bomb hit unless verification, i.e. a videotape, existed. When the VTR did not operate properly or ate the tape, the wing, following USAF policy on PGMs, credited the pilot with a miss. This practice creates the somewhat anomalous situation, especially in wartime, of a unit deliberately recording some of its successes as failures. Given the overall accuracy of the weapons system, one can reasonably assume that at least half the bombs counted as misses because of videotape or VTR problems actually struck their targets.

94. MAP, Second 24 Hours, 0640L Jan 18, 1991, p. 1; Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991; Printout, F-117A Mission Results, Days 1-34, p. 2.

95. CMSgt. Jerome E. Schroeder, HQ USAFE/HO, and SMSgt. Thomas L. Raab, 17 AF/HO, "History of Joint Task Force (JTF) Proven Force" (Ramstein AB, FRG: HQ USAFE/HO, Dec 13, 1991), p. 53.

On Target

arrangements with CENTCOM, CENTAF, and its host nation, Turkey. Soon after the invasion of Kuwait, units of USAFE began a contingency plan for a “second front” against Iraq from Turkey. The plan soon grew from flight demonstrations to combat operations. The USAFE Commander, General Robert C. Oaks, USAF, briefed the plan to the CINC EUCOM (CINCEUR), General John Galvin, USA, on the fourth or fifth of September. General Galvin saw potential in it and subsequently briefed it to General Powell. By October 12, 1990, USAFE began to prepare for the possible deployment of ninety-nine aircraft to three Turkish bases, with the bulk going to Incirlik AB. As a NATO and USAF main operating base, Incirlik had support and maintenance facilities and ground equipment designed to service USAF aircraft. It also had prepositioned war readiness spares kits (WRSKs) and base-level self-sufficiency spares to enable it to sustain prolonged operations. A large influx of personnel would require the erection of temporary quarters, such as a tent city, but the base already had U.S. exchanges and mess halls, which could stretch to provide the necessities.

In peacetime, Incirlik AB hosted scheduled NATO exercises, and USAFE fighter units deployed to Turkey for training on the extensive Konya weapons ranges. In September 1990, for example, fourteen F-111Es arrived for weapons training and four F-16s from the 401st TFW deployed to meet NATO commitments. The U.S. State Department obtained extensions from the Turkish government allowing the aircraft to remain in place long after their scheduled departure, and Saddam assuredly knew almost immediately of the aircraft’s movement. On December 16, the 36th TFW deployed ten F-15Cs for weapons training. At the end of December, in exchange for a commitment to train Turkish pilots in air-to-air refueling, four KC-135 tankers augmented the U.S. forces at Incirlik AB. Furthermore, the U.S. government also asked the Turkish government for permission to nearly double its combat air forces in Turkey with forty-eight additional aircraft. Throughout the fall and winter, USAFE continued at the rate of two missions per day to support and supply combat operations from Turkey.⁹⁶

As USAFE actions went forward on one rail, negotiations with the Turkish General Staff (TGS) and the Turkish government proceeded on a parallel rail. The strategic decline of the USSR greatly benefited Turkey, in that it reduced the threat from an age-old, more powerful antagonist. As a member of NATO, an alliance formed for the purpose of containing the Soviets, Turkey maintained large, but increasingly obsolescent, armed forces. In numbers, Iraq’s armed forces exceeded Turkey’s, but in maintenance and training, particularly of its air force, Turkey’s undoubtedly exceeded or at the very least equaled Saddam’s best units. Although Turkey and Iraq shared a border, Turkey held height and defense advantages because the border ran through the foothills of a Turkish mountain range. During the Iran-Iraq War, the Iraqis had proved remarkably inept at mountain warfare. Thus Turkey seemed to have little to reason to fear its neighbor’s

96. Schroeder and Raab, “History of JTF Proven Force,” pp. 1–4.

Thunder and Hail over Baghdad: The Initial Attacks

aggression. It did, however, have reason to fear the implications of allowing Coalition air attacks from within its territory. Its opposition political parties would not approve any attacks from Turkish soil. Turkey still wished to maintain the remnants of its Ottoman heritage, and an attack on an Arab country might damage its position in the Middle East. On the other hand, Turkey had already joined the Coalition, shutting down an Iraqi oil export pipeline. It had also applied for membership in the European Common Market, many of whose members had already supplied Coalition troops. How would Turkey's failure to support the foreign policy goals of those countries affect its possible membership? Lastly, the United States—Turkey's ally and long-standing friend, its major arms and spare parts supplier, an annual contributor of hundreds of millions of dollars of foreign aid whose armed forces pumped millions of dollars into its domestic economy every year, and a nation that might assist it in modernizing its military establishment—pressed for permission to use Turkey's facilities against Iraq.

These countervailing pressures took time to resolve. The TGS negotiated with a liaison team from USAFE for several months and reached understandings on CSAR services, deployment of munitions, preparation of unit logistics support packages, host nation support, and contracting for maintenance of fuel capability at Incirlik AB. But some approvals took the form of in-principle-only agreements, and continued under discussion. Other approvals did not come until the last minute.⁹⁷ On January 14, 1991, the Turkish Foreign Ministry approved a U.S. request for forty-eight additional combat aircraft, placing three conditions on this grant: 1) aircraft could not conduct offensive operations against Iraq without specific permission from Turkey; 2) details on aircraft arrival, deployment, and activities had to be fully coordinated with the TGS; and 3) the Turkish government retained the option to withdraw its approval of this request. Secretary of Defense Cheney had anticipated approval and had already authorized the deployment of fourteen F-15Cs, twelve F-4Gs, twelve F-16s, four F-111Es, and six EF-111As, all of which arrived by January 18.⁹⁸ Turkey continued to consider U.S. requests for additional tankers, AWACS, and EC-130 Compass Call aircraft.

On the first day of the offensive air campaign, January 17, the Turkish parliament, along strict party lines, voted 250 to 148 to approve the United States' use of Incirlik AB and Turkish airspace to combat Iraq.⁹⁹ The lateness of Turkey's approval forced the JTF and the TGS to finalize procedures rapidly for coordination and approval of airspace control, safe-passage procedures, and air refueling tracks. Turkey agreed to allow six refueling areas and two operating areas for the AWACS and the RC-135s and further established two standardized routes for the Incirlik-based aircraft flying to and from the Iraqi border. Each

97. *Ibid.*, p. 25 Table II-1 "TGS JTF Beddown Issue Approval."

98. Msg, 170418Z Jan 91, CJCS to USCINCEUR, Subj: Proven Force Support [Deployment Order] [File No. T/HO/26/JTF].

99. Schroeder and Raab, "History of JTF Proven Force," pp. 30, 32.

On Target

route had specific ingress and egress points that were ten miles wide with a margin of error of four miles on either side. One route was reserved exclusively for night operations, and the other, exclusively for day. Planes entering Turkey outside these points would be subject to fire from Turkish air defenses.¹⁰⁰ As of January 18, 1991, JTF Proven Force had the following aircraft assigned:

Aircraft	No.	Aircraft	No.	Aircraft	No.
F-15C	24	F-4G	7	MC-130	1
F-111E	18	F-16 (WW)	12	HC-130	6
EF-111A	6	EC-130	3	MH-53J	5
F-16	24	KC-135A	12	E-3B	2

Turkey belonged to the AOR of CINCEUR who provided liaison with the host nation; bases; force commander; manning, logistical, and administrative support units; and aircraft through his air component commander, the USAFE commander. However, JTF Proven Force conducted its combat operations in Iraq, which belonged to the AOR of CINCCENT. Given the large scale of the conflict and the extent of the CINCCENT's geographic responsibilities, forces would inevitably operate across differing AORs. In this event, which had been anticipated, the JCS had devised a formula that made one or more CINCs the supporting commander, and made the CINC responsible for combat operations the supported commander. At least four CINCs supported CENTCOM: CINC-TRANSCOM, CINCSAC, CINCSOC, and CINCEUR. CINCEUR retained operational control of JTF Proven Force through its commander, Maj. Gen. James L. Jamerson, USAF. Jamerson had operational control of all units assigned to JTF Proven Force and also gained tactical control of all CINCEUR forces in Turkey. Operational control gave a commander far-reaching powers to direct all phases of a unit's activities including planning, logistics, personnel, military justice, and combat. Tactical control gave a commander far less power over a unit, limiting him to broad direction over the performance of a specific task or mission with little authority, other than coordination, to specify how a unit would plan and execute its duty. The two forms of control resembled the difference between owning and renting a property.

JTF Proven Force came under the tactical control of General Schwarzkopf "for mission-specific tasking and/or assignment to a geographic AOR within CENTCOM AOR as mutually agreed between C[ommander]JTF and USCINCENT."¹⁰¹ General Schwarzkopf formally expressed his concept of the JTF's command relationship with him shortly after the JTF's first raid over Iraq. On January 18, 1991, he directed that CENTAF "include all Proven Force missions and targets in the Air Tasking Order and will coordinate theater CSAR operations

100. *Ibid.*, pp. 49–50.

101. Msg, 231243Z Dec 90, USCINCEUR to et al, Subj: OPORD for JTF Proven Force, 1-001 [File No. T/CT/49/-].

Thunder and Hail over Baghdad: The Initial Attacks

to include JTF Proven Force operations.” He further authorized direct liaison between CENTAF and the JTF. Lastly, General Schwarzkopf delegated his tactical control of the JTF to General Horner as COMCENTAF.¹⁰² The JTF and CENTAF quickly developed a practical working relationship that began during discussions between General Horner and General Jamerson in Riyadh on January 3. The two Generals agreed to a loosely defined line, initially drawn at 35°00’N, which gave the northern one-third of Iraq to the JTF and deconflicted the operations of the two forces until the Directorate of Plans established procedures incorporating the JTF into the MAP. Both parties realized that this line could move north or south depending on the situation in Iraq. General Horner hoped that the JTF would be able to begin operations and gave its contingent an ATO for their initial activities. He stated that he would treat the JTF as another element in the ATO. However, this proved impractical. Eventually, the Iraqi Planning Cell directed operations by specifying targets for the JTF—essentially furnishing mission-type orders, which included the basis encyclopedia numbers. The JTF used that information to develop its own ATO and to plan strikes for minimum risk and maximum destruction. The 7440th Provisional Composite Wing [CW(P)], established by USAFE on January 16, served as the command formation of the air element of the JTF. It prepared the local ATO. The JTF could also nominate its own targets to JFACC. As the conflict progressed and the JTF’s knowledge of northern Iraq increased, so did its target nominations. To avoid fratricide and other complications, the JTF also had to advise the JFACC whenever it planned to send one of the 7440th CW(P)’s aircraft below the demarcation line.¹⁰³ For statistical purposes CENTCOM and CENTAF excluded the aircraft and combat sorties of the JTF from their own totals.

A package of twelve F-111Fs and eight F-15Es with two EF-111As and eight F-15Cs in support flew fifty-five miles to the northwest of Baghdad and pounded Balad SE airfield’s facilities and runways at 0430L, fifteen minutes after the F-117As had struck targets in Baghdad itself. To further pressure the capital region, four F111Fs with SEAD backing from four F-4Gs and two EF-111As attempted to collapse a CW bunker at Al Taqaddum airfield.¹⁰⁴ The presence of such a bunker at one of Iraq’s largest air bases and the home base of Iraq’s only medium bombers made it an important target.¹⁰⁵ Nor did the Coalition aircraft give western Iraq a respite. At 0445L a combination of eight F-111Fs and eight GR-1s (four with ALARMS), aided by two EF-111As and four F-15s, struck H-2 airfield and the facilities and runways at H-3 airfield. Two more F-111Fs, coming in at 0505L, followed up an F-117A strike at 0500L on the

102. Msg, 180845Z Jan 91, USCINCCENT to USCINCEUR, COMUSCENTAF, and JTF Proven Force, Subj: Frag Order [File No. T/CT/77/JTF].

103. Intvw, Maj. Gen. James L. Jamerson, Comdr, JTF Proven Force, with CMSgt. James E. Schroeder, JTF Proven Force, at Incirlik AB, Turkey, Mar 27, 1991, pp. 6, 8.

104. See DIA, *Desert Storm BDA*, Vol. 1, pp. 58–59, for imagery of this bunker.

105. DIA, *Desert Storm BDA*, Vol. 2, p. 18.

On Target

Qabatiya BW bunker, dousing it with CBU-89s. Five minutes later, six F-111Fs with two EF-111As supplying SEAD gave the same treatment to the BW bunkers at Habbaniyah and Fallujah, cracked open five minutes earlier by F-117As. From 0500L on, numerous packages headed for the KTO where they concentrated on Silkworm targets, Scud shelters, airfields, logistics areas, and Iraqi ground forces, including three Republican Guard Divisions.¹⁰⁶

Weather forced the cancellation of a morning (0930L) USN package from the Red Sea carriers directed at Al Asad airfield 100 miles northwest of Baghdad. At 1000L, forty F-16s of the 363rd TFW(P), sixteen F-15Cs on sweeps, and a SEAD group of eight F-4Gs and two EF-111As bombed military and artillery production targets at Habbaniyah, a Scud plant at Fallujah, and a rocket-engine plant at Shahiyat. Ten minutes later another large package of forty-four F-16s with eight F-15Cs and four RSAF F-15s on covering sweeps and eight F-4Gs and two EF-111As providing SEAD attacked Scud support and military support facilities to the south of Baghdad. A squadron of RAF attack-variant Tornados based in Dhahran were a last-minute addition to this package.¹⁰⁷ In groups of four or eight aircraft they hit rocket propellant plants, suspected Scud production facilities, surface-to-surface missile (SSM) equipment production facilities, an explosives plant in Latifiya, an arms plant in Al Iskandariyah, and rocket-motor test facilities in Al Musayyib. Wart Weaseling also continued. From 1030L through 1259L pairs of A-10s punished border early warning sites. Some flew deeper into western Iraq: one pair tackled an EW site at H-3 SE airfield, a dispersal field for the main H-3 operating base; another took out a site near Ar Rutbah. Throughout the morning and early afternoon from 0530L to 1400L, TLAMs rained down on five Iraqi targets—the Ministry of Defense computer center, the Az Zubayr IOC, the Al Mawsil power plant, the Al Basra refinery, and the Abu Ghurayb presidential grounds.¹⁰⁸ By the end of the second day the USN had expended 216 TLAMs, 64 percent of its total launches for Desert Storm.¹⁰⁹

The pummeling of strategic targets continued into the night. At 1700L eight Tornado IDSs cratered the runways at As Salman and Ghalaysan airfields. An hour later eight F-15Es split into pairs; one attacked four rail and highway bridges, three of which crossed the Euphrates; one at An Nasiriyah and two at As Samawah, and one blocked a crucial highway link near Ar Rumaylah. CENTAF had sent the F-15Es to take down the bridges, not so much to stop supplies and reinforcements from getting into the KTO as to stop the Republican Guard from getting out of it. The MAP specifically designated the bridges as “Republican Guard Escape Routes.”¹¹⁰ The first wave of 10 F-117As began a twenty-minute

106. MAP, Second 24 Hours, Jan 18, 1991, pp. 2–5.

107. Review Comments, Lt. Col. Thomas D. Smith, USAF, Air Staff XOXS, on Lt. Col. Harvey’s comment copy, November 4, 1992.

108. MAP, Second 24 Hours, Jan 18, 1991, pp. 6–9.

109. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 125.

110. MAP, Second 24 Hours, Jan 18, 1991, p. 10.

Thunder and Hail over Baghdad: The Initial Attacks

This building once housed a 300-gallon solid rocket propellant mixer.



attack on the Baghdad area at 2100L while an additional four F-117As assailed Kuwaiti targets with little success.¹¹¹

At 2200L eight GR-1s aided by two EF-111As and followed by a reconnaissance GR-1A began to attack the runways at Balad SE airfield to the northwest of Baghdad. At the same time, a package from the Red Sea carriers consisting of two EA-6Bs and eight A-7s flying SEAD, four F/A-18 and twelve A-6 strike aircraft, and four F-14s protecting the HVAA attacked three targets in northwest Iraq. The A-6s pounced on the Al Hadithah power plant and the Al Hadithah TV station 130 miles to the northwest of Baghdad. This continued the Coalition's policy of bringing the conflict home to Iraqi civilians without directly harming them and of separating them from the regime. The F/A-18s, carrying SLAMs, worked over the yellow cake-uranium extraction area of the Al Qaim superphosphate fertilizer plant near the Syrian border, 200 miles northwest of Baghdad. In the south at the same time, four F-4Gs supported four B-52Gs in an attempt to bomb the Umayyah petroleum refinery four miles south of Nasiriyah. Four B-52Gs struck at the As Samawah petroleum refinery, four-and-one-half miles south of that city, thirty minutes later. Both cells of B-52Gs made low-level attacks, and one received battle damage.¹¹² The Mudaysis airfield runway received the not-so-gentle attentions of four Tornado IDSs at 2300L. Al Kut on the Tigris began to come under attack at the same time when four F-15Es struck at its highway bridge over the river and its TV transmitter. Part of the same package, eight GR-1s gouged the runways at Al Jarrah airfield, and four F-4Gs provided SEAD. In a simultaneous mission 125 miles to the south of Al Kut, fourteen F-111Fs aided by two EF-111s and protected by four F-15Cs attempt-

111. Ibid.; Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991, p. 20. Also see DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 125. This document, also known as "The Title V Report to Congress," reports this F-117A raid as follows: "An hour before midnight, a dozen F-117s bombed key C³, leadership, and strategic air defense installations, including the ministries of Defense, Information, and Internal Security in downtown Baghdad."

112. Worksheet, 17th Air Division, B-52 Mission, January 18, 1991 [File No. AFHSO microfilm reel 10240].

On Target

ed to knock out two highway bridges over the Euphrates near An Nasiriyah and a long railroad bridge spanning a deep wadi near Saqash. Significant damage to the railroad bridge would sever the single-track rail line between Baghdad and Basra, greatly reducing the ability of the Iraqis to give logistical support to their army in Kuwait. In spite of their large purchases of foreign matériel, the Iraqis had not procured enough trucks to completely motorize their army and their supply services. The loss of the rail line would not only deprive the Iraqis of rail-borne supply but would force them, if they wished to remedy the supply deficit, into substituting motor transport, which insured greater attrition of their already inadequate truck fleet. Two of the F-111Fs attacked the radio relay station in An Nasiriyah.

At 2335L a package of five F-111F and four GR-1 strike aircraft assisted by four GR-1s (ALARMS) and four F-15Cs flew into western Iraq where they hit the H-2 airfield runway and a suspected CW storage facility at H-3 airfield. A reconnaissance GR-1A flew in last to capture the results of these and earlier missions. Eight more of the 48th TFW(P)'s F-111Fs supported by two EF-111s of the 366th TFW(P), also based at Taif, bored into central Iraq where they hoped to hammer yet two more bridges—the railroad bridge over the Euphrates at Muftul Waddam, just south of Saqash, and the Al Kifl highway bridge over the Shatt Ash Shamiyah,¹¹³ approximately sixty miles south of Baghdad.

At 0300L on January 19 the F-117As again attempted to bomb Baghdad and other targets in Iraq. This attack proved unsuccessful. In one of the last two packages of the second day, both at about 0350L, four B-52Gs from Moron AB should have struck at the missile research facility in Mosul, the primary missile R&D complex in Iraq. This mission cancelled while airborne. In the other package, eight Tornado IDSs punctured the runways at Wadi al Khirr airfield and the Al Khafi highway strip.¹¹⁴

Throughout air power history weather has prevented or spoiled more combat missions than any other single factor. No blame should attach to the F-117A (or its pilots) because it could not exceed its design and equipment limitations. However, the inability of the USAF and Coalition to continue to strike key targets in Baghdad and elsewhere at this important juncture of the campaign illustrates one of the greatest potential drawbacks to the theories of centers of gravity, of simultaneity, and of shock. If some factor should intervene to delay or halt the campaign, the enemy may quickly regain his equilibrium. In some fights it is not enough to knock your opponent down; you must break his legs to keep him from returning to the ring. In going for the quick, economical, and seemingly precise victory, air power purists may not end up with the kill. Against a differ-

113. Just to the south of Al Kifl, the Euphrates River splits into two major channels, the Euphrates and the Shatt Ash Shamiyah, that continue to flow separately for approximately fifty miles until they reunite just west of Ash Shinafiya.

114. MAP, Second 24 Hours, Jan 18, 1991, pp. 11-13; Printout, F-117A Mission Results, Days 1-34; Contingency Historical Rpt, 37th TFW(P), Jan 13-19, 1991, p. 21.

Thunder and Hail over Baghdad: The Initial Attacks

ent foe, the failure to close down his BW storage facilities, wreck his major nuclear facilities, and destroy significant targets in his capital as soon as possible may result in a far less felicitous outcome.

After forty-eight hours of intense, exhilarating, and at times terrifying effort, what had the offensive air campaign against Iraq accomplished? As of 2400L on January 18, CENTAF, MARCENT, NAVCENT, and the Coalition partners had flown 4,588 sorties and destroyed seventeen Iraqi aircraft at a cost of eleven of their own.¹¹⁵ The sorties divided fairly evenly between combat and support. In briefing President Bush on January 18, the Joint Staff made several claims, among them that Coalition air forces had attacked 169 of 298 targets:

Target System	Targets Attacked	No. of Targets
Air Defense and Airfields	51	67
C ³	40	65
NBC Production and Delivery (including Scud sites)	23	49
Military Infrastructure	49	106
Republican Guards and Forces in Kuwait	6	11

Coalition air forces had assailed all known fixed Scud launcher rails, engaging fourteen; they also claimed to have destroyed ten MELs. CENTAF had also attacked the Taji storage facility and mobile Scud hiding places. In addition, Coalition air forces had achieved “significant degradation” of Iraq’s air defenses and had destroyed all of its air defenses and EW capability in the south. The President heard that Coalition air forces had killed all radars and, except for Baghdad, had blinded Iraq’s air defenses, rendering them “largely ineffective.”¹¹⁶

However, the JCS made more modest claims for other target systems. They admitted that C³ for the Iraqi national command authorities was “largely intact,” as was military C³ between Baghdad and Basra. Bombing had disrupted military land-line C³ within Kuwait, an assumption validated by the fact that all major Iraqi units in the theater had resorted to radio communications. Coalition bombing had damaged some TV facilities, but most remained operational as did Radio Baghdad. In addition to the Scud targets attacked, Coalition air forces had struck at BW and CW storage sites and production infrastructure, but the capability remained to produce these types of warfare. The Coalition had inflicted limited injury to Iraq’s military support infrastructure, a system intended for additional targeting later in the campaign. Air strikes had severely damaged Republican Guard C³ but had otherwise caused “no known significant damage” to Saddam’s elite troops.¹¹⁷

115. Msg, 192115Z Jan 91, USCINCCENT to AIG 904, Subject: “SITREP.”

116. Brfg Slides, Presidential Brief, “Operation Desert Storm,” Jan 18, 1991 [File No. CK/DS/JCS].

117. Ibid.

On Target

In some respects the results of the first two days of Phase I more than justified the targeting concepts approved by General Horner and employed by General Glosson and Colonel Deptula. Within the first two hours of hostilities, the C² elements of the Kari system succumbed to Coalition bombing and electronic harassment, forcing Iraqi SAMs and AAA to fall back on near-autonomous modes of operation.¹¹⁸ Although the Iraqis eventually replaced many of the EW radars lost to Wart Weaseling and brought many of the SOCs and IOC partially back on-line, the haphazard timing of these reinstatements and the constant Coalition bombing of active radar sites ensured that the Iraqis' IADS would operate at a small fraction of its prewar capability. The breakdown of the Iraqis' air defense system and the IZAF's inability and unwillingness to protect its airspace gave the Coalition de facto air supremacy from the opening moment. Once air power has the political direction and military capability to attack every significant enemy target and faces only ground opposition, it is a matter of time until the enemy's industry and armed forces are destroyed.

The initial and widespread bombing and missile attacks on the electrical and petroleum industries had immediate effects on Iraq. In addition to the power plants literally short-circuited into inoperability, the Iraqis shut down their remaining plants, forcing the military and leadership to rely upon backup generators and depriving the populace of the source of power that provides virtually all of the labor-saving amenities of everyday life. Forty-eight hours of bombing nearly erased fifty years of development. The shutdown of the domestic oil refineries, largely accomplished in the attack's first days, would eventually affect military operations if the conflict continued long enough. The rationing of oil and gasoline in a country with some of the largest petroleum reserves in the world might have to be instituted. The loss of gasoline and diesel fuel for the domestic market would speedily disrupt the economic distribution system and cause no end of inconvenience to the average Iraqi; it would dry up some backup electrical generators as well. Unlike Germany in World War II, Iraq did not have large reserves of spare parts, slave labor, and skilled technicians with which to repair the damage.¹¹⁹ Nor did it have the capacity to fabricate many key items. When the electricity and the oil stopped, they would stay stopped until the Coalition allowed them to restart. Coalition leaders may have hoped that the average Iraqi's dissatisfaction with living conditions would lead to Saddam's ouster. They underestimated Saddam's popularity and the grip of his security services. Nonetheless, Iraqi morale plummeted and productivity declined.

The first two days of bombing made some progress against SRBM production and support but, in spite of the briefing to the president, virtually none was

118. After Action Rpt, CENTAF/EC, "Desert Shield and Desert Storm," Oct 1991, sec. 5, pp. 1, 2.

119. For a detailed discussion of the bombing of the German oil industry, see Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Center for Air Force History, GPO, 1993).

Thunder and Hail over Baghdad: The Initial Attacks

made against the fielded missiles and their launchers. Once Iraq began to fire its missiles, the pressure from Israel and to a much lesser extent from Saudi Arabia would force the Coalition to divert air assets from operations to Scud suppression. Anti-Scud operations would become the single largest strategic diversion of air power during the conflict. The initial air assault had damaged less than one-half of Iraq's CW and BW storage. It inflicted some damage on its nuclear facilities, a target that did not require immediate destruction. The Coalition's failure to eradicate NBC targets gave the Iraqis a chance to employ these weapons if they chose to do so, or more likely, it presented the Iraqis with an opportunity to disperse an unknown quantity of test equipment and special munitions, which in all likelihood had already been done. From another perspective, the Iraqis' failure to deploy BW and CW assets in the first forty-eight hours of the attack stemmed directly from the confusion and chaos in its C³ apparatus, a result of the widespread air offensive.

When assessed as a whole, the initial air attacks inflicted light to moderate damage on most of the nonindustrial targets struck.¹²⁰ This followed the intent of the offensive air campaign's designers who had purposely designed the assault to achieve shock and disruption rather than assured destruction. Although they took calculated risks, especially with NBC targeting, the air planners' opening moves had pried the Iraqi clam apart and left its soft interior exposed to more punishing thrusts. The first attacks succeeded brilliantly.

120. Msg, 171817Z Jan 91, CENTAF/IN to all units, Subj: CENTAF Air Combat Assessment/Current Bomb Damage Assessment; Msg, 181347Z Jan 91, CENTAF/IN to AIG 12982, Subj: CENTAF Air Combat Assessment/Current Bomb Damage Assessment; Msg, 191539Z Jan 91, CENTAF/IN to AIG 12982, Subj: Combat Assessment/Current Bomb Damage Assessment.

The targets in the above reports include a representative sample of those attacked by each type of USAF aircraft. The question of the exact damage inflicted by each individual mission on each separate target will probably never be answered with 100-percent certainty. Too many variables, such as problems of BDA collection, crew misidentification, bombs dropped through clouds, and Iraqi redundancy affect the equation. Anyone who speaks with assurance on the definite results of more than five to ten missions during any air war ought to be regarded with some suspicion. The author of this work is well aware of the problem of defining a "successful" mission and has discovered that in many instances it means that aircraft flew to their target and dropped their ordnance, with little idea of accuracy of delivery. Even aircraft carrying PGM-capable weapons systems, which have VTRs, can make errors in interpretation of results. They just do it less often. We need only look at the BDA for the IOCs and SOCs after two days of conflict and after the conflict's close to discover that a "hit" or "hits" do not always physically incapacitate a target. That, of course, leads to the totally unverifiable (at least without physical possession) problem of "actual or real" kills versus "functional or practical" kills—an area of airpower theology the reader must untangle for himself.

Chapter Seven

Weather and the Great Scud Hunt

Phase I, the strategic air offensive, continued for another seven days. Two factors beyond General Horner's control adversely affected its outcome. In the first, the weather turned in favor of the Iraqis. On the third day of the conflict, the first of a series of bad weather fronts began to sweep across the AOR, limiting air operations.¹ In the second, the Iraqis began firing SRBMs at the state of Israel on the second night of the war. Because only the breakup of the Coalition gave Saddam a respectable chance for a political victory, repercussions from an Israeli intervention in the conflict offered a viable prospect for shattering the alliance. Both the Iraqi and U.S. governments realized the potential consequence should the Israelis use armed force.

General Horner ruefully observed at the beginning of the third day of the campaign, "we have been busy chasing mobile Scuds and hampered by weather." In order of priority, the CENTAF list of targets read: Scuds; C² bunkers not completely destroyed; recovering airfields; key CW and military research, production, and storage facilities; leadership and telecommunications targets in Baghdad; petroleum storage facilities; the Republican Guard in Kuwait; and Iraqi logistics support.²

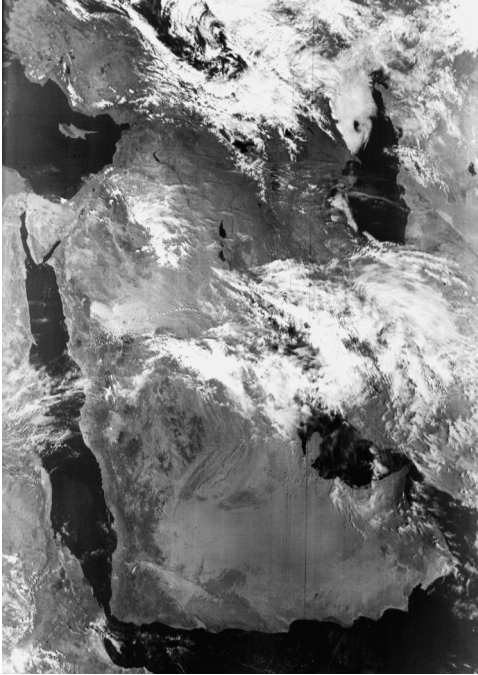
The disruption of the Kari air defense system produced a long-anticipated change in CENTAF tactics. Beginning on day three, CENTAF instructed tactical units conducting strategic and deep interdiction raids to switch from low-level to medium-altitude attacks of 10,000 feet or higher.³ Since August 1990 the special planners had contemplated making this switch to minimize aircraft attrition and

1. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 126.

2. Msg, 190800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #163. See Commander's comments section.

3. Rpt, HQ Air Weather Service, "Air Weather Service Contribution to Winning the War—the Value of Weather Support: Operation Desert Storm/Desert Shield Report 1," May 23, 1991 p. 1. This document concentrates on air tactics and the relationship to weather.

On Target



Satellite imagery of weather patterns over the Middle East

preserve aircrews as soon as the attack against Kari succeeded.⁴ Heretofore, some units, such as the 4th TFW(P), had employed low-level tactics. Other units such as the 48th TFW(P) used the so-called European scenario tactic of flying in at low altitude, popping up to a higher altitude to lock-on and deliver weapons, then resuming low altitude to return. The service had designed both tactics as a means to counter an expected Soviet-style opponent who would employ many SAMs to deny the intruder medium altitudes and numerous interceptors, many of which could not locate and engage low-flying aircraft. At the end of the first forty-eight hours, CENTAF assessed the major Iraqi air defense threat not as its SAMs and aircraft, but as its numerous AAA pieces, the bulk of which lost effectiveness at altitudes above 10,000 feet. CENTAF strongly suggested, but did not require, that units flying CAS and related missions abandon low-level tactics.

The switch to higher altitudes produced a tradeoff in weather conditions by greatly increasing the primary operational weather thresholds. At 1,000 feet, Desert Storm targets would fall below thresholds only 1 to 2 percent of the time. At 10,000 feet the same targets fell below the operational weather threshold 33 percent of the time. Ceilings below 10,000 feet became a conventional weather tactical decision aid in determining whether or not to dispatch missions. Over CENTAF's bases, the threshold for recovery of aircraft ranged from a minimum

4. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 26.

Weather and the Great Scud Hunt

of 300 feet with one mile visibility to unlimited with conditions above 500 feet and two miles visibility.⁵

During the next ninety-six hours of the air offensive, weather hampered operations in several ways. It caused CENTAF to cancel outright 10 percent of each of the next four days' scheduled force packages, and it had the same if not a greater effect on the total number of scheduled sorties. Not only did poor weather over the strike aircraft bases and carriers result in cancellations, but weather also prevented the all-important tankers from accomplishing their operations and interfered with after-action reviews. Weather further led some strikes to divert to alternate targets, as the F-117As began to do on the night of January 18. By the morning of January 20, CENTAF reported a prioritized policy: "in event of bad target weather, we are using airfields (to include hardened aircraft shelters for F-117A's), Republican Guard units, Iraqi forces and defenses on Faylaka Island, coastal AAA batteries, and Umm Qasr Missile Site as alternate targets."⁶

In the first ten days of the air campaign, poor visibility or low overcast conditions forced CENTAF to cancel approximately 15 percent of its scheduled attack sorties.⁷ In the first seventy-two hours, F-117As lost 48 percent of their targets.⁸ USAF climatologists estimated that for January and February 1991 the weather over Baghdad and Kuwait City was twice as severe as the reported average. (They also noticed that host-nation weather observers routinely reported the weather to be better than it actually was, and they suspected this habit may have skewed the fourteen-year average on which their predictions were based.)⁹

Weather affected both bombing accuracy and intelligence. Without verified intelligence on actual damage, neither CENTAF/IN nor the national intelligence agencies could provide authoritative BDAs. Without BDAs, planners and operators worked in the dark, unable to gauge whether or not to restrike an old target or proceed to a new one. This shortfall of BDA intelligence had unfortunate organizational consequences. General Glosson's Directorate of Campaign Plans and its predecessor, the CENTAF special planning group, had never had a good working relationship with Col. Christopher Christon's Directorate of Intelligence, a problem both activities blamed almost entirely on the other. Colonel Christon had assigned five of his officers directly to the campaign planning shop, but they suffered from two faults difficult to overcome. First, they were junior in rank to almost all the operators and, therefore, lacked influence. Second, they

5. Rpt, "Air Weather Service Contribution," May 23, 1991, p. 1, attachment 1.

6. Msg, 200800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Desert Shield Sitrep #164 [190300Z-200300Z] [File No. T/CT/66/-].

7. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 169.

8. Brfg Slide, Air Combat Command, "F-117 Smart Weapons Initiative," Amended Program Objective Memorandum (APOM) Submission, FY 2000-2005, n.d. [ca. summer 1999].

9. *GWAPS*, Vol. 3, pt. 2, *Support* (2d ed.), pp. 85-88.

On Target

had access only to the intelligence that CENTAF/IN had access to.¹⁰ One might also note that these intelligence officers consisted of recent augmentees to CENTAF/IN from other intelligence organizations within the service and were, in effect, outsiders in that organization as well.¹¹ As a consequence, the influx of CENTAF/IN personnel did little to ease matters between the two organizations.

Weather-enforced delays in BDA created yet another seemingly unavoidable tangle in the two organizations' relationship. Just as the planners ended their pre-planned attacks of the first two days, they encountered the need to perform detailed planning for future days. The December HQ CENTAF reorganization had attached the planners to the ATO shop and its rigid seventy-two-hour planning schedule. The campaign planners initially prepared the first forty-eight hours of the war in five months—a time in which the expansion of the target list, the expansion of the force, the need for a plan that could become effective at any time, and enemy moves and countermoves caused extensive changes. The planners now faced the task on a daily basis of creating a new plan for execution forty-eight hours away while remaining focused on the next day's plan as well as the current day's plan. For reasons of flexibility, the campaign planners, with General Horner's encouragement, decided not to draw up detailed plans for strikes more than two days into the future. They feared that providing a detailed campaign map too far in advance might lock CENTAF into courses of action that could be invalidated by evolving and unforeseen circumstances.

At this juncture, the campaign planners faced an intense need for BDA while CENTAF/IN could not, or in the planners' opinion would not, give it to them. CENTAF/IN was already reeling from demands for imagery collection and dissemination that totaled four times its anticipated workload and had to be transmitted through nonstandard communications systems. The specialized security classifications of the information further hampered its efficient distribution.¹² This situation and the tension associated with it as men under stress clashed permanently thwarted the relationship between the two sections of the same headquarters. To a man, the campaign planners began to further develop their own intelligence contacts. General Glosson intensified his working relationship

10. Memo, Lt. Comdr. D. J. Muir, Subj: The Targeting Process in Operation Desert Storm, Mar 4, 1991 [File No. Comdr. Don McSwain, 7 April 1992]. Commander Muir served in the GAT Division from December 18, 1990, to March 4, 1991.

Also see a rebuttal from Colonel Deptula who states, "LCDR Dan Muir was not privy to the details of the targeting process—he was an assistant in contributing information about bridge targets. Muir didn't come on-board until after the war started, and was not aware of the intel-planner interactions that had occurred the many months prior to the war. The whole intel-planner issue is very complex and deserves much more insight than Dan Muir possesses. Additionally intelligence, logic, maturity, and ability to adapt were all far more critical in gaining 'influence' in the special planning group and the Black Hole than rank." Lt Col Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 26.

11. Intvw, Capt. John Glock, USAF, Intelligence Officer, Special Campaign Planners, with Drs. Diane T. Putney and Richard G. Davis, CAFH, Aug 8, 1992, at Crystal City, Arlington, Va.

12. *GWAPS*, Vol. 4, pt. 2, *Space Operations* (1st ed.), p. 176.

Weather and the Great Scud Hunt

with Rear Adm. Mike McConnell. Colonel Deptula turned even more to Checkmate and Colonel Warden. Checkmate acted as an intelligence fusion center, collecting information from agencies throughout the Washington, D.C., area. For example, one of the Instant Thunder planners, Lt. Col. Ben E. Harvey, served as the chief of Checkmate's DIA BDA Support Section. In this capacity, he provided operators to each of DIA's four BDA cells in the Washington, D.C., area. In turn, these operators assisted DIA in BDA and gathered much raw intelligence, which Checkmate used to augment the Black Hole in planning attack options and evaluating the effect of the air campaign to date.¹³

Compared to sources direct from Washington, CENTAF/IN operated at the end of the chain of command that imposed, by its very design, institutional delays at each level. When CENTAF/IN received certain pieces of information, hours after the campaign planners did, its "late and old" information merely confirmed the campaign planners' position. A naval officer in contact with the campaign planners observed that Checkmate and DIA "completely cut CENTAF/IN out of the loop. The planners often had intelligence information that was totally unknown to the operational intelligence people and targeteers."¹⁴ The puzzled onlooker added that the normal interaction one would expect to find between operations and intelligence in the fleet—the equivalent of wing-level, not theater-level organization—did not exist. In reviewing these circumstances, Colonel Deptula made the following analysis, which presents the planners' position:

The Black Hole Planners had pleaded with CENTAF Intel to provide them with photos of targets, provide additional personnel to analyze PGM video tapes (bomb camera footage), and to interpret BDA in a timely fashion. Unfortunately intel could not break away from its established procedures and adapt to the speed required of the planning cycle. CENTAF/IN continued throughout the war to produce target recommendations that were either already in the Master Attack Plan or which the planners had obtained from other sources and had already been hit (primarily their own review of bomb camera film). CENTAF/IN did provide one service worthwhile to the planners, and that was the identification of DMPI's [designated mean points of impact] on targets selected for the Master Attack Plan.¹⁵

CENTAF/IN also neglected to put the planners on the distribution list for the combat aircraft mission reports, which contained useful information on detonations and effects.¹⁶ General Glosson, as 14th AD(P) Commander circumvented this by ordering the F-111F and F-117A units to forward summaries of all video-

13. Review Comments, Lt. Col. B. E. Harvey, Dec 1992.

Colonel Harvey added, "This was not done to circumvent CENTAF/IN, but to ensure the planners and operators got information that CENTAF/IN could not or would not provide."

14. Memo, Lt. Comdr. D. J. Muir, Mar 4, 1991, Subj: The Targeting Process in Operation Desert Storm.

15. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 27.

16. Intvw, Maj. Robert J. Heston, USAF, 37th TFW(P) Dir Intel, Aug 9, 1990–Mar 31, 1991, with Mark D. Mandeles, GWAPS, and Lt. Col. Stanford S. Terry, USAF, GWAPS, Oct 16 and 19, 1992.

On Target

tape recordings to the planners. In short order the GAT Division had set up a daily courier run to hand-carry the tape from the wings to the Black Hole. The videotapes became one of the planners primary BDA sources.

Since the planners had personnel assigned directly from each of the combat units, they used this resource to garner further intelligence. This again short-circuited standard channels from wing intelligence to CENTAF/IN to the planners. Many months after the conflict, General Horner supported his intelligence staff by stating,

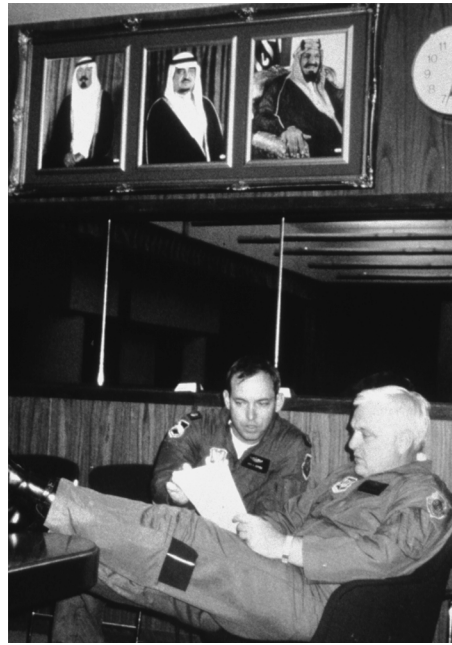
The method of setting up their own intel network caused the CENTAF/IN to be out of the loop on issues for which he was responsible, creating a working environment that was not conducive to a smooth working relationship. The major reason for the breakdown was the actions of the Director of Campaign Plans not keeping CENTAF/IN in the loop.¹⁷

The establishment of alternative intelligence sources furnished an example of how control of decision-making and operations tended to accrue to the Directorate of Campaign Plan's GAT Division. Not only did that division supply the bulk of the targeting (which drives any air campaign), it had direct access to the combat units. It also now had its own intelligence sources and, by the end of the week, would have its own weather officer (the CENTAF weather component was located in the RSAF HQ building, only a few feet from the Black Hole). Access to both improved weather data, especially from dedicated weather satellites. Additionally, more immediate expert interpretation of weather data allowed the planners the flexibility to work around areas of poor operating weather by scheduling missions to clear areas and deleting those intended for socked-in areas. This increased the number and effectiveness of missions sent to suitable areas during much of the campaign. In the first few days of the conflict, the necessity of hitting the preplanned targets on schedule caused many weather aborts or no-drops. A similar situation would occur at the close of the campaign as aircraft attempted to operate in minimal conditions in order to aid the ground offensive. As the head of the directorate and commander of the 14th AD(P), General Glosson, had operational command of the fighter force and could, in theory, ensure the execution of the GAT Division's plans.

Planning difficulties caused many last-minute mission changes in the ATO; diverging viewpoints between members of the GAT and ATO Divisions caused others. The first two days' ATOs, as discussed earlier, were completely scripted documents that maximized tanker and support aircraft use. The tight security hold on the Black Hole's activities had forced it to prepare the first day's ATOs by itself, without reference to the regular ATO preparers (who continued their regular task of creating the daily CENTAF training ATO). When the GAT Division completed the first two days' ATOs, security required it to hand-carry them to the wings, again bypassing the usual ATO process. Thus when the regu-

17. Ltr, Horner to Hallion, Subj: Review/Comments on Draft Manuscript, Dec 8, 1992.

Lt. Gen. Buster C. Glosson (foreground) and Lt. Col. David A. Deptula discuss the execution of the air war from their quarters in Riyadh.



lar ATO shop was confronted with having to begin day 3 planning, its personnel had never seen any of the GAT plans before and had to rapidly switch gears mentally from the daily training ATO to the combat ATO. For their part, members of the GAT Division had adopted some procedures new to the ATO shop, and GAT members assumed that the ATO could be prepared speedily from their MAP sheets. This lack of coordination, when coupled to the Scud diversion and weather problems, threatened to produce large numbers of daily changes whose effects significantly delayed the ATO's preparation and its distribution to the wings.¹⁸ Delay in distribution to the wings, if prolonged, would affect the wings' ability to plan and execute their missions (no aiming point, no deconfliction, no tanker and support rendezvous, no calls signs and squawks, etc.). The precision wings, especially the F-117As of the 37th TFW(P), found last-minute changes particularly disruptive because of the changes they imposed on the complex planning, targeting, and weaponeering procedures. In the wings, last-minute changes soaked up an inordinate amount of labor.

It took five days to iron out the worst of the problems. On days 4 and 5, for instance, the ATO had two of its three wartime highs for changes. The tankers in particular proved a problem. They could not routinely continue to achieve the high number of daily sorties they had flown on days 1 and 2. Consequently, the

18. Intvw, Maj. Gen. John A. Corder, USAF, Dir Ops, CENTAF, with Robert L. Mandler, USAF Air Warfare Center Historian, Dec 21, 1991, pp. 60-61.

On Target



Maj. Gen. John A. Corder in a joint planning session to determine targets and support responsibilities

planners and the ATO were forced to reduce the number of tanker sorties to approximately 265 a day. In an attempt to ease the burden and speed delivery of the ATO, Maj. Gen. John A. Corder, CENTAF Director of Operations, directed that the GAT planners cut back the number of daily packages from 55 or 60 to 40.¹⁹ For the balance of the conflict, mission changes numbered approximately 15 to 20 per day. Handling these last-minute changes provided CENTAF TACC with a good deal of work. Had CENTAF not completely solved the problem of numerous changes, the war's overall outcome would not have been substantially different, but the efficiency of Coalition air power would have suffered as a result of the reduced flexibility of employment.

Throughout the campaign, the planners and fraggers (those who prepared the fragmentary orders for the force packages that would fly the missions) had to balance the priority of hitting time-sensitive targets with the need to keep the ATO clean. Target and timing changes, which accounted for 40 percent of all ATO changes (5,800 and 3,500, respectively, of 23,000 changes) caused the wings the greatest problems because they required substantial reworking. Likewise, target and timing changes cost the planners lost opportunities because the need for new photos and intelligence crowded out requests already in the daily planning cycle.²⁰ General Glosson, who feared that the conflict might end at any moment and who trusted, correctly, that his planning and ATO divisions and his combat wings had a greater capacity to adjust to change than they admitted, came down decisively in favor of striking time-sensitive targets as soon as possible.

The second factor that was beyond General Horner's control but that had the potential to adversely affect the outcome of the strategic air offensive involved the Iraqis' use of Scuds. For several months before the Gulf War, the possibility that Iraq would initiate missile strikes against the state of Israel and that Israel would respond with counterstrikes on Iraq had troubled the U.S. government. A

19. Intvw, Maj. Gen. Corder, Dec 21, 1991, pp. 15–19.

20. For a complete discussion ATO changes and their significance see *GWAPS*, Vol. 1, pt. 2, *Command and Control* (2d ed.), pp. 212–232.

Black Hole planners in their Riyadh office space



few days before the outbreak of hostilities a high-level U.S. delegation consisting of Deputy Secretary of State Lawrence S. Eagleburger and Under Secretary of Defense for Policy Paul Wolfowitz traveled to Israel to urge restraint. Eagleburger assured Israeli Prime Minister Yitzhak Rabin that the United States would consider any Iraqi attack on Israel as a *casus belli* and that, in any case, Coalition air operations would completely suppress Scud launches from western Iraq.²¹ Apparently Rabin accepted the assurances but gave no ironclad commitment not to react in what he considered his state's best interests.

Once the Coalition air offensive had begun to peel away the basic infrastructure of Iraq's civilian and military economies, the Iraqis jarred the Coalition with a volatile reminder of the nature of Middle Eastern politics by launching SRBMs at Israel. In the space of twenty-eight minutes, from 0259L to 0327L January 18, 1991, Iraq sent from their western Scud areas a volley of seven SRBMs with conventional warheads toward two Israeli centers of population; Haifa was the target of two of the missiles, and Tel Aviv, of five.²² The strike on a neutral country injured twelve persons. Meanwhile, three Israelis died of suffocation when they put their gas masks on incorrectly; several others needed treatment when they injected themselves with atropine, an antidote for nerve gas. This placed the government of Israel under strong domestic pressure to adhere to its standard policy of speedy retaliation for incidents of terrorism. Publicly, the Israeli government responded to the pressure by choosing to follow a policy of moderation. It announced that it would not retaliate for this attack, but it would do so if the rockets continued to fall. The U.S. government sought to support a policy of non-retaliation by pursuing two different paths. First, it encouraged the Israeli government not to intervene by using diplomatic pressure supported with an increased flow of military and intelligence information, an increased liaison and

21. *GWAPS*, Vol. 1, pt. 1, *Planning* (1st ed.), p. 108.; (2d ed.), p. 103.

22. Msg, 230604Z Feb 91, DEFSMAC to DEFSMAC OT, White House, Subj: Mideast Conflict: Iraqi SRBM Launch Summary through 23 February 1991. The summary notes that one of the two SRBMs directed at Haifa may have failed in flight.

On Target

coordination between the two countries' armed services, and military assistance for the air defenses of Israel. Second, the United States pressed the Coalition military forces to destroy and delay the SRBMs at their source in Iraq.

Privately the Israeli government may have taken a much more forceful position. Secretary Cheney spent the nights of January 16 and 17 in his office, but on the night of January 18 he went home to rest. When word of the Scud launches on Israel reached Washington, he hurried to his office to activate the special communications circuit with his opposite number in Tel Aviv, Israeli Minister of Defense Moshe Arens, who possibly initiated the call. Defense Minister Arens stated that the Israeli Air Force (IAF) had a dozen F-16s airborne and prepared to strike at Iraq. He demanded either the Coalition IFF codes or that Coalition air forces stand down from operations in western Iraq for four hours in order to allow Israeli air strikes. If the Scud attacks continued, he informed the secretary, Israel intended to put ground forces into the Iraqi Scud areas. He asked the United States to use its good offices to obtain permission to use Jordanian or Saudi airspace. Secretary Cheney refused to comply, but he promised to raise the matter with the president at once. In less than one hour, President Bush, his top aides, and National Security Advisor Scowcroft met in Scowcroft's office. The president called Israeli Prime Minister Yitzhak Shamir, expressed his regrets at the Scud attack, attempted to convince the prime minister of the folly of attacking Iraq, and offered to defend Israel directly with American Patriot missiles and crews from U.S. bases in Germany. The Patriot had some capability to defend against short-range or tactical ballistic missiles such as the Scud. He further indicated that Coalition air forces would redouble their efforts against Scuds.²³ Prime Minister Shamir accepted the Patriots and the president's reassurances, for the time being. Fortunately, the U.S. government had some diplomatic space in which to maneuver. A week before the conflict, Secretary of State Baker had visited several Arab capitals and, except for an ambiguous response from Syria, received assurances that the Arab allies would accept a "one-time" Israeli attack on Iraq.²⁴

At 0815L on January 19 the Iraqis fired four more missiles from western Iraq aimed at Tel Aviv. Three of the rockets hit the Tel Aviv area, reportedly wounding ten persons slightly. Israeli television reported that Israeli military sources said U.S. attacks against SRBM launch sites were unsatisfactory and U.S. efforts to destroy the MELs were unacceptable. In the meantime, the Jordanian Ambassador to France stated that his country would remain neutral in any Iraqi-Israeli dispute, but Jordan would prevent any aircraft, including Israeli, from violating Jordanian airspace. The next day the Syrian ambassador to France stated that if Israel attacked Jordan, Syria would intervene on Jordan's behalf.²⁵ Clearly, Saddam had stirred the coals under the Middle Eastern pot. The United

23. "Bombs Over Baghdad," *Newsweek Desert Storm Commemorative Edition*, pp. 72–73.

24. *Ibid.*, p. 71.

25. CRS, *Iraq-Kuwait Crisis: Chronology*, pp. CRS-25–CRS-26.

States would quickly have to throw water on the fire by restraining Israel in order to prevent an unpalatable mess.

After the Israelis accepted the four batteries of Patriot anti-aircraft missiles, the Americans moved with alacrity. Two batteries, a total of approximately seventy-five missiles, arrived on January 19. In December 1990 the United States had already sold and delivered to the Israelis two batteries of Patriots, but the Israelis had insisted on a more advanced configuration than the one deployed with U.S. forces. This delayed the Israeli initial operational capability of their own Patriots because of the wait for the assembly of latest models and the need for additional training. The Israeli crews received abbreviated training in the United States, and American maintenance personnel temporarily supported the batteries.²⁶ As a lesson drawn from their earlier wars, the Israeli always made a point of obtaining the most advanced technology available.

The American-configured Patriot achieved its initial operational capability in 1982. A Patriot battery, or fire-unit, consisted of one multifunction phased-array radar, one engagement control station with fire control computer and communications facilities, one to eight launchers with four missiles per launcher, and one electrical power plant. The Army designed the system for the point defense of such facilities as logistics bases, headquarters, airfields, and other military targets not usually found in populated areas.²⁷ The performance characteristics of the Iraqi SRBMs pushed the Patriot to the limit of its capabilities. Yet the wartime performance of the 158 Patriots fired, which partially intercepted most of the incoming Scuds, did not deter the DoD from concluding that “the best approach to defeating enemy ballistic missiles is to seek out and destroy them on the ground.”²⁸

The open stationing of U.S. military units in the territory of the state of Israel created a new precedent in relations between the two states and for the region. In the minds of the Arabs, and some Israelis and Americans, there had always existed an implied, if unofficial, U.S. commitment to use its armed forces to save Israel from a catastrophic defeat. However, that occasion had not arisen in the forty-two years of Israel’s existence. The impact of Iraqi SRBMs on Israeli soil demonstrated positively that, given the appropriate circumstances, the U.S. government would, indeed, reinforce Israeli defenses with American troops. Although the United States had sent in troops to *prevent* Israel from attacking an Arab power, it had established that it would put troops in Israel and could do so again. The Israelis proved that they would accept American troops, even under a favorable overall military situation. For the Arabs, the presence of American units in the land of their enemy confirmed what they had long suspected. For Arabs, Israelis, and Americans, this move may have long-term and unforeseeable consequences.

26. DoD, *Conduct of the Persian Gulf War* (1st ed.), App. T “Performance of Selected Weapons Systems,” p. T-201.

27. *Ibid.*, pp. T-200, 201.

28. *Ibid.*, pp. T-202, T-203.

On Target

The United States had good reason to make extraordinary gestures in its efforts to shut off Saddam's best hope of a political victory. After the second Scud attack on the morning of January 19, the Israeli Deputy Foreign Minister, during a television interview, stated that Israel would retaliate, but he refused to specify when or how.²⁹ Shortly before the conflict, the Israeli government had issued gas masks to the general public. Detailed instructions accompanied the masks on how to prepare airtight rooms in personal dwelling spaces. The government also issued atropine, a nerve gas antidote. These actions greatly increased the general level of anxiety within the population and gave further proof of the seriousness with which the state of Israel regarded the threat. It further suggests that Israeli intelligence services definitively credited Saddam's missiles with CW and/or BW warheads.

The United States sent not only troops to Israel but also diplomats and airmen in the hope of preventing retaliation. At five in the morning of January 18, only a few hours after the initial Iraqi SRBM launch at Tel Aviv, General Schwarzkopf telephoned General Horner and instructed him to send a senior air officer to Israel as soon as possible. General Horner selected his deputy, General Olsen, who with the commander of the IAF, Maj. Gen. Hvihu Ben-Nun, had attended the National War College in Washington, D.C. General Schwarzkopf personally gave General Olsen his orders, instructing him to go to Israel and tell the Israelis exactly when and how CENTAF intended to stifle the SRBM threat. Washington also provided the forum to coordinate the American diplomatic and military efforts to hold back the Israelis. General Olsen had a dual task: first, to reassure the Israelis that the Coalition had the military means and methods to scotch the Scuds, and second, to convince the Israelis of the military impracticality of attempting the task themselves. Without IFF codes and with no ATO coordination with Coalition air defenses or strike packages, an IAF raid on the SRBM launching areas might accidentally provoke costly air battles. Since the Coalition military, at this level, also refused to coordinate with the Israelis by marking off a sector of Iraq for IAF use only, IAF operations might suffer heavy losses for little gain. They might even rupture a coalition engaged in a quest to destroy Iraq's offensive military capabilities, a prime Israeli foreign policy goal.

After receiving his orders, General Olsen spent much of the rest of the day working with the campaign planners as they revised their plans to increase the effort against SRBMs. He found that they had not yet given the problem a thorough examination. When General Olsen left Riyadh at 1600 January 18, 1991, he took with him only the most rudimentary of plans.³⁰ The planners would continue to try to silence the fixed sites. They would maintain a ground alert force

29. Msg, 191953Z Jan 91, DIA to DIACURINTEL, Subj: Iraq-Kuwait: Situation Update, Date of Information: (0930 EST) January 19, 1991 [File No. T/HO/3/JAN].

30. Background Paper, Maj. Russ Thompson, Capt. Tom Clemmons, and Capt. Philip Saur, CENTAF, "How to Kill Scud Missiles: Lessons Learned from Desert Storm," n.d. [ca. Mar 1991] [File No. T/CT/10/15].

Weather and the Great Scud Hunt

of F-15Es at Al Kharj AB, more than an hour from the targets, to track mobile Scuds as soon as possible after they launched. When conditions warranted, they would put in SOF teams to try to locate sites from the ground. Iraqi air defenses in the west had not yet deteriorated sufficiently to allow the establishment of an airborne alert. Within a day or two, CENTAF would have developed a far more active and sophisticated response to the SRBMs.

A Scud false alert in Israel delayed General Olsen in Cairo, and he did not arrive in Tel Aviv until 0115L. Three hours later, four SRBMs impacted in Israel. By that time the general had already begun discussions with the IAF, whose vice commander had met him upon arrival and escorted him to General Ben-Nun's office at IAF HQ. On January 20 diplomatic firepower arrived in the person of Deputy Secretary of State Eagleburger, who returned to coordinate the U.S.-Israeli response to the missile attacks. Under Secretary of Defense Wolfowitz flew in shortly afterward. The grim attitudes of their Israeli counterparts soon convinced the two officials that they faced a dangerous situation. According to General Olsen, one had to be in Tel Aviv at this time to grasp how close to the brink of retaliation the Israelis had come.³¹ For the next few days, in their meetings with the Americans, the Israelis gave a chilling impression of a government that saw its own best interests quite differently than did its closest friends.

In order to buy time for Coalition SRBM countermeasures to produce results and to placate the Israelis, the Americans had little choice but to broaden their information-sharing arrangement with the IAF. The next day the pendulum seemed to swing in the opposite direction when Israeli Chief of Staff Lt. Gen. Dan Shomron stated in a national television interview that the United States had made a tremendous effort to locate and destroy the Scud launchers. He added that his country "will have to live with this threat: they are truly doing everything possible." When asked about Israel Defense Forces (IDF) retaliation plans, he noted Israel's policy of self-restraint in the matter.³² But single SRBM launches against Israel on the nights of January 22 and 23 pushed the pendulum in the opposite direction. The first missile landed in a residential area near Tel Aviv, wounding ninety-eight, killing one, and causing two fatal heart attacks. A Patriot successfully intercepted the second missile. The U.S. defense attaché described the IDF's successful highlighting of U.S. accomplishments in western Iraq as key to keeping political pressure from forcing military action. Advance planning information, continued American air presence over H-2 and H-3, and timely BDA was "required to help the IDF keep the Israeli political leaders comfortable...all that can be done is being done." A public opinion poll conducted on January 23 revealed that 76 percent of the Israeli public believed Israel should not retaliate.³³

31. Intvw, Maj. Gen. Olsen, Mar 5, 1992.

32. Msg, 220900Z Jan 91, DIA to DIACURINTEL, Subj: Iraq-Kuwait: Situation Update [File No. T/HO/3/JAN].

33. Msg, 261157Z Jan 91, CIA to et al., Subj: Middle East Brief OCPAS 91-022 for 26

On Target

The next night, Saddam's rocketeers sent, in their single busiest night, eight missiles against Israel and two against Saudi Arabia. Patriots intercepted the Israeli-bound SRBMs, but falling debris killed one person and injured forty. On January 26 four more SRBMs interrupted all activity in Israel but inflicted no casualties. On January 27 the Israeli government eased the tightened nerves of the populace a half-turn by reopening the schools, which it had closed two weeks earlier. That moved children out of crowded, airtight rooms and away from frazzled parents. It further showed resolve to the Palestinians and the Iraqis and took little risk inasmuch as Scud launches had not occurred during school hours.³⁴ The same day, Maj. Gen. Malcolm B. Armstrong, a USAF officer experienced in Israeli affairs and with good Israeli contacts, was seconded from his post as Director, Operational Plans and Interoperability, J-7, of the Joint Staff in Washington, D.C., to replace General Olsen. The two USAF generals went to the Ministry of Defense to discuss the Coalition's latest anti-Scud efforts in light of the twelve missiles fired upon Israel in two days. General Olsen left Tel Aviv on Sunday, January 28, and returned to Riyadh.³⁵ In all, the Iraqis would fire forty-two SRBMs at Israel. In the first ten days of the war they fired twenty-four; in the final thirty-one days, sixteen fell on eleven occasions.³⁶ When he left Tel Aviv, neither General Olsen nor anyone else could know that the worst had passed. As the USAF anti-Scud liaison with the IAF, the general had performed a valuable role in helping prevent a political victory for Saddam.

Interestingly enough, the Iraqis launched more SRBMs at Saudi Arabia and Bahrain (forty-six) than they had at Israel (forty-two), possibly because more launchers survived, at various times, in the east than in the west. In no instance did the Iraqis fire more than eight missiles in one day from either launch area; after January 23, they fired no more than four in one day from a single launch area.³⁷ The SRBMs aimed from eastern Iraq toward the south encountered the same nemesis as those fired at Israel—the Army's Patriot antiballistic missile system. The southern Patriots proved as effective as their western counterparts and intercepted most of the Scuds, which did not inflict substantial damage. The SRBMs fired south at Arabs and the Coalition did not have the potentially dangerous political consequences of those fired at the Israelis. The Saudis could hardly claim the status of innocent bystanders when their aircraft staged daily attacks on Iraqi targets and they hosted the great bulk of the Coalition forces. Nor could the allies legitimately protest Iraqi responses to their offensive.

January 1991 [File No. T/HO/2/CIA].

34. Msg, 290800Z Jan 91, DIA to DIACURINTEL, Subj: Iraq-Kuwait: Situation Update, Date of Information: (0100 EST) January 29, 1991.

35. Intvw, Maj. Gen. Olsen, Mar 5, 1991.

36. Brfg Slide, Steven L. Head, Special Asst to Dep Dir, Defense Resch & Engring, Tactical Warfare Progs, Under SecDef for Acquisition, "Scud (Al Abbas) Firings," Briefing: Conduct and Performance of the Air Campaign in Operation Desert Storm, Mar 21, 1991. Two missiles apparently broke up in flight before reaching Israel.

37. Brfg Slide, "Scud (Al Abbas) Firings," Steven L. Head Brief, Mar 21, 1991.

Weather and the Great Scud Hunt

But as Hitler had demonstrated forty-six years earlier with his V-1 and V-2 weapons that were fired at Britain and Antwerp, random area attacks by pilotless self-propelled bombs cause anxiety, fear, loss of sleep, and loss of productivity within the target population—at rates wildly disproportionate to the physical damage and casualties inflicted. Saddam's conventional warhead Scuds produced similar results in the Saudi civil population and in the Coalition forces. Because Coalition intelligence credited the Iraqis SRBMs with both CW and BW capability, the Coalition forces had to assume, until proven otherwise, that each missile carried such agents. When troops and ground crews went on Scud alert, they had to don their CW protective gear (a time-consuming, nerve-wracking ordeal) and stay in their gear until the all-clear sounded. Personnel rapidly lost efficiency when working in their confining, steaming hot, bulky suits. Special warheads, landing amidst the less well-protected Saudi civilian population, might ignite a panic and shake popular support for the king. CENTCOM's conservative Scud warning criteria increased the anxiety and other problems associated with the SRBMs. Working on the principle of better to be safe than sorry, CENTCOM instructed United States Space Command (SPACECOM) to warn it of any situation that looked like a Scud launch. Normally SPACECOM confirmed or canceled an alert within minutes, but even a false alarm added to the strain of those within Scud range of Iraq.³⁸ Thus, the immense nuisance value of the SRBMs endowed them an importance far beyond their almost inconsequential military effectiveness. Accordingly, the air planners had to ensure that the eastern SRBM launch area, or launch basket, received almost as much attention as the western launch basket.

By the end of the third day of the offensive air campaign, campaign planners had a far better appreciation of the difficulties presented by Scuds than they had before the conflict. Range crucially affected Scud operations in two ways. Available evidence suggests that in the course of modifying their Soviet-designed missiles, the Iraqis eliminated a feature that allowed for variation of the missile's range at the time of launch. All Iraqi SRBM launches seem to have occurred at maximum range. Thus any Coalition action that forced SRBMs from their launch baskets or forced Iraqi retreats to safe, densely populated areas or cities, like Baghdad, automatically reduced the Scud's range and put Riyadh and other targets out of danger. Also, the limited range of the SRBMs confined their operations to three areas within Iraq. To strike Israel at extreme range, the missiles had to fire from western Iraq in areas around H-2 airfield and north of the Saudi border. The area's rough topography supplied ravines to hide in, as well as road bridges, underpasses, and culverts to hide under. In eastern Iraq, the Coalition had located previously surveyed mobile launch sites near Qurnah, forty miles northwest of Basra, and placed Scud storage facilities at southern air bases and two airfields in Kuwait. The Scuds in the southern Iraqi-Kuwaiti launch bas-

38. DoD, *Conduct of the Persian Gulf War* (1st ed.), App. K, p. K-44.

On Target

ket concentrated on Riyadh, while those in the Qurnah basket launched at Bahrain. In the east the more even terrain favored the Coalition's efforts to find the launch sites compared with its chances in the west. All three launch baskets left the Iraqis with ample room for dispersal and concealment, but the range-constricted SRBM launch baskets permitted targets of a relatively manageable size that allowed CENTAF to concentrate its strength.³⁹ Obviously, the warnings issued by SPACECOM after firing proved important in locating Scuds. Given ten minutes after its launching, a mobile Scud could move five miles from its firing site; given fifteen minutes it could move nine miles from the firing site or twelve miles from it if the vehicle took a road.⁴⁰

In the next few days CENTAF fleshed out and implemented the anti-Scud plan that General Olsen had presented to the Israelis on January 19: kill the fixed sites, maintain an alert force to go after SRBM MELs/TEls immediately after launch, and when circumstances allowed, put SOF teams into the area to spot for attacking aircraft. That same day CENTAF made SRBMs its first targeting priority. General Horner reported, "I have made finding and destroying Scuds our primary effort, ahead of other strategic air campaign targets and Republican Guards."⁴¹ On January 20, Scuds continued to be CENTAF's first-priority target of the offensive air campaign.⁴² That day the planners scheduled the USMC to fly four A-6s and two F/A-18s, with supporting aircraft, against Scud shelters at Tallil airfield at 0500L. Four hours later sixteen F-16s from the 363d TFW(P), part of a larger package from the same wing, hit a probable Scud engine plant at Fallujah and a rocket-engine plant at Shahiyat, both in the Baghdad area. At 0915L another large package of F-16s, this time from the 388th TFW(P), attacked south of Baghdad; thirty-two F-16s went after several SRBM production and support facilities in the Latifiya area. A second large package of F-16s from the 363d TFW(P), with SEAD support from USMC EA-6Bs, split off 16 F-16s to attack the Shahiyat rocket facility near Tallil airfield at 1645L. Then at 2000L, twenty-two F-15Es, with SEAD support, struck four SRBM launch complexes in the western launch basket: Wadi ar Ratqa and Wadi al Jabariyah both near the Syrian border and Wadi Amij and Qasr Amij both near H-2 airfield. In addition to those specific raids, ten A-10s sat ground alert at Al Jouf FOL from 0500L to 1700L to operate over the western Scud launch basket, if needed.⁴³ Counting support aircraft combat sorties, the planners had scheduled about 15 percent of the effort on January 20 against SRBMs.

39. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 14 Map "Iraqi Missile Capabilities." The most commonly used Iraqi Scud variant, the Al Husayn, had a 600-kilometer (475-mile) range with a 300-kilogram warhead.

40. *Ibid.*, p. 167. Also see Msg, 260052Z Jan 91, CENTAF/IN to et al., Subj: Intrep 91-148 "Scud Baskets Identified" [File No. T/CT/17/-].

41. Msg, 200800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #164 [File No. T/CT/66/-].

42. Msg, 210800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #165 [File No. T/CT/66/-].

43. MAP, Fourth 24 Hours, [1921] Jan 19, 1991 [T/HO/25/Master Attack Plan].

Weather and the Great Scud Hunt

The planners continued the effort to keep Israel out of the war in the early morning of fifth day of the air offensive, January 21. They rescheduled two packages of F-111Fs from air defense and SRBM targets in Kuwait and Tallil to send them to Scud sites near H-2 and H-3 airfields at 0530L. The aircraft involved included twenty-six F-111Fs, eight F-4Gs, six EF-111As, and sixteen F-15Cs. During the day, the ten A-10s at Al Jouf began flying armed reconnaissance of the western Scud launch basket, with each aircraft making three turnarounds a day. In their thirty sorties, the A-10s attacked launch locations provided by intelligence, LOCs, and SRBM concealment locations. How much the A-10s hurt the Scuds cannot realistically be determined, but they did shoot up just about everything else in the region. By the end of the conflict they had claimed 91 tanks, 32 armored personnel carriers, 306 vehicles, 40 AAA pieces, 92 radar antennas, 25 satellite dishes, 6 helicopters, and 5 diesel train engines destroyed, plus a like number damaged. They also claimed forty MELs/TELS destroyed—four more than in the entire Iraqi inventory.⁴⁴ In the afternoon at 1500L, two packages of USN aircraft from the decks of three carriers comprising 18 A-7s, 32 F/A-18s, 28 F-14s, and 4 EA-6Bs would strike SRBM support facilities at Latifiya and Ar Ramadi to the south and west of Baghdad. Ar Ramadi housed the home base, barracks, training facilities, and command center for one of Iraq's three SRBM brigades. It also contained a fiber-optic repeater station believed to play a part in Scud C³. For a half-hour beginning at 1610L at least four F-16s of the 138th TFS, an Air National Guard Unit from Syracuse, New York, and known as the Boys from Syracuse, flew armed reconnaissance looking for Scuds in northern Kuwait. The F-16's limited fuel capacity prevented it from flying armed reconnaissance or loitering over the more distant Scud launch baskets. H-2 and H-3 airfields would receive another pounding at approximately 1630L from forty F-16s, and that night eight GR-1s would revisit H-3 at 2045L. The 4th TFW(P), which would soon earn the nom de guerre Scudbusters, would send twenty-eight F-15Es to attack the Scud storage areas in the west near Qasr Amij, Wadi Amij, Wadi al Jabariyah, and Wadi ar Ratqa at 2115L. The F-15E's extended range, maneuverability, and PGM capability made it ideal for patrolling the western Scud launch basket. A little more than an hour later, the planners penciled-in twelve F-111Fs to bomb Scud storage at Ar Ramadi and Qubaysah, both to the west of Baghdad.⁴⁵ These 200 anti-Scud sorties represented approximately 20 percent of the daily total of combat sorties.

By the evening of January 21, CENTAF had begun to strengthen its intelligence-gathering efforts against the Scud. The organization needed to know exactly where to look quickly in order to locate and track the MELs/TELS and support vehicles. The JSTARS maintained an orbit over an area of northeastern

44. Memo, [Al Jouf/CC to 354 TFW/CC/DO/MA], Subj: A-10 Special Operations [and] Scud Hunting, plus attached "BDA Summary for 21 January-27 February 1991" [File No. T/CT/10/15].

45. MAP, Fifth 24 Hours, Jan 20, 1991 [File No. T/HO/25/Master Plan].

On Target

Saudi Arabia each night to watch for Iraqi ground movement in Kuwait and southern Iraq. Coalition ground forces placed a premium on this ability, which they regarded as nearly essential for their operations. Given warning, JSTARS could also locate Scud firing sites in Kuwait and southern Iraq. The need to dampen activity in the western Scud launch basket impinged even on these priorities. By January 21, if not earlier, the JSTARS aircraft had to interrupt its nightly orbit to fly west for a single pass to cover the SRBM areas within range of Israel.⁴⁶

The pattern held for January 22, as CENTAF again reported that the “primary emphasis was on Scud missiles.”⁴⁷ After three days of low clouds and fog, the weather cleared over most of Iraq north and west of Basra.⁴⁸ The day began with twelve F-15Es and twenty F-16 LANTIRNs on Scud alert. At 0500L the planners sent the USMC to hit SRBM shelters at Tallil with four A-6s, two F/A-18s, and fourteen assorted support aircraft. From 0545L through 0630L the MAP called for three packages of F-111Fs and F-15Es to fly south of Baghdad and raze the Kahn Al Mahawil barracks, the main training SRBM training facility and a SRBM brigade headquarters. However, bad weather led to cancellation before its twenty strike and six support aircraft could take off on their mission. In the morning starting at 0800L, the planners provided for strikes on SAM and Scud sites near H-2 airfield by twenty-four F-16s and sixteen support aircraft, and at H-3 airfield by twenty-four F-16s with forty-three Navy aircraft from the Red Sea carriers. The Scud sites near Al Jaber airfield in Kuwait would receive the attentions of eight F-16s and four other Coalition aircraft, with four F-4Gs supplying SEAD at 0900L. Harassment by the A-10s more than doubled for the day, as ten more Thunderbolt IIs began Scud hunting over the eastern and the Kuwaiti launch baskets. This time, both groups of Scud hunters had assistance from four OA-10s that flew two-hour forward air controller missions from 0700L to 1700L. Repeated F-16 strikes on the SAMs near H-2 and H-3 would help to protect the western Scud hunters.

A Red Sea carrier package of sixteen A-7s, with ten F-14 escorts, two EA-6Bs SEAD, and three other assisting aircraft, would work over Scud storage at Qasr Amij and Wadi Amij near H-2 airfield at 1500L. Three hours later, more naval aviation (sixteen F/A-18s and fifteen other subsidiary aircraft) from the Red Sea would fly close to the Syrian border to plaster Scud support facilities at Wadi ar Ratqa and Wadi al Jabariyah. Twenty-four USAF F-16s with sixteen

46. Point Paper, Maj. Greenwood, XOOTC, “JSTARS Contribution to Detection of Mobile SCUD Launchers,” Jan 18, 1991 [File No. CK/DS/Deptula/12-SCUD]; Msg, 222030Z Jan 91, USCENTAF/DO [Maj. Gen. John A. Corder] to USCINCCENT/CCJ2/CCJ3, Subj: Joint STARS Operations [File No. C/CT/11/3].

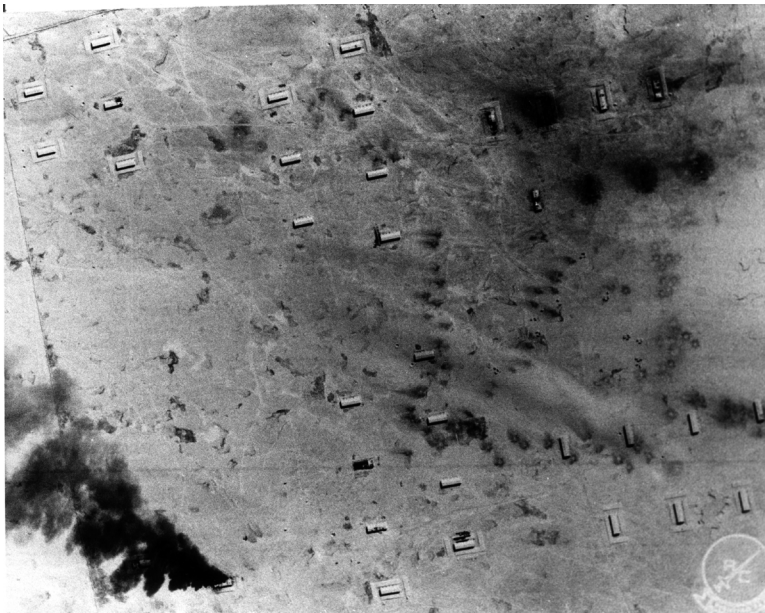
47. Msg, 230800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #167 [File No. T/CT/66/-].

48. Kenneth R. Walters, Sr., Maj. Kathleen M. Traxler, et al., *Gulf War Weather* (Scott AFB, Ill.: USAF Environmental Technical Applications Center, Mar 1992 [USAFETAC/TN—92/003]), sec. 3, pp. 16–18.

Weather and the Great Scud Hunt

SEAD and escort aircraft would attack SAMs and Scud sites near H-3 airfield at 1600L, and a half-hour later a force of the same composition would strike SAMs and Scud sites at H-2 airfield. At dusk, twelve F-16 LANTIRNs from the 388th TFW(P) took over the eastern Scud alert. On the night of January 22 beginning at 2000L, four B-52Gs attacked H-2 Scud facilities while eight IDS Tornados smashed H-3 airfield and Scuds. The planners even assigned one of SOCCENT's AC-130s to the hunt from 1900L to 2200L. At 2130L, eight F-15Es attacked fiber-optic stations at Jalibah and Ramadi (between H-2 and Baghdad). As the F-15Es rolled in, four B-52Gs and eight IDS Tornados with four F-15s escorts and four F-4Gs would attack H-3 airfield.⁴⁹

On the evening of January 22, General Schwarzkopf added a new wrinkle to the Scud hunt. Each evening he held a meeting with key members of his staff and the component commanders or their representatives. General Horner attended, usually accompanied by General Glosson. At these meetings General Schwarzkopf set the theater priorities for the coming twenty-four to forty-eight hours. On this night, he instructed General Glosson to begin scheduling anti-Scud airborne alert aircraft from 1800L to 0900L.⁵⁰ Both General Schwarzkopf and General



Iraqi Scud missile storage bunkers after a strike by A-7E Corsair aircraft

49. MAP, Fifth 24 Hours, 1514L Jan 21, 1991.

50. Personal Notes, Brig. Gen. Glosson, Dir Campaign Plans, "CINCCENT Daily Priorities" [File No. T/CT/58/Campaign Plans (Black Hole)].

On Target

Glosson understood that the Scud CAP would apply to the western launch basket immediately. Whether General Schwarzkopf came up with this idea on his own or had it suggested to him by someone (perhaps in Washington) is unknown. In any case, when General Glosson returned to the RSAF HQ building, he had the CINCCENT's orders written into the plans.⁵¹ Until that point it appears that CENTAF had judged the SAM threat in the area as too severe for a CAP, and General Schwarzkopf overrode this. On January 22 CENTAF conducted several large anti-SAM raids on the H-2 and H-3 airfield areas and may have judged that those raids had lowered the threat sufficiently to permit an airborne alert.

In the west, the airborne alert force consisted of twelve F-15Es in three four-aircraft flights, each consisting of two pairs of aircraft. The first flight sat on two-hour ground alert. The second flight stayed on thirty-minute ground alert. The last flight, instead of staying on thirty-minute alert, as the planners had provided, took to the air. Of the four F-15Es in the air, both pairs would patrol the vicinity of the launch basket (approximately 33°40'N, 41°00'E) and cycle back to tanker aircraft in a manner that guaranteed at least one pair on-station at all times. While on patrol, the aircraft would conduct SAR, LANTIRN, and visual reconnaissance of possible launch locations. They would attack with CBU-87s and GBU-10s as required, which indicated that one plane in every pair had the LANTIRN targeting pod. If intelligence could identify a target during the patrol, the aircraft would hit it immediately. If neither reconnaissance nor intelligence turned up a target by the end of the patrol, the aircraft would attack a preplanned, Scud-related target as it went off-station. Upon landing, the wing would generate the flight back to ground-alert status. Anytime airborne aircraft attacked a target or came off-station, aircraft from ground alert would replace them.⁵²

For the next five days, January 23-27, the Scud hunt continued at a high rate. On January 23 CENTAF alone expended almost 200 sorties, more than half against fixed sites, in its largest anti-Scud effort of the war. On January 27 CENTAF expended over 150 sorties. Over the same period, Saddam's rocketeers replied with eighteen SRBMs. During the first ten days of the conflict, they averaged nearly five launches a day. For the remainder of the war, they averaged one a day.⁵³ After January 27 the Scud hunt settled into a routine in which CENTAF spent between seventy to eighty sorties per day on the effort. Activity continued at that level until the beginning of the ground war. Scud hunting gained regular adherents as CENTAF assigned aircraft to specialized tasks. Four to six F-111Fs, armed with four GBU-24s each, systematically destroyed large road culverts used as daylight hiding places by Scud forces. Every night one cell of three

51. Air Guidance Letter, COMUSCENTAF, Subj: ATO Planning Guidance for D+6, page 4 of 9 "Operations Guidance," n.d. [22 Jan 1991] [File No. AF/CAFH Microfilm reel no. 10217].

52. Memo, [handwritten, no author], Subj: Scud Suppression Tactics and Procedures as of 272300Z Jan 91, n.d. [Jan 27, 1991] [File No. T/CT/10/15].

53. Coyne, *Airpower in the Gulf*, p. 57.

Weather and the Great Scud Hunt

B-52Gs would strike SRBM support and storage facilities in the launch basket or in the H-2 and H-3 areas. On most nights, the USN would also send four to six A-6s to hit SRBM launch locations, storage sites, and support facilities. On some nights the F-117As would attack the HASs at H-1, H-2, and H-3 airfield complexes. Intelligence suspected that the shelters might hold MELs and SRBMs. Over the eastern launch basket, twelve F-16 LANTIRNs took the role of the F-15Es, while JSTARS gave Coalition aircraft a clear look of the region, which had flatter topography than the western launch basket. CENTAF was further prepared to divert occasional B-52G strikes from the Republican Guard for intelligence and JSTARS Scud locations. On top of this fixed effort, the campaign planners would send three to five additional packages daily to take on more SRBM targets. During the day, pairs of A-10s from Al Jouf continued to rake over everything that moved within a fifty-mile radius of the center of the launch basket.⁵⁴

In the later part of the anti-Scud campaign, February 17th proved a representative day. The previous evening, the Iraqis had launched one SRBM toward Haifa and three toward southern Israel. Radio Baghdad claimed that the Iraqis had intended the three southern rockets for the Israelis' nuclear reactor at Dimona.⁵⁵ The planners responded to this by adding eighteen F-111Fs, with EF-111A jamming and F-4G support, on specific targets to the standard alerts of twenty A-10s at Al Jouf and twenty-four F-15Es on night air alert. Lt. Col. Steven L. Turner, commander of the 336th TFS, 4th TFW(P), who flew thirty-one missions during the conflict, described the routine of the Scudbusters. When the air portion of their alert came due, the F-15E four-ship flight, fully loaded with ordnance and light on fuel, would take off from Al Kharj, climb to 20,000 feet, and fly north for an hour and fifteen minutes until the Strike Eagles met a tanker. After downloading 20,000 pounds of fuel, "you'd go into Iraq and sort of play tag. The other guys would come out [and] you'd go in." Once in Iraq they would stay for one hour at medium altitude and attack using iron bombs or GBUs. Only a quarter of the aircraft had targeting pods. The mission lasted 4½ to 5 hours.⁵⁶

Clear weather aided the aircrews on the night of February 17 as the daytime clouds over Iraq departed by 1900L.⁵⁷ Within four or five hours, more clouds moved into the western Scud launch basket. From 1922L to 1950L, two F-15Es (Camaros 37 and 38) encountered no threats. They dropped twenty-four Mk-82s. On their first target they reported secondary explosions, which indicated their weapons hit targets containing fuel, explosives, or some other volatile material,

54. Memo, [handwritten, no author], Subj: Scud Suppression Tactics and Procedures as of 272300Z Jan 91, n.d. [Jan 27, 1991].

55. Msg, 230604Z Feb 91, Defense Special Missile Activity (DEFSMAC) to DEFSMAC/OSCAR TANGO White House, Subj: Mideast Conflict: Iraqi SRBM Launch Summary through 23 February 1991 [File No. T/CT/10/15].

56. Intvw, Lt. Col. Turner, Jul 9, 1991, p. 12.

57. Walters and Traxler, *Gulf War Weather*, sec. 3, pp. 72-73.

On Target

but they had no BDA to report. At the same time, Camaros 35 and 36 received coordinates from AWACS on a possible Scud site. Investigation revealed a complex near a road. Camaro 35 dropped three Mk-84s with one dud and two hits. Camaro 36's laser designator went on the fritz, and he dropped only iron bombs which he also carried on this mission. The flight proceeded to Wadi al Jabariyah. In all they dropped twelve bombs, produced no secondaries, and encountered no threats. At 2044L Chevys 65 and 66, each carrying eight GBU-12s, struck buildings, radar, troposcatter facilities, an ammunition dump, which produced spectacular secondaries, and "a large bermed area with a hot spot" that produced a massive secondary. They noted AAA from Al Taqqadum airfield. A functioning PGM capability obviously transformed the F-15E into a far more deadly bird. Between 2051L and 2123L, Firebirds 67 and 68 demonstrated what the aircraft could do without a working target pod. On their first drop, each put a GBU-12 on target at the Wadi Amij SRBM site; they then proceeded to drop fourteen GBU-12s on EW sites at H-1 airfield. They had never received prestrike imagery on the target and had no idea what to hit. Firebird 68's laser failed on the first bomb, so his wingman provided buddy-lasing for the remaining six bombs. Of the fourteen GBUs released, twelve hit short and one went wild because of laser failure. Nevertheless, they reported damaging buildings in the center of the complex, downing two possible microwave towers and hitting a possible building, a possible vehicle, and a possible bunker. Nine more two-ship flights trawled the area until 0500L February 18. Some dropped their ordnance, others attacked ammunition dumps, buildings, radar sites, and so forth. At 2345L Packard 41 may have actually flushed the quarry. He placed two Mk-84s on a fixed SRBM site at Wadi al Jabariyah, and secondaries that sent smoke as high as 6,000 feet rewarded his aim. His partner, Packard 42, put three GBU-12s on fixed SRBM sites No. 2 and No. 3 and received massive secondary explosions.⁵⁸

The anti-Scud campaign involved CENTAF in an attritional contest between one opponent having massive resources but limited time, against another having fixed resources and large amounts of time and space. In such a battle, results on a single day do not stand alone. Only when the struggle ends or has continued over an appreciable period can an analyst view the range of results and see points where trends emerge. The CENTAF effort on February 17 differed little from those the days of the anti-Scud campaign that preceded and followed it, with one exception. In late February, B-52Gs and F-15Es seeded large areas with mines to restrict Scud movements.⁵⁹ One fact does emerge: either from coincidence or

58. Msgs, 172145Z Feb 91, 4TFW/IN to CENTAF/IN, Subj: Misrep 336 TFS No. 312; MSN 3535E/Camaro 37-38; 172105Z Feb 91, 4TFW/IN to CENTAF/IN, Subj: Misrep 335 TFS No. 260; MSN 3535E/Camaro 35-36; 172250Z Feb 91, 4TFW/IN to CENTAF/IN, Subj: Misrep 335 TFS No. 261; MSN Scud Alert/Firebird 67-68; 180028Z Feb 91, 4TFW/IN to CENTAF/IN, Subj: Misrep 335 TFS No. 264; MSN 3565A/Chevy 65-66; and 172358Z Feb 91, 4TFW/IN to CENTAF/IN, Subj: Misrep 335 TFS No. 262; MSN Scud Alert/Packard 41-42 [File No. T/CT/10/15].

59. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1992, p. 28.

Weather and the Great Scud Hunt

as a direct result of the skill and persistence of U.S. pilots, the Iraqis in the western Scud launch basket would never again after February 17 launch more than two missiles in any single day.

Ironically, Scuds killed and wounded more Americans than any other single Iraqi weapons system. On February 25, the Iraqis fired one SRBM at Bahrain which a Patriot intercepted, and one at Dhahran which struck a temporary barracks full of American troops. This essentially random event killed twenty-eight U.S. soldiers, including three women, and wounded ninety-seven more. One lucky shot created 25 percent of the overall American total of dead and wounded for the entire campaign.⁶⁰ With improved accuracy and range, the SRBMs might have presented a significant military problem. In precrisis exercises, for instance, Americans, when playing as Iraqis, had used accurate SRBMs on CENTAF headquarters areas with most disruptive results. But it was the Scud's potential for political disruption rather than its military utility that brought the Coalition greater fear.

In the final analysis, the anti-SRBM campaign raises two important questions: How much Coalition effort did it consume? and What did it accomplish? CENTAF flew at least 2,500 anti-Scud sorties out of approximately 29,400 combat sorties.⁶¹ This equates to roughly 8 percent of all combat flights, or one of every 12.5 sorties flown. If the number of missions against fiber-optic targets and those against some Scud-related industrial facilities are added, then the Scud hunt would have consumed closer to 10 percent of all of CENTAF's wartime combat sorties. In the first twelve days of the conflict, the CENTAF anti-Scud effort probably required an even higher percentage of combat sorties—16 or 17 percent; in the latter three-quarters of the campaign, the effort fell to approximately 6 or 7 percent.⁶² These missions would also have consumed a proportionate amount of supporting sorties and services. However, during the first twelve days of the conflict, when General Horner added the 16 percent of his effort lost to Scuds to the 15 percent lost to weather, he had reason for concern. Such diversions would not prevent him from achieving his goals, but they might impose bothersome delays and possibly make it appear that air power had overpromised its capabilities to the ground forces.

The suppression of thirty-six or fewer MELs/TELS, the suppression of their large storage/logistical base, and the suppression of the impressive and costly investment in manufacturing and missile R&D that supported them consumed 10 percent of the effort of the USAF, and much of that went to what amounted to little more than flailing in the air. Half of the anti-Scud effort went toward fixed sites, culverts, and highway overpasses thought to conceal mobile Scuds. Thirty percent of the effort struck ballistic missile production and infrastructure, and only fifteen percent involved attacks on MELs. Another 1,000 Scud alert sorties

60. Hallion, *Storm Over Iraq*, p. 185.

61. Coyne, *Airpower in the Gulf*, pp. 56, 89.

62. *Ibid.*, p.57, Chart "Sorties Against Scuds."

On Target

attacked targets other than Scuds.⁶³ Did the resources devoted to the anti-SRBM effort prevent or delay Coalition air power from accomplishing a single one of its daily or overall goals? They did not. In no instance during the war did the Coalition have too few aircraft in the air or on the ground to meet any contingency. There may have been an occasion when a few more aircraft would have made things more comfortable, but no situation has come to light when members of the Coalition forces perished from the lack of available air power. Ten percent of the USAF's effort represented a nuisance factor to CENTAF. To the Coalition, the cost of the effort meant little as opposed to the consequences had Israel attacked Iraq. To prevent a political victory for Saddam, the United States would willingly have paid a far higher price.

Saddam's rocketeers stood to their weapons in an exemplary fashion and underwent grueling hardships to protect them from Coalition air power. They died hard. If their effort went only into the equation of what the anti-Scud campaign cost Iraq, then they served their nation well. However, from the Scud launch baskets to Baghdad and Kirkuk, there extended a bombed-out trail of smashed communications links, burnt vehicles, razed training facilities, destroyed factories, and ruined test facilities and laboratories. The regime of Saddam Hussein had expended a fortune in oil revenue to build an SRBM industry that had now suffered a serious setback. For the lack of a few dozen miles in range, Saddam lost his best chance to win the war. In another year or two, the SRBMs might have become an unmanageable problem.

It is tempting and probably reasonable to assume that CENTAF's anti-Scud campaign accomplished its overarching goal. It prevented the breakup of the Coalition and victory for Saddam. In a technical sense, the Scud hunters won their battle of attrition against their opponent. After the first ten days of the war, the daily SRBM launch rate declined by nearly 75 percent.⁶⁴ After that, although the Scud hunters could not stop the firings, they reduced them and spaced them farther apart. Immediate U.S. intelligence postwar assessments credited the anti-Scud effort with reducing Iraq's capacity to build and support SRBMs by 70 to 80 percent. Subsequent analysis has proved this estimate optimistic. Later postwar information has made it clear that many of the plants bombed contained no equipment, stocks, or documentation because the Iraqis had evacuated and dispersed their manufacturing capacity before hostilities began.⁶⁵ Also, the apparent causal relationship between increased bombing and reduced SRBM firings might be false. Logistical and maintenance problems, such as having to overhaul MELs/TELS after a set number of launches (which greatly stresses the vehicle) might induce a period of mandatory standdowns coinciding with the increase in

63. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 331–332.

64. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 165 Table "Dedicated Scud Sorties/Scuds Launched." The figures are 48 Scuds launched in the first 10 days (4.8 per day) versus 40 Scuds launched in the last 33 days (1.2 per day) for a 75-percent reduction in firings.

65. *Ibid.*, p. 156.

Weather and the Great Scud Hunt

CENTAF's effort. Still, until further study produces evidence to the contrary, the anti-Scud campaign seems to have disrupted a substantial portion of Iraq's capabilities. More importantly, the campaign suppressed the SRBMs when their suppression made the difference between the dissolution of the Coalition and its eventual success.

Chapter Eight

Continuing the Air Offensive Against Iraq

Although weather and SRBMs slowed the momentum of the strategic phase of the air offensive against Iraq, the Coalition air forces continued to strike telling blows on Iraq's vital targets. For the first ten days of the air assault, from January 17 to 26, 1991, the daily air effort devoted to strategic targets exceeded that devoted to preparing battlefield targets in the KTO.¹ On January 27, 1991, CENTAF proclaimed the achievement of air supremacy. On the same date, the number of Coalition air sorties expended in destroying or crippling the Iraqi ground forces and to supporting the Coalition ground force objectives first exceeded the number of sorties directed toward strategic targets in Iraq. For each of the remaining thirty-two days of the conflict, sorties in support of ground objectives outnumbered those expended in pursuit of strategic goals. By January 30, strategic sorties fell to a daily average of 250, including 60 to 80 per day for Scuds, while ground sorties steadily rose from 750 per day on January 30 to 1,250 per day by G-day, February 24, 1991, the day the ground offensive began.²

Strategic air planners like General Glosson and Colonel Deptula naturally believed the shift to Phase III, the preparation of the battlefield, had occurred too precipitately. In their opinion, a few more days of strategic bombing would have gravely weakened Iraq's ability to resist and would have more than compensated for the air power denied the Coalition troops confronting the enemy in Kuwait.³ The shift of air assets to the KTO proved inexorable. From January 27 onward, the strategic air offensive against Iraq changed from the broad systemic attack of the original Instant Thunder concept to a more traditional battle of attri-

1. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 101 Chart "Air Campaign—Sorties by Phase."

2. Ibid.

3. Intvw, Maj. Gen. Glosson, Dec 12, 1991; Intvw, Lt. Col. Deptula, Jan 8, 1992.

On Target

tion that concentrated on the bombing of defined target systems. After January 26, Phase I progressed at a reduced pace, but it still consumed 15 to 25 percent of the daily air effort. When the IZAF chose to preserve itself on the ground in its HASs rather than engage in one-sided battles against Coalition aircraft, the Allies responded by using PGMs against the shelters. This tactic forced the Iraqis to send their most effective combat aircraft to internment in Iran rather than have them destroyed in their hiding places. HASs became a regular part of the F-111F's and F-117A's diets as these aircraft became the mainstays of the air offensive over Iraq. This chapter will follow the changes of emphasis in the strategic air campaign in the period after the initial attacks. It will examine how the strategic campaign gained definitive air supremacy by breaking the back of the IZAF; how it aided the Coalition ground forces by attacking Iraqi LOCs between Baghdad and Kuwait; and how it maintained a steady effort to grind down Iraq's strategic target systems to deny that rogue state the means to persist in its aggressive behavior toward its neighbors.

On the third day of the Coalition air offensive, planners began to transition from their replanned attacks to a 72-hour planning cycle. This idealized planning schedule rapidly compressed in the face of reality to a 33-hour cycle, measured from the time of the MAP's completion until the first bomb was released on its MAP-assigned target.⁴ Approximately half of the missions that day flew strikes planned before the war; the other half flew strikes conceived under wartime conditions. The third day saw the lowest number of daily anti-Scud sorties of any day from the beginning of the air campaign until the start of the ground offensive. Like the first two days, day 3 directed its anti-Scud effort solely at fixed launch sites and the SRBM research, assembly, and support industry. From the fourth day onward, anti-Scud missions began to target the mobile SRBM TELs/MELs as well.⁵ In the early morning of January 19, weather canceled the first wave of F-117A attacks and delayed their missions until evening. At 0400L, 16 F-15Es accompanied by 2 EF-111As and 4 F-4Gs struck at the Rufah SRBM facility, the An Nasiriyah troposcatter facility, and the IOCs at Karbala and An Najaf, all to the south of Baghdad. To the south of this mission, F-16 LANTIRNs and F-15Es simultaneously struck the Republican Guard and other targets in the KTO. Starting at 0500L, 20 F-111Fs and 4 EF-111As hit targets to the west and north of Baghdad; the Ar Rutbah IOC; Tikrit South airfield; and the Qubaysah storage, ammunition, and Scud depot.⁶ The 363d TFW(P) sent 48 of its F-16s to targets just west of Baghdad at 0700L. Two EF 111As, 4 F-4Gs, and 16 F-15Cs accompanied them. Half of the aircraft worked over base facilities at Al Taqaddum airfield, and half went after CW production facilities at Habbaniyah. At 0715L CENTAF had intended to send the first aircraft other than F-117As to downtown Baghdad. Forty F-16s (of the 388th TFW[P]), 8 F-4Gs,

4. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 29.

5. Coyne, *Airpower in the Gulf*, p. 57, Chart "Sorties Against Scuds."

6. DIA, *Desert Storm BDA*, Vol. 3, pp. 118-119.

Continuing the Air Offensive Against Iraq

and 16 F-15Cs would strike large buildings in Baghdad. However, weather and the heavy AAA defenses of Baghdad, visible to the F-117As and on CNN, led the planners to cancel the mission. As one of the planners pointed out, SEAD worked on missiles, not on guns.⁷ Bad weather also persuaded CENTAF to divert the 401st TFW(P)'s originally scheduled bombing run of 16 F-16s and 8 F-15Cs flying escort in the Baghdad area from a strike on the capital to an attack on the Ar Rumaylah airfield.⁸

In the KTO, USN, USMC, and ground attack aircraft pounded the Republican Guard. The A-10s continued Wart Weaseling as well as standing pairs on CSAR support alert at King Kahlid Military City and King Fahd airfields. At 1200L, a Navy package of A-7s, F/A-18s, EA-6Bs, and F-14s from the Red Sea hit targets to the south of Baghdad—the Al Musayyib rocket test facility, the Al Iskandariyah arms plant (artillery shell production), and the Latifiya explosives and ammunition plant at Al Qa Qaa, the primary producer of propellants and explosives in Iraq and a site with munitions-loading capability, including Scud warheads.⁹ At 1500L CENTAF canceled another package of the 363d TFW(P) aimed at building complexes in downtown Baghdad. A half-hour later, unaided by the distraction that the canceled package over Baghdad could have provided, a package of 70 F-16s (each loaded with two 2,000-pound Mk-84 bombs), 12 F-15Cs, 2 EF-111As, and 8 F-4Gs of the 388th and 401st TFW(P)s bored in on the Baghdad nuclear research facility located at Tuwaitha, a suburb south of Baghdad.¹⁰ This complex, divided into quadrants by a large earthen berm, had three nuclear reactors: the Isis reactor, the Osirak reactor, and another built by the Soviets.¹¹ The facility had its own self-contained air defense district and was one of the most heavily defended targets in Iraq. Its protection included heavy AAA guns and SA-6s. The weather worsened as this package left its bases just north of the Iraqi border, and when it broke out of the weather, AAA fire disrupted its formation. About a quarter of the pilots could not relocate the formation and returned to base. The 388th TFW(P), which supplied about 75 percent of the F-16s, led the attack. The F-4Gs that assisted them expended all their HARMs during the course of the fighting. The weaponless F-4Gs and the F-15Cs, which had encountered no air opposition, departed, leaving the F-16s of the 401st TFW(P)'s 614th TFS with no air cover. As the 614th TFS approached their objective, AAA and SAMs subjected them to heavy fire, shooting down two air-

7. Intvw, Lt. Col. Eskridge, May 27, 1992. Colonel Eskridge served with the Special Planners from August 1990 to March 1991 and flew several F-117A combat missions.

8. MAP, Third 24 Hours, 2236 January 18, 1991, pp. 1-3; DIA, *Desert Storm BDA*, Vol. 3, pp. 164-165. For the diversion of the Taji raid, see DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 169.

9. DIA, *Desert Storm BDA*, Vol. 3, pp. 116-117, 140-141.

10. MAP, Third 24 Hours, Jan 18, 1991, p. 8; DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 126. The MAP lists fifty-six F-16s, but also shows another sixteen F-16s going to downtown Baghdad. The DoD source indicates 70 F-16s. I assume that CENTAF redirected the sorties from Baghdad to Tuwaitha.

11. DIA, *Desert Storm BDA*, Vol. 1, pp. 46-47.

On Target

craft and damaging two more.¹² The pilots of the two downed F-16Cs, Maj. Jeffery S. Tice and Capt. Harry M. Roberts, became the first two USAF prisoners of war in Iraqi hands. The Iraqis had administered an object lesson on the importance of combined tactics for air strikes.

From 1930L to 1945L, 2 EF-111As and 4 F-4Gs supported 11 B-52Gs, divided into cells. The B-52Gs carried 750-pound Mk-117R bombs and employed low-level tactics to strike targets in central and northern Iraq: the Batra missile production factory (one of Iraq's two Scud-B research, production, and assembly facilities, located a few miles west of Baghdad), and the Habbaniyah motor-case factory (the only Iraqi facility for building solid-fuel missile engine casings and located adjacent to Iraq's only artillery and gun-tube manufacturing plant).¹³ The two targets to the west of the capital fell within the SEAD zone established on the first night, covered large physical areas, possessed unhardened industrial buildings, and appeared to have light AAA defenses—a combination that made them good B-52 targets. Targeting the Tikrit ammunition dump, a lightly defended and extensive target, once again forcibly reminded the citizens of Saddam's hometown that the war did not exempt them.¹⁴ To the far west, at 2000L, Coalition aircraft hit H-3 and H-3 highway strip runways. The Red Sea carriers sent 4 F-14s and 2 EA-6Bs to further assist the package. To the south, the RAF sent 16 GR-1s with 4 F-15Cs escorting to attack with JP-233 munitions the runways at Tallil and Jalibah airfields.¹⁵

The first wave of the night's F-117As began their attempts to strike their targets at 2100L on January 19. As usual, they assailed targets in western and southern Iraq as well as those in Baghdad. To the west, an F-117A scored bull's-eyes on the Ar Rutbah IOC and the H-3 SOC. The aircraft attacking Baghdad had mixed results. However, one pilot put two GBU-10s on the Fallujah telecommunications center, another put a GBU-10 into the Baghdad synchronous communications satellite-radio relay terminal at Ad Dujayl, and a third pilot hit his secondary target the Al Kifl highway bridge.¹⁶

From 2200L to 2230L, USMC aircraft struck bridges in the An Nasiriyah area, and aircraft from the USS *Midway* hit bridges over the Euphrates in the Basra area. Aircraft from the Red Sea carriers attacked two targets: the Samarra CW research, production, and storage facility to the south of Tikrit, Iraq's only

12. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 126. This account says that the F-4Gs and the F-15Cs left the area but it does not account for the EF-111As. I assume that the EF-111As continued their electronic support. For BDA, see hand-prepared charts dated Jan 17 to Feb 28, 1991, in File No. T/CT/75/Battle Damage.

13. Worksheet, 17th Air Division, B-52 Mission, Jan 19, 1991; DIA, *Desert Storm BDA*, Vol. 3, pp. 154-155, 162-163. The B-52 mission worksheet has annotations moving some B-52 missions from low- to high-level attack tactics, but these missions were left unchanged. One must assume that the aircraft did as intended.

14. DIA, *Desert Storm BDA*, Vol. 1, pp. 50-51.

15. MAP, Third 24 Hours, Jan 18, 1991, p. 9.

16. *Ibid.*, p. 10; Contingency Historical Rpt, 37th TFW(P), Jan 19-20, 1991, p. 22, "Day Four Targets and Results/415 TFS/Wave 1"; Printout, F-117A Mission Results, Days 1-34.

Continuing the Air Offensive Against Iraq

identified CW-agent production facility and its only known CW-agent filling facility; and the Abu Rajesh petroleum products storage facility north of Tikrit, the second-largest military fuel storage facility identified in Iraq. It stored in three groups of buried POL storage tanks the operating and reserve fuel for the units located in the area.¹⁷ The attacking force consisted of 12 A-6 strike aircraft, 6 F-14 escorts, and 2 A-7, 4 F/A-18, and 2 EA-6B SEADs. Then, the 48th TFW(P)'s F-111Fs had their turn. To the west of Baghdad, starting at 2300L, 4 F-111Fs attempted to smash facilities at Habbaniyah airfield, while 8 Tornado IDSs tore up its runways and 4 F-4Gs and 2 EF-111As provided support. Forty minutes later, more F-111Fs attacked to the north and south of Baghdad. Two aircraft each hit the Taji BW facility and the Salman Pak CW and BW facilities. Four more F-111Fs attempted to finish off the Al Amarah IOC. At 2340L, 4 GR-1s with 4 GR-1 (ALARMS) assisting hit H-2 airfield.¹⁸

As usual, most of the stealth aircraft utilized their special capabilities to attack targets in the heavily defended Baghdad area. Rain 12 put two GBU-10s into the multistory Baghdad automatic telephone exchange, Jenoub postal, telegraph, and telephone (PTT) building. This and subsequent attacks rendered one of Baghdad's main telephone switching centers inoperable by February 1. Rain 11 made one of the war's most visible hits when it put two GBU-10s on the roof of the eleven-story Baghdad multipurpose exchange, Al Karakh PTT in west-central Baghdad. The building served as a major switching center for international traffic as well as one of the regional switches serving Baghdad. It had a distinctive, round, masonry radio-microwave relay tower with a beehive-shaped several-story-tall minaret that dominated it and the adjacent skyline. As CNN and imagery reported on January 20, the weapons severely damaged the building, dropping the tower, destroying the top three floors on the building's southern side, and damaging its lower floors.¹⁹ Ice 16 struck the Baghdad main signals intelligence station (the Iraqi-equivalent National Security Agency) with a GBU-10 and the North Taji military-related facility No. 2 with a GBU-27. A second pilot with the same targets misidentified the signals facility and dropped on the wrong target—an unidentified bridge. Two other aircraft each released a GBU-27 on the Abu Ghurayb national C³ bunker.²⁰

For the next three days of the air campaign, bad weather stalled over much of Kuwait and Iraq causing cancellation of 10 to 15 percent of the air effort, diversion of a substantial portion of the sorties to secondary targets, and lessened effectiveness of the raids that actually reached their primary targets. The increasing anti-Scud effort siphoned off more of the force. General Horner made the

17. DIA, *Desert Storm BDA*, Vol. 1, pp. 76-77 [Samarra], Vol. 3, pp. 6-7 [Abu Rajesh]. Postwar imagery revealed no apparent damage to Abu Rajesh.

18. MAP, Third 24 Hours, Jan 18, 1991, pp. 11-12.

19. DIA, *Desert Storm BDA*, Vol. 4, pp. 16-17, 40-41.

20. MAP, Third 24 Hours, Jan 18, 1991, p. 13; Printout, F-117A Mission Results, Days 1-34, p. 4.

On Target

anti-SRBM effort the prime objective of CENTAF for January 20, 21, and 22. For the rest of the force, the planned targets remained much the same. Early in the morning of January 20, twenty F-111Fs and support aircraft attacked the H-3 airfield and its associated CW bunkers. An hour later, at 0500L, fifteen F-117As struck air defenses, communications, and BW/CW sites in Kuwait and in Baghdad. The Baghdad TV transmitter, the Ministry of Defense, and the BW facility at Taji took two hits each. Simultaneously, twelve F-111Fs, some armed with CBU-89s, attacked BW bunkers south of Baghdad. The F-16s and F-15Es spent much of the day in the Scud hunt, bombing SRBM and military-support targets in central Iraq. That night, at 2300L, twenty F-111Fs and two cells of B-52Gs with F-15Cs and EF-111As supporting pummeled the Balad SE airfield. Three hours afterward, a late change of plan pulled twelve F-117As from the HASs at two Iraqi airfields, which the planners thought might conceal SRBMs, and sent them after BW targets and communications. This caused the 37th TFW(P) to completely change its bombloads.²¹

Day 5 of the air campaign (D+4) followed the pattern set the previous day. During the daytime, the bulk of the A-10s and OA-10s attacked Iraqi targets in the KTO while the remaining attackers flew Scud reconnaissance. The F-16s hit H-2 and H-3 airfields, the Republican Guard, and Iraqi LOCs in Kuwait and southern Iraq; stood Scud alert; and sent a package of 32 F-16s, with support, from the 363d TFW(P) against Habbaniyah chemical facility No. 1 and to Al Taqaddum airfield. B-52Gs struck the Republican Guard, targets in Mosul, and air defenses. Scud targets absorbed the attentions of the F-15Es and F-111Fs. Marines attacked Iraqi military targets and bridges in the south. The Persian Gulf carriers assisted the marines and attacked naval targets while the Red Sea carriers sent missions against SRBM production facilities to the south of Baghdad. Iraqi ground forces and LOCs felt the less than gentle ministrations of other Coalition aircraft.²² The F-117As shook off the bad weather that had spoiled their performances for the past few days and smashed targets near Baghdad and in the west. At roughly 2115L on January 21, eleven F-117As began their runs over targets in the Baghdad area. For the first time in the campaign, the 37th TFW(P)'s GBU-10s struck home at the nuclear complex in Tuwaitha: two weapons hit each of the four reactors. GBU-27s hit the ADOC and the VIP bomb shelter No. 25, while another GBU-10 tore into the Baghdad main signals sta-

21. Printout, F-117 Mission Results, Days 1-34, p. 5; Contingency Historical Rpt, 37th TFW(P), Jan 20-26, 1991, pp. 15-16; MAP, Fourth 24 Hours, 1700L Jan 19, 1991.

22. MAP, Fifth 24 Hours, 1600L Jan 20, 1991.

By this time the MAP corresponded little with the missions actually flown. Targets, times, and some force composition may have changed. Nonetheless, the MAP still accurately represented the intended priorities and objectives of the planners and the top leadership in CENTAF. When I have more definitive data on a mission, such as Misreps, printouts, or oral histories, I give that far more weight than the details provided in the MAP. However, the ATO and Misreps provide such a mass of detail, much of it unverifiable or indigestible to the uninitiated, that they have become too cumbersome for any but the most intensive and knowledgeable research.

Continuing the Air Offensive Against Iraq

tion and two more hit the Jenoub PTT telecommunications switching center. To the west, one GBU-10 hit the H-2 IOC and two struck the Bir Akirshah air warning site. Two aircraft aborted before reaching their targets. Postraid assessments showed damage to the Osirak reactor building, destruction of the Isis reactor core and housing, damage to a uranium storage facility, and significant destruction (a direct hit on the reactor housing) of the Soviet reactor.²³

A little less than nine hours later, the air raid sirens in Baghdad again sounded the call to shelter. Fourteen F-117As of the 416th TFS began to silently send American bombs gliding toward their objectives. Four GBU-10s crushed the nuclear reactor at Tuwaitha, a site for the production of the causative organism for anthrax. Four more hit two I-Hawk sites, while two landed on each of the following locations: Camp Taji (one of Saddam's recreational facilities), the new Presidential Palace Dome, Baghdad Security Forces HQ, the Taji suspected BW facility, and the Baghdad telecommunications center. Single bombs hit the Iraqi CIA and North Taji military-related facility No. 2. The wing counted as misses one bomb dropped on the Ministry of Defense and one on IZAF HQ because VTR mechanical or tape failures prevented validation of either release. Finally, four GBU-10s wrecked the Abu Ghurayb "Infant Formula" plant. The bombing of this ostensible infant formula plant supplied one of first examples of the international press's propensity during the war to take questionable or half-understood circumstances and inflate them to make exciting news copy. It had not produced any infant formula for an appreciable period. The Iraqis' had camouflaged the building with paint, hardly in keeping with its putative function. The bombing leveled two-thirds of the complex including the steam-generation plant and the storage tanks.²⁴ If the unvalidated bombs (no videotape recording) landed on their targets, every single bomb released on the mission hit its primary target. The 461th TFS might have done even better, but unfortunately it had to leave two aircraft behind because target information failed to arrive.²⁵

Coalition Air Supremacy and the Flight of the Iraqi Air Force

With one notable exception, Coalition air attacks on D+5 (January 22) followed the trend set the previous days. The A-10s, some F-16s, the B-52Gs, the USN, the USMC, and the Coalition partners concentrated on the Republican Guard and heavy Iraqi divisions in the KTO. The anti-SRBM campaign retained the overall highest priority, soaking up the A-10, F-16, and F-15E alert forces.

23. Info Memo, Capt. Richard C. Runchey, USAF, for INKS, Subj: Damage to Iraqi Nuclear Facilities, Jan 25, 1991 [File No. CK/DS/Hoyes/TGT]; Msg, 230737Z Jan 91, CIA to 15 AF, Subj: Middle East Brief OCPAS MEAB 91/019 for January 1991 [File No. T/HO/2/CIA].

24. DIA, *Desert Storm BDA*, Vol. 1, pp. 72-73.

25. Contingency Historical Rpt, 37th TFW(P), January 20-26, 1991, p. 10 [for information on canceling missions because of lack of intelligence], pp. 17-18 [for bombing results]. Also see Printout, F-117A Mission Results, Days 1-34, p. 6.

On Target

Additional F-16s hit SAM and Scud sites at the H-2 and H-3 airfields, while the USN hit Scud sites on the Syrian border. The planners sent the F-111Fs after bridges and BW/CW bunkers.²⁶ CENTAF departed from business as usual when it significantly changed tactics on the methods it employed to destroy the IZAF. Coalition air attacks on the Kari system, which disrupted Iraqi SAM and GCI control, and the refusal of the IZAF to commit its full interceptor strength to combat, after losing eight aircraft the first day, allowed Coalition air to operate freely in medium altitudes above 10,000 feet. Air planners had designed the early attacks to foil the SAMs, but they had not anticipated the weak response of the IZAF. After the night of January 18/19, the Iraqis ceased all night flying and CAPs.²⁷ Early USAF analysis of the initial air-to-air engagements highlighted the abysmal state of Iraqi interceptor pilot training.²⁸ Overall, the Iraqis averaged about thirty sorties per day during the first week.²⁹ The IZAF seemed to revert to a Maginot Line mentality of passive reliance on earth and concrete, as did much of the rest of the Iraqi military establishment.

The Iraqis placed their aircraft into 594 HASs apportioned throughout their air base structure. These hardened facilities fell into four distinct model types. The most common was the so-called Tab Vee. Its design met or exceeded NATO standards. Tab Vees have little internal storage; consequently, the Iraqis placed pyramid-shaped personnel bunkers for the air and ground crews nearby.³⁰ The IZAF also had “trapezoid” shelters. These had built-in annexes for munitions, ground support, and crew rest. Two small fighter aircraft, such as MiG-21s, could fit within.³¹ “Quick Turn” shelters, the oldest in the Iraqi inventory, could protect one aircraft. Iraq had sixty “Yugoslav” HASs, a Yugoslavian design built by Belgian contractors. It came in two variants—the single-bay drive-in and the single-bay drive-through. Within each shelter, the design provided annexes for munitions, tools, and personnel. In addition to the above-mentioned four types of HASs, at several airfields the Iraqis had hardened maintenance shelters, double bunkers connected by equipment annexes and usually built to the standard of the

26. MAP, Sixth 24 Hours, Jan 21, 1991, pp. 1-9 [File No. T/HO/25/Master Plan].

27. Msg, 020800Z Mar 91, USCENTAF/DO to USCINCENT/CCJ3, Subj: Nighttime CAP Requirements [File No. T/CT/84/DO]; Brfg Slide No. 1, “Notable IZAF Firsts and Lasts,” Mr. Steve Dunn, HQ TAC/INYT to HQ USAF/INKT, Iraqi Air Employment Summary, Apr 29, 1991 [File No. CK/DS/OVERV-April 91].

28. Msgs, 192142Z Jan 91, CENTAF/IN to et al., Subj: Intrep 91-098; AA-10/Alamo Employment [File No. T/CT/17/-], and 250900Z Jan 91, TAC IDHS Langley AFB/TAC-OPS/INO to AIG 663, Subj: TAC Special Assessment 008-91; Iraqi Air Force Employment—Week One [File No. T/CT/52/-].

29. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 128.

30. DIA, *Desert Storm BDA*, Vol. 2, pp 1-91.

Examination of photographs of bombed Iraqi airfields shows that on the majority of occasions pilots appear to have avoided the personnel shelters while smashing the HASs all around them. In several instances, however, personnel shelters received direct hits. No consistent policy seems evident.

31. Airfield Attack Plan, [Checkmate], n.d. [Jan 23, 1991], attachment 1 “Location and Vulnerability of Iraqi Aircraft Bunkers,” and attachment 2 “Bunker Descriptions.”

Continuing the Air Offensive Against Iraq

Warsaw Pact–style HAS



single-bay shelters at the base. These shelters could hold from four to six aircraft.³²

Its large HAS inventory conferred upon the IZAF virtual invulnerability against its anticipated foes—Saudi Arabia, Iran, and Israel—provided it stayed underground, not over it. The Iraqis assumed the shelters would also resist Coalition bombing. In this they erred. The PGMs of the USAF's F-15Es, F-111Fs, and F-117As and the RAF's Buccaneers (designating for Tornados) could pick out an HAS as easily as an IOC or a BW bunker, and once the bomb penetrated the outer skin of the HAS, the shelter's very structure would contain the resulting explosion, maximizing the damage to its contents.

For much of the first week of the conflict, Coalition air forces had attacked runways, taxiways, maintenance hangars, and control facilities at Iraqi air bases to hinder or curtail Iraqi air operations. Flying into the strength of the multiple Iraqi AAA batteries defending the bases, Coalition aircraft had dropped hundreds of tons of munitions that ranged from generic iron bombs through specialized UK-1000s, JP-233s, CBU-58s, CBU-87s, and CBU-89s, many equipped with time-delayed fuses. The Iraqis responded with picks, spades, and quick-drying cement (which cured in 25 to 60 minutes) and with fire hoses to explode the bomblets. Many Iraqi fields had dedicated concrete plants or engineering equipment, and all Iraqi fields had dedicated runway-repair capability.³³ Had the Iraqis possessed the desire to use their aircraft, the Coalition airfield-suppression effort would not have stopped them indefinitely. But the Coalition effort achieved its designated purpose: it halted a mass takeoff of the IZAF in the first crucial hours and days of the conflict, when such an action might have wrought havoc on Coalition air plans. However, airfield suppression, in the long run, may cost the attacker more than the defender. It can consume more sorties than the attacker can spare, and the economics of sophisticated aircraft and weapons versus manual labor seems a losing proposition.

32. Ibid.

The author has seen no detailed studies of Iraqi HASs and assumes that their construction conformed to designed specifications. However, one cannot completely discount widespread cheating in HAS construction, a distinct possibility in the Middle East. This might invalidate conclusions drawn as to the effectiveness of the PGM attacks on these targets.

33. Point Paper, Lt. Col. Dan Kuehl, XOOWD, "Iraqi Runway Repair Capability," Jan 22, 199 [File No. CK/DS/HOYES/Misc].

On Target

The growing expense of the airfield campaign and the IZAF's intention to conserve its strength and fight on its own terms became obvious on both sides of the Atlantic. On January 21 Checkmate had phoned the strategic planning cell to urge it to begin a shelter-busting program. Checkmate followed two days later with a fax of a more polished three-day plan.³⁴ However, by that time the campaign planners had already begun to implement a shelter-attack plan which they had assembled at General Glosson's direction in October 1990.³⁵ By the night of January 21, the Iraqi planning cell decided to switch tactics against the IZAF and its fields. For the past few days, CENTAF had instructed aircraft to strike HASs as alternates if they could not attack primary targets; now the planning cell drastically reduced its attacks on airfield infrastructure and ordered aircraft to target HASs as first priority.³⁶ If the IZAF would not come up and fight, let it die in its holes.

At sunset on January 22, fourteen F117As of the 415th TFS departed Khamis Mushait for central Iraq. The planners had originally scheduled them for communications, NBC, and leadership targets in the Baghdad area,³⁷ but sometime in the previous twenty-four hours the F-117As received a new target: Yugoslav HASs at Balad SE airfield, roughly 45 miles north of Baghdad. This raid began the Coalition's shelter-busting campaign. Thirteen of the stealth fighters reached the target, and their GBU-10s struck home.³⁸ The AWACS and its F-15C escorts participated in this mission. At 2130L the AWACS pushed its F-15C CAP north of the border (receiving a new CAP, the F-15s scrambled to replace the ones ordered north) to engage twenty aircraft fleeing Balad SE. A tanker refueled the F-15Cs north of the Iraqi border. Before the end of the conflict, the tankers established tanker refueling tracks over Iraqi territory.³⁹ Unfor-

34. Brlg Slide, [Checkmate], "'Shelter Busting' Forces Iraqi Exodus to Iran." n.d. [Feb 1991] [File No. CK/DS/Air Superiority]; Airfield Attack Plan, [Checkmate], fax notation, 1200Z 23 January 1991 [File No. CK/DS/Hoyes/Misc].

35. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 29.

36. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 128.

37. MAP, Sixth 24 Hours, 1500Z Jan 21, 1991, p. 5 [File No. TAC/HO/25/Master Plan].

38. Contingency Historical Rpt, 37th TFW(P), Jan 20-26, 1991, p. 19 [File No. T/UH]; DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 128.

The Contingency Historical Report makes no mention of a weather divert or last-minute changes in orders. This would seem to confirm that the raid intended to hit the airfield from its inception. The DoD source speaks of the F-117A raid on Balad SE as part of the shelter campaign.

39. Chronology, 17th Air Division (Provisional)/STRATFOR Operation Desert Storm, Jan 17-Mar 17, 1991, Entry for Jan 22, 1991 [File No. T/CT/84/Hosterman Chron]. Also see supporting document No. 30 for this chronology, a map carrying General Horner's personal annotations that describe this mission. Also see Historian's STRATFOR/17ADP Staff Meeting Notes, Operation Desert Storm [File No. SAC/HO/Historian's Working Files]. The entry for January 22 states that the first tanker to go into Iraq did so to refuel an AWACS and its four-ship F-15C CAP involved in a CSAR mission for a Navy pilot (Lt. Devon Jones?), which would place tankers over Iraq on January 21. In the same document, see the entry for the January 29th Staff Meeting in which General Caruana reported that F-117A refueling tracks had taken tankers as far north as 32° to 30° north latitude "into Iraq and halfway to Baghdad!"

Continuing the Air Offensive Against Iraq

Three KC-10 tanker aircraft.



tunately, the effort achieved no kills, a result Colonel Deptula attributed to “bungled weaponeering on the part of CENTAF intell.” Until this mission, campaign planners had entrusted the weaponeering, or selection of weapons, for the F-117As to the CENTAF/IN community. Colonel Deptula had naturally assumed that intelligence would select 2,000-pound case-hardened GBU-27 penetrating weapons; instead, it selected non-penetrating 2,000-pound GBU-10s. The shelters remained intact; the aircraft did not flee. From that mission until the end of the war, Deptula personally weaponeered the F-117As, breaking another professional link with CENTAF/IN.⁴⁰ At 2000L, B-52Gs would pound the H-2 and H-3 airfields and Scud facilities. Two hours later, at 2200L, planners sent twenty F-111Fs to attack Al Asad airfield. Twenty more Aardvarks would repeat the raid the next night. In addition to its twelve Yugoslav shelters and six Tab Vee shelters, Al Asad had twenty concrete hangars recessed into hills, each able to hold up to half a squadron’s aircraft. The recessed hangars did not have protective doors. Eight F-111Fs carrying four GBUs apiece would bomb the shelters, while twelve F-111Fs struck the base runways and facilities.⁴¹

Although by D+6 (January 23) General Horner had informed Washington that “we have established air superiority over Iraq and can fly throughout [the] country with relative impunity,”⁴² the shelter-busting campaign continued. For both January 23 and 24, it had a priority second only to Scuds.⁴³ The planners scheduled the F-111Fs for the bulk of the work because the airfields did not have defenses on the scale of the Baghdad region and the F-111Fs could carry twice as many precision weapons as the F-117As could. On the night of January 23/24, planners instructed the 48th TFW(P) to send 20 F-111Fs to the H-2 airfield (24

40. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 30.

41. MAP, Sixth 24 Hours, 1500Z Jan 21, 1991, p. 6.

42. Msg, 230800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #167 [File No. T/CT/66/-].

43. Msgs, 240800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #168 [File No. AFHSO microfilm reel 10160], and 250800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #169. [File No. T/CT/66/-]

On Target



Destroyed Tab Vee HAS

Tab Vee HASs); they followed that mission by assigning 20 F-111Fs to the H-3 airfield (15 Tab Vee, 5 Trapezoid, and 12 Quick Turn HASs) and 12 more to Al Taqaddum (10 Tab Vee, 13 Trapezoid, and 13 Quick Turn HASs) the next day. (These raids might cripple Iraq's capability of launching a fighter attack on Israel.) The next night, January 24/25, the planners hit the southern airfields sending 20 F-111Fs to Jalibah SE (24 Tab Vee HASs) on the Kuwaiti border and 10 more Aardvarks to Shaibah airfield (14 Trapezoid HASs) near Basra. Eight and 12 F-111Fs, penciled in by the planners for the bombing of Wadi al Khirr dispersal field (12 Tab Vee HASs) and Al Asad airfield, respectively, would hit their targets in the nighttime hours of January 25. The assault continued into the night of January 25/26 as the planners assigned 20 F-111Fs to Tallil airfield and repeated the raid with 16 F-111Fs on the evening of January 26.⁴⁴

The F-117As assisted. After two nights in which weather frustrated efforts to take down road and rail bridges over various wadis and the Euphrates River between Baghdad and Basra, early in the morning of January 25 the 37th TFW(P) attacked Al Asad airfield and Kirkuk (14 Tab Vee and 10 Quick Turn HASs) and Qayyarah (36 Tab Vee HASs) airfields in the far north. Of 25 weapons released, 9 GBU-27s hit Al Asad, 6 hit Kirkuk, and 5 smashed into Qayyarah. A mission so far to the north involved bringing the supporting tankers and their escorts into southern Iraq. That same morning out to the west, a raid of 10 F-117As on the HASs at H-2 and H-3 airfields was unsuccessful. A repeat raid the next day produced only marginally improved results. Eight more F-

44. List, compiled by CENTAF, Directorate of Campaign Plans, GAT Division, Iraqi Planning Cell, "Targets Attacked by Day by Aircraft," Jan 25-Mar 6, 1991, pp. 1-3 "Attacks on Airfields as of 1/25/91" [File No. AFHSO microfilm reel 10264, starting frame 1104].

Colonel Deptula created this document in August 1990. It reflects missions planned or "fraggged" and not missions executed. He designed it as a planning aid to track what he had targeted and the level of effort to be applied to individual targets. This document was assembled in the planning cycle later than the MAP was. The authors of the MAP completed their work in the evening, but the compilers of this document did not begin their work until the following morning. Thus the document reflects any changes made by the Campaign Planning officers in the early morning hours. Because of the difficulty in determining mission execution, the author uses this document to indicate more the intent of CENTAF planners than the exact execution by the units involved.

Continuing the Air Offensive Against Iraq

117As of the 416th TFS attacked H-2 and H-3 in the succeeding wave on the morning of January 26. They had hits with 8 of the GBU-27s they dropped. On the night of January 26/27, the F-117As returned to the far north. Attacks on the Kirkuk and Mosul airfields achieved 5 hits. One of the bombs impacted directly on a MiG-23 at Mosul. A second wave of F-117As also struck northern targets including Al Sahra, Kirkuk, Qayyarah, Muhammad, and Al Asad airfields. The wing had designated Al Asad as the alternate for any aircraft unable to find its targets in the north.⁴⁵ On January 27, 1991, CENTAF proclaimed that it had “achieved air supremacy.”⁴⁶ By the end of the conflict, Coalition air forces had destroyed or severely damaged over 60 percent of the IZAF’s 594 HASSs.⁴⁷ The RAF made a substantial contribution to the campaign, expending 28 percent of its entire PGM effort on HASSs.⁴⁸ This 96-hour effort achieved much of that damage.

For three days the IZAF withstood the bombardment. On the third day, January 25, a day of excellent flying weather, the IZAF failed to mount a single fighter sortie.⁴⁹ During those days, the Iraqi leadership had time to evaluate the new Coalition tactic and to formulate and disseminate an answer. Raids to the west, north, and south had shown that the Coalition could reach and destroy HASSs in every corner of Iraq. The initial days of air combat had demonstrated that the IZAF could not survive against Coalition aircraft and pilots. For the IZAF, staying in its shelters meant slow but sure destruction. Confrontation also meant sure destruction. Only flight remained. Before the antishelter campaign began, Iraq had set in motion plans to provide an option for escape. The Iraqis followed their pattern of the Iran-Iraq War when they dispersed their planes throughout other Persian Gulf nations to avoid Iranian air counterattacks. Events forced the Iraqis to attempt to repeat this process for Desert Storm.

By January 21 the Iraqis had sent at least twenty-five aircraft to Iran. Among them were a Soviet-built Il-76 military transport, a Boeing 727 intelligence platform, and two Iraqi airborne early warning platforms, Adnan 1 and Baghdad 1. The Iraqi civilian aircraft sent included airliners looted from Kuwait. The Iranians made no objection to their neighbor’s actions and attempted to disperse the aircraft to less conspicuous military airfields. Beginning on January 26, 1991, Iraqi combat aircraft began to leave their bunkers to flee to Iran. More than twenty-five left the first day; during the next three days more retired to the sanctuary of their hereditary foe. By January 28 a total of 82 Iraqi fighters—including top-of-the-line aircraft such as 31 F-1s, 8 MiG-29s, and 16 Su-24s—sat on Iranian

45. Contingency Historical Rpt, 37th TFW(P), Jan 20–26, 1991, pp. 24–30.

46. Msg, 280800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #171.

47. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 154.

48. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 101.

49. Msg, 260713Z Jan 91, DIA Washington to DIACURINTEL, Subj: Iraq-Kuwait: Situation Update [File No. T/HO/3/DIA-Jan].

On Target

airfields.⁵⁰ By February 10 at least forty-seven additional fixed-wing combat aircraft had joined them.⁵¹

The bug-out of the IZAF at first puzzled the Coalition. Initially, some suspected the movement represented defections resulting from a failed air force attempt to overthrow Saddam, as unconfirmed rumors of executions of high-ranking officers circulated in the news media. Alternatively, the exodus to Iran might represent an attempt to stage an Iraqi air strike from an Iranian safe haven, a possibility that concerned the carrier admirals in the Persian Gulf. In western Iran, mountains would conceal aircraft approaching the Gulf almost to the water's edge. Consequently, Exocet-capable F-1s might be able to launch an attack that would give the carriers only minimal warning. Although Coalition intelligence did not know the maintenance status or armament of the refugee Iraqi aircraft, it seemed unlikely that the Iranians would allow an attack from their territory. As the war progressed, the potential for Iraq and Iran to become allies lessened, for the Iranians had little desire to expose themselves to the same degree of punishment as that meted out to their neighbor. For public consumption, the highest levels of Iranian leadership had firmly stated their intention to remain neutral, bringing them into opposition with fundamentalist elements that wished to protect the Iraqi Shia shrines and others who feared excessive U.S. influence in the region. On January 25, President Rafsanjani called those who wished to side with Saddam "simple-minded illiterate youngsters." Supreme Leader Ayatollah Khomeini decreed that Saddam's cause was not an Islamic cause and condemned him for oppressing his nation and leading it into the "burning furnace" to sate his personal ambition.⁵² It seemed most probable to American intelligence that Saddam had sent his best aircraft across the border to preserve them with the hope of retrieving them after the conflict.⁵³

CENTAF responded to the Iraqi démarche by positioning barrier CAPs of F-15s and, somewhat later, of F-14s to halt flights between Iraq and Iran. This stopped all movement for several days, leading the Coalition to reduce the CAPs. The Iraqis used the opportunity of fewer CAPs to push forty more combat aircraft across the Iranian border on February 6 and 7. CENTAF promptly restored

50. Msgs, 290212Z Jan 91, DIA Washington to DIACURINTEL, Subj: Iranian Support to Iraq [File No. T/HO/3/DIA-Jan], and 302107Z Jan 91, DIA Washington to DIACURINTEL, Subj: Iraq-Kuwait: Situation Update, Date of Information: (0930 EST) January 30, 1991 [File No. T/HO/3/DIA-Jan].

51. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 154.

52. Item of Interest, Lt. Col. William E. Stevens, USAF, Chief, Middle East/Africa/South Asia Div, Dep Directorate for Regional Plans & Policy, Directorate of Plans, DCS/P&O, HQ USAF, Subj: Iran's Neutrality, n.d. [January 30, 1991]. [File No. CK/AS/Iran]

53. Msg, 290212Z Jan 91, DIA Washington to DIACURINTEL, Subj: Iranian Support to Iraq [File No. T/HO/3/DIA-Jan]; Working Paper, Red Team (AF/XOXWP), Subj: Update on Iranian Scenario ("Dramatic Strike" 23 Jan 91), Jan 26, 1991 [File No. CK/DS/IZ-Offensive Capability].

Continuing the Air Offensive Against Iraq

the barrier CAPs at full strength, virtually shutting down Iraqi flights to Iran for the remainder of the conflict.⁵⁴

The out-of-country skedaddle of the IZAF's best had several repercussions. Although the Iraqis had virtually conceded air supremacy to the Coalition with their unaggressive employment of their assets and their low flight rates, more than 95 percent of their air force survived into late January. The continued existence of the force allowed it to pose a constant threat to the Coalition in the worst case of either a single-shot do-or-die action with BW/CW weapons at a location and time of the Iraqis' own choosing, or damaging hit-and-run raids in circumstances favorable to themselves. The rout of 15 percent of the total force to Iran had an even more deleterious effect on the striking power of the IZAF than raw numbers suggest. Almost 40 percent of the IZAF's newest and most modern aircraft (F-1s, Su-24s, and MiG-29s) now sat on Iranian military fields. In fighting power, the IZAF had lost perhaps 25 to 30 percent of its punch. Many of the aircraft remaining in Iraq, such as the MiG-21s, had short ranges that hampered their ability to conduct offensive operations. Once the barrier CAPs shut off their escape routes and the anti-HAS campaign demonstrated the false security of their concrete sanctuaries, the IZAF undertook a program of thorough dispersal. The program took advantage of the known Coalition predilections to avoid collateral damage to civilians and antiquities by smuggling fighters up to ancient ziggurats and parking combat aircraft in residential neighborhoods.⁵⁵ Dispersal preserved the assets at the cost of maintenance and reaction time.⁵⁶ Aircraft sent far from their bases would deteriorate and require time to be towed back. This increased the warning time available to the Coalition prior to any Iraqi air offensive, and in practice it removed much of threat posed by the IZAF.

In the long run, the Iranians gained the most from the Iraqi internments. Had the Iraqis won some form of victory or bloody stalemate, then the Iranians could have returned the aircraft and taken advantage of previously negotiated concessions or earn Saddam's goodwill (for what that was worth). If the Iraqis lost badly, then the Iranians could keep more than \$1 billion worth of modern aircraft, while subtracting more than 100 fixed-wing combat aircraft from the ranks of their archenemy and adding them to their own stocks. The Iranians kept the planes. Furthermore, they undoubtedly calculated that the states of the former Soviet Union would happily sign maintenance and training contracts on the aircraft in exchange for hard currency. The presence of the Iraqis' jets and the Iranians' potential either to restrain or to aid the Iraqis may have prompted the United States to take a less provocative stance toward Iran.

54. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 129; Talking Paper, Maj. Michael B. Hoyes, XOXW, "Allied Shelter Busting vs. Iraqi Aircraft Exodus to Iran," Feb 7, 1991 [File No. CK/DS/Air Superiority].

55. Msg, 140605Z Feb 91, SSO DIA to DIXOS et al., Subj: DIA Commonwealth Intsum—Middle East/Africa 168-91/14 Feb 91: Iraq-Kuwait Situation Update [File No. T/CT/59/-]

56. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 154.

On Target

Grinding Down the Iraqi Target Base

When the number of daily Coalition air sorties devoted to the KTO and to supporting the ground forces surpassed those expended on targets in Iraq, the nature of the strategic air campaign changed. The initial strategic attacks had disrupted the easily available and highly leveraged target sets like oil, electricity, and Iraq's Kari system. The remaining targets—the R&D and manufacturing of SRBMs, NBC matériel, and military support items—presented large, diffuse categories that could absorb vast quantities of bombing and still retain a considerable percentage of their assets intact. Other target sets such as bridges and communications systems, particularly the fiber-optic network, offered technically difficult and resilient targets. Yet demands of the anti-Scud and ground campaign diminished the sizable strategic force that initiated the offensive air campaign. First the Saudi-based F-16s and B-52Gs joined the A-10s and AV-8Bs and the Allied air forces in the tactical effort in the KTO. After January 29 and through the end of the conflict, the planners scheduled virtually no strategic missions for Saudi-based F-16s.⁵⁷ The strategic campaign could now call on approximately 100 PGM-capable F-117As, F-111Fs, and F-15Es; the RAF (which added more PGM capability); Red Sea carrier aircraft (some with PGM capability); F-16 LANTIRNs and A-10s committed to Scud alert; and the 96 combat aircraft of JTF Proven Force, none of which at that time possessed PGM capability. All these aircraft, except the F-117As, would require tanker, jamming, and SEAD support. In addition, Scud hunting and tank plinking, in which PGM-capable F-15Es and F-111Fs used 500-pound GBU-12 laser-guided bombs to pick off Iraqi armor at night, siphoned off additional PGM aircraft. After January 28, few F-15Es, other than those assigned to the Great Scud Hunt, flew in the strategic campaign. By February 5, the 48th TFW(P) averaged only a third at most of its total sorties against targets on the strategic master target list.⁵⁸ Finally, in mid-February the USN moved one of its three Red Sea-based carriers, the USS *America*, to the Persian Gulf, where it could assist in the upcoming ground offensive, a further subtraction from the strategic cam-

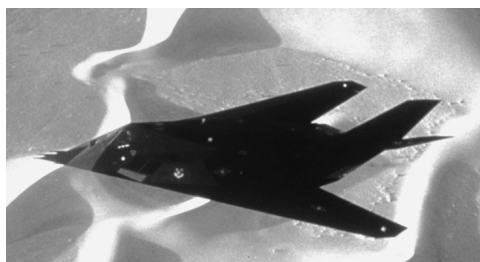
57. See List, compiled by CENTAF, Directorate of Campaign Plans, GAT Division, Iraqi Planning Cell, "Targets Attacked by Day by Aircraft," Jan 25–Mar 6, 1991 [File No. AFHSO microfilm reel no. 10264, starting frame 1104].

This document is a compilation of all missions scheduled in the initial MAPs during the conflict. It does not reflect mission changes, the missions as finally published in the ATO, or the missions as executed by the units. Nonetheless, the document clearly shows the targeting intentions of the strategic planners and CENTAF leadership. The author of this volume has found the above document 75- to 85-percent accurate for individual missions flown as scheduled and definitive in tracking targeting and aircraft usage trends. When possible, the author has verified individual missions against unit histories and other documentation. The immense task of verifying the 112,000 Coalition air sorties and 65,000 CENTAF sorties is outside the scope of this work and will, in all probability, never be definitively prepared. See footnote 44 on page 258 for additional comments on this subject.

58. *Ibid.*; Master Target List, CENTAF, Directorate of Campaign Plans, GAT Division, Iraqi Planning Cell, Mar 1, 1991 [File No. AF/CAFH microfilm reel 10264].

Continuing the Air Offensive Against Iraq

F-117A



paign. To partially offset this loss of aircraft, CENTAF directed the 37th TFW(P) to begin flying three missions instead of two every evening, which the wing commenced to do on January 25.⁵⁹ On January 26, six F-117As from the continental United States reinforced the wing, enabling it to maintain the increased operating pace.⁶⁰ However, not even the F-117As could entirely avoid missions in the KTO, where certain key targets required their extreme accuracy. For the remaining thirty-two days of the conflict, the strategic campaign averaged approximately 250 missions daily, one-third of them with PGM-capable aircraft.

Once again, the F-117A's stealth characteristics and uncannily accurate bombing allowed it to become the mainstay of the air offensive against Iraq. Only the F-117A could strike targets in downtown Baghdad, and it could strike with a minimum of effort from other CENTAF elements, freeing them to support conventional aircraft. Further, the F-117A's bombing accuracy gave it the relative effectiveness of a much larger number of conventional aircraft. The accuracy of the 37th TFW(P)'s F-117As enabled the wing to deliver *on target* more ordnance than any three or four non-PGM-capable air force wings combined. The luxury of air supremacy or superiority allowed air-to-air refueling, even over the enemy's homeland. It greatly extended the F-117A's operational range. Nonetheless, accuracy, freedom of the air, and the effort of the other non-PGM aircraft enabled the strategic campaign to maintain the pressure on Iraq.

From January 27 through February 5, Coalition air forces struck numerous targets throughout Iraq. B-52Gs and several large formations of F-111Fs and F-117As continued the HAS-busting campaign. On the evening January 27, the planners sent 12 F-111Fs to strike Al Jarrah airfield and 20 F-111Fs to savage Jalibah airfield. The next evening they sent 20 F-111Fs to Tallil and 13 F-117As to the H-2 airfield to follow up a morning raid composed of 16 F-111Fs. January 29 saw 26 F-111F sent to Al Taqaddum, and on February 2 and 3, squadron-sized formations of F-111Fs and F-117As supplemented the daily raids by other Coalition aircraft on H-3. In this period, planners penciled in five squadron-sized

59. For a description of operations that began on the night of January 24/25, 1991, see Contingency Historical Rpt, 37th TFW(P), Jan 20-26, 1991, p. 23.

60. Msg, 250800Z Jan 91, COMUSCENTAF to AIG 9671, Subj: Sitrep #169 [File No. T/CT/66/-].

On Target

F-117A raids on Balad SE and its tough Yugoslav shelters. This time the aircraft carried GBU-27s. Three large F-111F missions also went to hit the two Kuwaiti airfields, Al Jaber and Ali Al Salem. The planners intended other squadron-sized F-111F raids to hit Al Asad, Shayka Mazhar, and Qalat Salih airfields, this to maintain unrelenting pressure on the IZAF's main operating bases and HASs. The strategic campaign also invested great effort in NBC and communications targets. In many instances, CENTAF sent paired or single F-117As to pick off targets like the CW bunkers at Tallil, Al Jarrah, and Al Taqaddum airfields. On February 3, one F-117A went to the far north to attack a CW bunker at Qayyarah West airfield that had eluded strikes by JTF Proven Force. On separate evenings, one sixteen-ship and two four-ship F-111F formations attempted to hit CW bunkers at H-3, as did a mission of six F-117As. Other small F-117A missions went after probable CW production sites at Habbaniyah. Four larger F-117A raids (consisting of four or five aircraft each) and a twenty-aircraft F-111F mission struck the Tuwaitha nuclear complex; two squadron-sized F-111F missions went after the Latifiya solid-fuel propellant plant. Five large and small F-117A missions struck Salman Pak, while six small F-117A missions bombed the Abu Ghurayb suspected BW facility near Baghdad. B-52Gs from Moron bombed the Al Qaim phosphate plant on February 5th.⁶¹

Although many of these raids comprised one or two aircraft, most consisted of larger formations. This demonstrated the planners' increasing emphasis on destruction of the target. PGMs enhanced the effect of this option as well. Unlike previous wars, no longer did dozens of aircraft attack with the hope of landing six or seven bombs within the factory's fences. Four or five F-117As or even fewer F-111Fs could attack with a different aiming point for each weapon and expect to destroy the six to eight key pieces of machinery or the particular part of the plant's construction most valuable to the facility. Twenty F-111Fs sent to Tuwaitha could mean up to eighty different aiming points or multiple GBUs on the same hardened or sensitive point. Repeated smaller raids could produce the same effect.

C³ targets seemed just as susceptible to sharpshooting as to brute force. Only twice between January 27 and February 5 did the planners schedule more than two PGM aircraft to attack a C³ target. They sent four F-111Fs to Ad Dujayl communications satellite terminal to reduce Saddam's contact with the outside world and six F-117As to the Basra radio transmitter-receiver to hinder communications between Basra and Baghdad. On most attacks, a single F-117A composed the attacking force. Single F-117As on different nights repeatedly attacked TV transmitters at Baghdad, Al Kut, Al Amarah, As Samawah, Basra, Umm Qasr, Az Zubayr, Al Ahmadi, Ar Rawdatyn, and Al Jahrah. Other F-117As hit radio transmitters and radio relays. With these missions, CENTAF

61. "Targets Attacked by Day by Aircraft," Printout, Feb 4, 1991: Eleventh through Twentieth 24 Hours.

Continuing the Air Offensive Against Iraq

hoped to redeem its promise to separate Saddam from the people. Further attacks attempted to smash telephone exchanges in the lesser Iraqi cities. F-117As struck exchanges in Al Kut, An Nasiriyah, and Ash Shuaybah. F-117As also attacked signals intelligence facilities in the KTO and Baghdad. For the last time in the conflict the planners purposely struck at the Iraqi electrical system; small raids went after nine lesser generating plants, including two missions by JTF Proven Force against the Mosul and Dibs plants.⁶²

Missions against leadership targets conducted exclusively by F-117As followed an essentially all-or-nothing pattern. Four-ship flights attacked the IZAF HQ's hardened bunkers on February 2 and 4. Twice as many four-ship flights attacked the hardened bunker under the new Presidential Palace (purportedly one of Saddam's prewar favorite resting places) on January 29 and 31 (this, during the Battle of Khafji), and again on February 2 and 4. Otherwise, single aircraft rocked the boat at Abu Ghurayb, Taji, the Ministry of Defense, the Security Service, and VIP bomb shelter No. 25. Single aircraft attacked both the Ministry of Military Industry and the IIS HQ on five separate nights. Two individual aircraft struck the Baghdad Republican Guard barracks. These missions kept the Iraqi leadership uneasy, insecure, and on the run, precluding access to their most secure communications systems. The missions must also have had a somewhat daunting effect on the Iraqi security and military bureaucracies. Also participating in attacking the immense Iraqi military support target system were JTF Proven Force; some Saudi-based F-16s, B-52Gs, and Tornados; and F-111Fs and F-117As. On January 27, twenty-four F-16s attacked the Basra missile plant. B-52Gs unloaded on ammunition dumps at Ar Rumaylah in the south and Tall Al Lahm in the north. One squadron-sized F-111F mission attacked the Baghdad aircraft repair depot at Rasheed airfield while two other large F-111F formations struck the Latifiya ammunition plant Al Qa Qaa on January 31 and February 2. On five separate occasions, Tornados, F-111Fs, and F-117As attempted to hit the BW bunkers at An Nasiriyah. On January 31, sixteen F-111Fs attacked the Al Musayyib rocket-motor plant, and on February 3, ten F-111Fs hit another Scud target, the Latifiya Scud plant. F-117As flailed away at other BW bunkers in Karbala and Ad Diwaniyah. SAM support facilities in Baghdad and Shaibah airfield, near Basra, received packages of high-explosives from F-117As and Tornados, respectively. Within the military support target system, facilities with application to other target systems would have priority because they would attract the planners' attention by disrupting multiple systems with one attack. Military support targets relating to Scuds, BW, and SAMs would obviously come up first in the planners' sights.⁶³

Iraqi bridges did not escape the attention of Coalition air forces. On January 27 the Gulf carriers sent three packages of F/A-18s to attack three of the Basra

62. *Ibid.*

63. *Ibid.*

On Target

bridges. The disappointing results of these attacks solidified CENTAF's determination to greatly scale back bridge bombing by non-PGM-capable aircraft. For the next nine days, F-111Fs, F-117As, and a few A-6s flew missions against twenty-five Iraqi rail and road bridges and ferries between Basra and Baghdad. Bridges, especially those spanning the Euphrates River or deep gorges, formed the key bottleneck in the Iraqi LOCs because the Iraqis could not easily work around their loss. Given the generally flat terrain between Basra and Baghdad, the Iraqis' demonstrated skill at road repairs, and their stockpile of rails and rail equipment, to blow out trackage and post hole highways would have accomplished little.⁶⁴ Downed bridges over major obstacles presented the enemy with a more difficult problem. Some bridges underwent repeated attacks. The two-lane highway bridge at Ar Rumaylah (approximately halfway between An Nasiriyah and Basra) absorbed two A-6 strikes on January 28; two F-111F missions on January 29; a single F-117A strike on January 29, January 31, and February 1; four 4 F-111F strikes on February 2; and two F-111F missions February 5. These raids severely damaged the bridge, but the shallow channel enabled the Iraqis to rapidly construct earthen bypasses.⁶⁵ PGM-capable Coalition aircraft hit another bridge six times; four bridges, five times each; and four additional bridges, four times each. On February 5, Checkmate briefed Secretary Cheney that air operations had destroyed 22 of 24 critical bridges.⁶⁶

To keep Iraqi air defenses suppressed, planners invested in attacks against five IOCs and three SOCs and in seven strikes against the ADOC in Baghdad. Most of these missions consisted of one or two aircraft. On the evening of January 27, each of three groups of four F-15Es attacked a fiber-optic target at Jalibal, Tallil, and As Samawah. Single F-117As followed up the these attacks on February 1 and added a new target, Tall Afar airfield, between the Syrian border and Mosul. The Red Sea carriers also sent three packages of F/A-18s against Scud targets on January 27. On January 30, planners scheduled paired F-117As against two of the Baghdad bridges over the Tigris. The mission achieved partial success even though the pilots' view of the bridges was obscured in poor weather. One pilot released his weapons and reported two hits on the Jumhuriya bridge,

64. Msg, 270550Z Dec 90, DIA to DIACURINTEL, Subj: Iraq: Ability of LOC's to Withstand an Air Interdiction Campaign [File No. T/HO/3/DIA-Dec]. The DIA judged that only a campaign of attrition would greatly reduce Iraqi transport capability. This judgment may have influenced later assessments of CENTAF accomplishments.

65. DIA, *Desert Storm BDA*, Vol. 3, pp. 86-88.

66. Brfg Slide, Col. John A. Warden III, "Strategic Resupply Baghdad to Southern Iraq," SecDef Richard B. Cheney Briefing, 1100-1210 Feb 6, 1991, in Checkmate Map/War Room, Pentagon. In the evening, at Colonel Deptula's Request, Checkmate faxed a copy of this brief to the Black Hole (see fax notation in margins, "WED 06 FEB 91 21:20"). Colonel Deptula hoped to use the brief to prepare General Horner and General Glosson for Secretary Cheney's upcoming visit to Riyadh. Annotations indicate that General Horner reviewed it on February 7. Annotations on the bridge slide (probably General Glosson's) indicate that by February 7 CENTAF had put all twenty-four key bridges "in the water" and had attacked eight more bridges, destroying three of them.

Continuing the Air Offensive Against Iraq

but he had no videotape to substantiate his claim.⁶⁷ One target received multiple raids. F-117A missions attacked the SRBM launcher final assembly plant at Baghdad on February 2 and February 5. Although this may have locked the door after the TELs had fled, it no doubt slowed any increase in production of the device.⁶⁸

From February 6 to 14 the strategic air campaign continued with the same theme, but with variations. Twenty-four Iraqi airfields received Coalition raids. A squadron-sized raid of F-117As supplemented by eight GR-1 Tornados and four Buccaneers buddy-lasing for eight GR-1s struck Al Jarrah. Other Coalition aircraft struck H-3 airfield four times and H-3 SW five times while JTF Proven Force sent its F-111Es and F-16s to hit Qayyarah airfield once and Kirkuk airfield five times. A single F-117A and four B-52Gs also hit Kirkuk airfield on separate nights. The French Air Force raided Shaibah airfield twice with its Mirage 2000s and Jaguars, and the RAF added a strike of four Buccaneers and two GR-1s. Red Sea naval aircraft attacked Al Taqaddum on February 14 after bombing Shayka Mazhar, Tikrit East, and Al Asad airfields on earlier days. Aircraft from the Gulf carriers went after Qalat Salih and Tallil. Ten F-117As struck HASs at Rasheed airfield, east of Baghdad, on February 6, while F-117A formations of equal or larger size attacked Balad SE, Al Kut, and New H-1 airfields. These raids kept the initiative from the IZAF and continued the IZAF's attrition in its shelters and dispersal areas. The campaign planners scheduled eleven CW targets in the eight-day period. Three times, JTF Proven Force sent four F-111Es plus support to assault the BW bunker at Qayyarah. Eight times, JTF Proven Force sent either its F-16s or F-111Es to the Mosul nuclear production facility. Mission reports indicated numerous hits on the nuclear facility.⁶⁹ The JTF also attacked CW bunkers at Kirkuk four times. F-117As also attacked the Kirkuk CW bunkers. On the night of February 9/10, nine F-117As struck at the ammunition and CW bunkers at Qayyarah West and Kirkuk.⁷⁰ Two nights later, ten more F-117As returned to the same targets.

During this period, February 7 to 9, 1991, Secretary Cheney and the CJCS returned to Riyadh to finalize the decision to proceed with the ground offensive. The CENTAF briefing gave them an extremely optimistic assessment of the results of the strategic air war to date. In part, CENTAF stated that it had struck all Scud production facilities and its pilots reported the destruction of thirty-five MELs/TELs. Although the briefing cited 144 strategic sorties for February 8, it stated that continuing the strategic effort would require only 80 sorties a day,

67. Printout, F-117A Mission Results, Days 1-34, p. 17; Contingency Historical Rpt, Jan 27-Feb 2, 1991, p. 22.

68. "Targets Attacked by Day by Aircraft," Printout, Feb 4, 1991: Eleventh through Twentieth 24 Hours.

69. Misrep, Capt. C. McCurdy, 7440 CW(P)/IN, Subj: Bomb Damage Assessment [by target and mission], Mar 1, 1991, pp. 49-50 [File No. TAC/HO 7449th Wg Prov, Box USAFE-9/BDA].

70. Contingency Historical Rpt, 37th TFW(P), Feb 3-9, 1991, p. 38 [File No. T/UH].

On Target

with a like number daily for Scuds. Defensive air patrols for HVAA and other counterair functions required 372 daily sorties. When G-day, the start of the ground campaign, arrived, the Coalition air forces could supply the ground forces with 1,148 sorties per day. With a ratio of only one strategic sortie for every fourteen ground support sorties, the strategic campaign against Iraq had become not just a secondary but a tertiary objective. The brief made no mention of leadership targets other than C³, of separating the Iraqi populace from its leadership, or of decapitating or changing the Iraqi regime.⁷¹

The Army presentation gave a window of four days, February 21–24, and selected February 23 as the optimum time for the assault. Generals Powell and Schwarzkopf and the other senior army officers present strongly backed the plan. General Powell openly expressed fear that the Iraqis would crumble and run, denying the Coalition the chance to destroy them. Secretary Cheney spoke little.⁷² However, the Secretary and General Powell accepted the recommendations and briefed them to President Bush on their return on February 10. The president ordered the implementation of the plan.

In the meantime, the strategic campaign continued to strike its objectives. From February 6 to 14, planners scheduled strikes on fifty-three separate communications targets. Sending out single or paired F–117As, they finished the tactic begun the week before by hitting additional Iraqi TV and radio stations as well as several signals intelligence facilities, telephone exchanges in minor cities, and radio relays throughout the nation. They sent aircraft after fiber-optic repeaters at pumping station No. 4 and at Jirishan. On February 8 the planners scheduled for attack all seven Baghdad bridges over the Tigris, including the spans carrying fiber-optics and communications. Instead, the twelve F–117As involved hit targets on the outskirts of Baghdad.⁷³ This was an instance of a political decision to change targeting.⁷⁴ The bridges had high visibility with the international press corps in Baghdad. Then on the night of February 13/14, four pairs of F–117As directly assisted the Coalition ground forces by attacking the forward headquarters of both the Iraqi III and IV Corps and the Iraqi Army GHQ Forward, especially its communications facilities.⁷⁵ The communications bombing continued the pressure on Iraqi communications, forcing the leadership to rely on less secure and more roundabout means. The ongoing destruction of phone exchanges, radio relays, and TV and radio transmitters hampered communications between the regime and the populace, making control of rumors and

71. Brgf, "Theater Air Campaign," annotated, "Gen. Horner's Brief to SECDEF/CJCS presented 9 Feb 91" [File No. AFHSO microfilm reel 10198, starting frame 307]. (This microfilm copy is of a document in the Deptula Papers, where it can also be found.)

72. Memo, Lt. Col. Deptula to Checkmate, Subj: Feedback from SECDEF/CJCS Meeting with CINC and Component Commanders, Feb 9, 1991 [File No. CK/DS/KTO-RPG].

73. MAP, Twenty-third 24 Hours, 1730L Feb 7, 1991, p. 14 [File No. TAC/CT/Box 3]; Contingency Historical Rpt, 37th TFW(P), Feb 3–9, 1991, p. 34.

74. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 32.

75. Contingency Historical Rpt, 37th TFW(P), Feb 10–16, 1991, p. 28.

Continuing the Air Offensive Against Iraq

defeatism more uncertain. The loss or damage of impossible or difficult to replace communications switches and equipment would lead to further loss of capability.

The planners called for strikes on twenty-six military support targets. In most cases, each package included four or more strike aircraft. With the exception of BW bunkers, these targets usually consisted of large research or production complexes, and as such lent themselves as easily to the shotgun weapons delivery approach of conventional strike aircraft as they did to PGMs. The vast Taji military-industrial complex north of Baghdad presented the prime example. If an aircraft delivered its ordnance within Taji, its weapons would smash something of value to the Iraqi military even if they missed their target by half a mile. The Iraqis would pay the price for their administrative and authoritarian proclivity for centralization. Taji's huge expanse of repair shops, fabrication and assembly facilities, and warehouses centered it in the sights of the air campaign planners. They ticketed F-117As and A-6s for the Taji engine repair facility; B-52Gs for the Taji fabrication plant; more F-117As for the Taji armored fighting-vehicle repair depot; and, on February 14, twelve B-52Gs for the Taji missile repair facility. To get a large formation of the big bombers to the Baghdad area, CENTAF had the F-117As strike a dozen high-altitude-capable SAM-2 and SAM-3 sites in the immediate vicinity on the night of February 10/11. They hit sixteen of twenty primary aiming points, allowing the B-52Gs to operate safely.⁷⁶ In unrelated actions, naval aircraft hit SAM support facilities at Fallujah, Shaibah, and Al Jarrah. B-52Gs and A-6s bombed the Salah Al Din SAM plant. Paired F-117As twice attempted to finish off BW bunkers at Ad Diwaniyah and Tikrit. Ten F-111Fs hit the Latifiya explosives plant on February 11, while multiple raids of F-117As, GR-1s, and A-6s worked over two important Scud-related targets in the city—the liquid propellant plant and the SSM equipment production facility. Six B-52Gs bombed the Al Iskandariyah arms plant on February 14, and on the same night five F-117As struck at the Tar Miya rocket facility in far northern Iraq. JTF Proven Force maintained its hammering of the Mosul missile R&D production plant and the Mosul suspected missile facility. This facet of the strategic bombing campaign hoped to strip from the Iraqis the ability to field and maintain armed forces, capable of offensive action, for years to come.⁷⁷

The planners rained further blows on the Iraqi petroleum industry, sending strikes to sixteen targets in the period between February 5 and 14. In a calculated attempt to worsen Iraq's internal fuel situation, already hamstrung by its inability to produce new fuel (and possibly by a blockade-induced shortage of crucial additives), ten of these missions went to oil storage facilities in such places as Habbaniyah, Basra, An Najaf, Ar Ramadi, An Nasiriyah, Al Amarah,

76. *Ibid.*, p. 17.

77. "Targets Attacked by Day by Aircraft," Printout, Feb 14, 1991: Twentieth through Twenty-ninth 24 Hours.

On Target

and Al Kut. The destruction of fuel would hamper the Iraqis' residual ability to supply their front—the necessity for further mileage, due to bypasses, and rougher usage due to poorer roads already hindered them—and it would possibly restrict the Iraqi ground forces' ability to maneuver. This illustrates the synergistic operation of a well-run strategic bombing offensive. Attacking bridges means more (diesel) fuel consumed by rerouted trucks; forcing the increased use of backup generators means more diesel fuel required in the cities; shutting down the oil pipelines means more fuel-consuming fuel trucks are required to transport fuel to the cities; and stopping electricity in winter compels the populace to resort to oil-based heat and cooking (wood is not an option in Baghdad, or many other places), further pressuring the regime and the petroleum supply. Attacking petroleum storage compounds these issues. The Coalition also meant to hit refineries at Basra, Baiji, As Samawah, Kirkuk, and Uwaysah to ensure that the oil spigot stayed closed. Tornados and the aircraft of JTF Proven Force conducted the bulk of these raids. The RAF Tornados gained a longer stride from the USAF's recent certification, allowing them to draw fuel from USAF tankers. Eight of the GR-1s went north to Al Hadithah pumping station K-3 on February 7, and six B-52Gs followed up their attack on February 9. Tornados also were scheduled to go after the pumping station and manifolds at Az Zubayr.⁷⁸ A successful attack on Az Zubayr would further complicate petroleum resupply for the Iraqi army in the KTO.

From February 6 to 14, the RAF, the USN, and CENTAF attempted to drop twenty-nine major bridges, most between Basra and Baghdad. Appropriately, the RAF attacked the lion's share—19 bridges. It hit key bridges over the Euphrates at Fallujah, Ar Ramadi, and Al Kifl. U.S. naval aircraft, with follow-up missions by F-111Fs, attacked two Basra bridges. Further, F-111Fs twice struck the Basra bridge over the Shatt al Arab; they also struck the An Nasiriyah pontoon bridge and the Amarah highway bridge. As noted above, CENTAF did not execute the F-117A attacks planned for the Baghdad bridges. Damaging and dropping bridges lowered drastically the Iraqi ability to supply the front and caused all sorts of inconvenience and disruption in the internal economy. Iraqi air defense and Scuds came in for their share of suppressive fire. On the night of February 7/8, two F-117s hit the ADOC in Baghdad. On other nights, F-117As pestered IOCs at Al Amarah, Al Kut, Salman, and Karbala. Two F-117A raids, one consisting of four aircraft, hit the alternate ADOC at Balad SE. The USN struck Al Jarrah IOC with two F/A-18s and two A-6s on February 8. These raids kept Kari inoperative and unable to be restored. The anti-Scud effort by the strategic forces showed a decline in the period. The Red Sea carriers sent sixteen F/A-18s to the Latifiya solid-propellant plant on February 11 while the F-117As concentrated on radio and fiber-optic links between Baghdad and the Scud launch baskets. One mission, a scheduled bombing of the Baghdad Al Ahrar fiber-optic bridge,

⁷⁸. Ibid.

Continuing the Air Offensive Against Iraq

did not fly. JTF Proven Force twice sent twenty-aircraft formations of its F-16s and once sent four F-111Es against the Ash Sharqat suspected missile facility.⁷⁹ These efforts and those of the regular Scudbusters helped keep the Iraqi SRBM threat within tolerable limits.

During the period from February 6 to 14, 1991, a mission against one facility within the leadership target set caused the greatest furor of the air campaign. In the blackness of the early morning of February 13, 1991, each of two F-117As (Heat 34 and Rain 37) released a single case-hardened 2,000-pound penetrating laser-guided bomb targeted for the roof of the Al Firdos bunker in the midst of southeastern Baghdad. The first weapon hit the building's roof a few yards from its aiming point. The second clipped the corner of one of the burster slabs on its top and probably failed to penetrate the bunker.⁸⁰ The resultant blast killed and wounded hundreds of Iraqi civilians using the facility as an air raid shelter. The survivors probably owe their lives to the fact that the American pilots missed their aiming points by a few feet. If the bombs, as intended, had penetrated the roof and struck the shelter's fuel or oxygen tanks, sparking secondary explosions contained within the building, few would have lived.⁸¹ Neither bomb landed on or near the bunker's entrances. The Iraqis themselves or the shelter's water tanks (possibly ruptured in the bombing) flooded the facility's bottom floor. On the morning of February 13 and for the next forty-eight hours this story dominated the international and U.S. media coverage of the war. In the face of widespread horror at the slaughter of women and children, the U.S. government maintained that it possessed irrefutable intelligence that the Iraqis had operated a C³ center in the building's basement and had cynically allowed civilians to use the shelter to cover its military purpose.

By the beginning of December the special campaign planners had added some shelters to their target list as C³ bunkers, and scheduled them for strikes on the third day of hostilities. When General Glosson briefed the air campaign to Secretary Cheney and General Powell, his backup slides contained the name of every target on the planners' master target list, including the bunkers.⁸² On January 2, 1991, Colonel Deptula, who had left Saudi Arabia in November when the initial attack plans had been completed, returned to fine-tune the plans, at

79. Ibid.

80. Intvw, Maj. Michael B. Hoyes, USAF, Chief Curr Ops, 422d Test & Eval Squad, and Capt. John Wilcox, USAF, 422d Test & Eval Squad Wpns Off, with Donna Clark, USAF Tac Ftr Wpns Cen, Nellis AFB, Nev., Mar 29, 1991.

Both officers worked in Checkmate during the conflict and had seen videotape of the Al Firdos bunker mission. At this point in the interview they discussed the bomb impacts while viewing imagery of the bunker.

81. Memo, Checkmate XOXWF to Lt. Col. Deptula, CENTAF, Directorate of Campaign Plans, Subj: Destruction and PSYOP Campaign Against Iraqi Security Forces and Ruling Elite, with attach showing DMPi for Al Firdos district (F-type) bunker.

82. List, Campaign Target Coverage, Dec 18, 1990, p. 6 [File No. 9AF, HQ/DCS/OPS/Colonel James Crigger]; Bfg Slide 5F, "Targets Leadership," Brig. Gen. Glosson to SecDef Cheney, Gen. Powell, and Gen. Schwarzkopf, Dec 20, 1990.

On Target

General Glosson's request. He carried with him numerous target intelligence photos including the bunkers. The photos revealed that the bunkers were scattered all over Baghdad and in close proximity to centers of population.⁸³

In late January and early February, as it became clear that the Iraqis would not collapse immediately, ideas, probably unrelated to each other, suggesting the bombing of sensitive or heretofore protected targets began to circulate in Riyadh and Washington. The two Baghdad bridges that CENTAF attacked on January 30 were fiber-optic bridges. Their special importance to Scud communications probably served as justification for the strike. Shortly before that raid General Horner had recommended to General Schwarzkopf that he allow CENTAF to add to the strategic target list for destruction two highly visible and sensitive targets in Baghdad. The next day Checkmate suggested a renewed attack on leadership targets. It noted that an accurate strike on a bunker would rupture fuel or oxygen tanks, creating significant secondary explosions within the facility. The planners also included a detailed chart of impact velocities and angles to ensure that BLU-109s dropped on the shelters would deliver their entire blast within the facility. However, an unknown hand at Checkmate added a word of caution: "Dave [Deptula]—Unable to validate military interests at this time for these targets. Please Hold until either you or we get more info on how these bunkers are used."⁸⁴ CENTAF/IN seconded the target nomination on February 7 by also suggesting F-117A strikes on the ten district bunkers.⁸⁵ Nonetheless, Colonel Deptula did not target any of the bunkers at this time.⁸⁶

On the night of February 8/9 the planners had intended to attack all the Baghdad bridges. The aircraft went to Baghdad as scheduled, but they hit different targets. Generals Powell and Schwarzkopf had rescinded the bridge targets.⁸⁷ The next night after the secretary and the CJCS had left the theater, F-117As hit two of the Baghdad bridges.⁸⁸ The MAP had listed them as secondary targets for the night's mission, and the campaign planners had neglected to pull them.⁸⁹ The dropped bridges produced an understandably negative reaction from General Schwarzkopf. At his daily meeting with the components on February 10, the CINCCENT told General Glosson that CENTAF would bomb no bridges in Baghdad unless approved by him.⁹⁰ The timing of this decision, just after discussion with General Powell and Secretary Cheney, raises the possibility that the

83. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 33.

84. Memo, Subj: Additional Leadership Targets List [prioritized], Date of Information: (1730Z) Jan 31, 1991, annotated, "faxed on 1 Feb 90 at 0155 to Maj Rodgers," additional annotation, "See note [on bunkers] on page 3 initialed J[ohn] W[arden]."

85. Memo, HQ USCENTAF FWD (Targets) to distribution, Subj: ATO Daily Prioritized Target Nominations, Feb 7, 1991 [File No. AF/CAFH microfilm reel 10198, frame 718].

86. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 33.

87. File 201, Desert Storm Monograph Project, AFHSO.

88. Contingency Historical Rpt, 37th TFW(P), Feb 3-9, 1991, p. 36.

89. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 34.

90. Personal Notes, Brig. Gen. Glosson, "CINCCENT Daily Priorities," entry for Feb 12, 1991.

Continuing the Air Offensive Against Iraq

NCA wished to avoid any incidents of collateral damage or bad press reports from the Western news correspondents in Baghdad.

On February 8 information from Washington via Checkmate indicated that the Iraqis had begun to use the Al Firdos bunker as a communications center. The atmosphere within the Iraq planning cell caused its members to put their own unique spin on the new information. The rift between the campaign planners and CENTAF/IN caused the planners to lean heavily on Washington sources. The Al Firdos district bunker news had come through Checkmate, which was a strong endorsement. The planners tended to act immediately on the “hot tips” received from Washington, a trait that further alienated them from CENTAF/IN whose members noted, with some justice, that most of the “hot intell” would not cool off if the planners waited to insert it in the regular planning cycle. Some targets by their very nature, such as factories and bunkers, were not likely to pick up and disappear in 72 hours. If the planners followed their pattern, they would have begun to act on the information quickly. But this did not preclude a searching discussion within the Black Hole. General Glosson, Colonel Deptula, and other planners, including attached intelligence officers, met and deliberated on whether or not and when to strike the bunker.⁹¹ Given the planners’ focus on leadership targets and associated leadership C³, they not surprisingly decided to target it. On February 11, CENTAF/IN also put the bunker on its “hit list.”⁹²

Some questions about the decision to strike the Al Firdos district bunker must remain unanswered at this time, either because the relevant intelligence material carries classification levels that prevent its dissemination or because of the reticence of the CENTAF decision-makers to discuss the incident. The raid itself appears in the MAP as a handwritten substitution, added sometime after 1507L February 11. The substitution switched seven F-117As from the Abu Ghurayb presidential grounds and bunkers to targets recommended earlier in the day by Checkmate, including the Al Firdos district bunker⁹³ It would seem that

91. Intvw, Capt. John Glock, USAF, GWAPS, Targeteer/Intel Off in CENTAF Directorate of Planning, August 1990–March 1991, with Drs. Diane T. Putney and Richard G. Davis, CAFH, Aug 27, 1992, at Crystal City, Arlington, Va. Captain Glock supplies useful inside information on the initial intell/planner difficulties of August 1990 and the problems in coordinating traditional targeting methodology with the unorthodox procedures in the Black Hole.

92. Memo, HQ USCENTAF FWD to distribution, Subj: ATO Daily Prioritized Target Nominations, attachment, “Leadership Hit List,” Feb 11, 1991 [File No. AF/CAFH microfilm reel 10198, frame 684]. This recommendation notes that DIA reports the bunker as recently activated.

93. MAP, Twenty-seventh 24 Hours, 1507L Feb 11, 1991, p. 13 [File No. AF/CAFH microfilm reel 10199, frame 354]. The designation of Baath Party Headquarters as a target contains an anomaly. The MAP supplies the Master Target List number (L11) and the basic encyclopedia number (BE 0427DA0202) for Baath Party Headquarters, but it describes the target as “GVT CMD CTR BK2,” which does not appear on the Master Target List (unless one assumes it is North Taji command bunker No. 2). The North Taji bunker, thought to house civilian leadership, would be a logical target in conjunction with the Al Firdos district bunker. I cannot document when or if the planners received the Checkmate message (dated 110000Z Feb 91, see previous footnote), but this late switch to a target set corresponding exactly to Checkmate’s recommendations seems more than coincidental.

On Target

Checkmate, as well as CENTAF, shared targeting responsibility for the raid. The attack occurred during the third and final F-117A wave of the day. The first two waves launched at approximately 1730L (dusk) and 2130L. Their mission orders usually arrived in the wing in the early morning, 10 to 12 hours before takeoff. Wave 3, which launched at about 0145L the next morning, did not usually get its mission orders until 2045L, five hours before takeoff.⁹⁴ This staggered receipt of mission orders allowed flexibility in targeting or retargeting for the final wave. Given its situation next to a school, near a mosque, and in the midst of a residential area, the bunker would require precision imagery for a precision strike.

Last, the question of intent arises. The strike on the bunker occurred at the end of a series of bombing attacks on Iraqi leadership targets in and around Baghdad. The F-117A second wave of the night of February 11/12 struck IIS HQ, the Ministry of Information, and Baath Party HQ. Wave 3 hit Military Intelligence HQ, Abu Ghurayb C³ bunker, and the Ministry of Information. The evening of February 12, as the first wave made its attacks on Baghdad, General Schwarzkopf held his daily priorities meeting with his components. He told General Glosson, “no tgt [target] hit in Baghdad without CINC [CINCCENT] approval,” and added, “‘*Absolutely*’ [emphasis in original] no bridge in Baghdad without CINC [CINCCENT] approval—don’t expect approval.”⁹⁵ General Glosson and Colonel Deptula took this direction to mean that General Schwarzkopf would henceforth check with the NCA before releasing any target in Baghdad. Thereafter, in spite of the events of the next few hours, they noted some delay in approval but not a flat ban on Baghdad targets.⁹⁶ However, the number of leadership targets scheduled and struck declined precipitously. From the night of February 13/14 until the night of February 22/23, the F-117As hit only one leadership target in Iraq. On the night of February 18/19, three F-117As dropped six weapons on the IZAF HQ (New). Not until the preparatory bombing directly related to the start of the ground war began was CENTAF allowed to resume leadership targeting in Baghdad.⁹⁷ In Checkmate, one officer expressed the universal feeling when he stated, “we were very upset about that [hold on Baghdad targets] because we were putting pressure on Baghdad and the Hussein Regime, and now we’re giving them two or three days of slack.”⁹⁸

One unanswerable question about the Al Firdos district bunker remains. Why did hundreds of civilians occupy it when after four weeks of bombing it should have been clear even to the average Iraqi that you were as safe in your

94. Contingency Historical Rpt, 37 TFW(P), Feb 10–16, 1991, p. 27. The daily narrative in this history records the arrival times of the frag orders for each wave and the takeoff time of the waves.

95. Personal Notes, Brig. Gen. Glosson, “CINCCENT Daily Priorities,” entry for Feb 12, 1991.

96. Intvw, Maj. Gen. Glosson, Dec 12, 1991; Intvw, Lt. Col. Deptula, Nov 20, 1991.

97. “Targets Attacked Day by Day by Aircraft,” Printouts: Thirtieth through Forty-third 24 Hours. Also see the appropriately dated 37th TFW(P) Contingency History Reports.

98. Intvw, Maj. Hoyes and Capt. Wilcox, Mar 29, 1991, p. 40.

Continuing the Air Offensive Against Iraq

bed from Coalition bombs as you would be in a bomb shelter? Some have suggested a diabolical plot on the part of Saddam and his security agencies to set up the Americans. While possible, it seems rather too subtle to be convincing. Others have suggested that the occupants were family members either of the intelligence personnel working in the basement or of high-ranking government officials, a somewhat more probable explanation. An intelligence officer from the Black Hole suggested to the author what seems the most likely reason for the presence of so many civilians in the bunker. One might be safe in one's bed from bombs, but with no electricity in Baghdad, you could not get a hot shower, or cook, or drink, or do laundry unless you pulled rank and got your family into one of the bunkers designed to operate for days or weeks independently of the outside world. Rank has always had its privilege, and sometimes, its punishment.

General Schwarzkopf imposed his new layer of control too late to halt that night's waves of F-117As. The first wave of the night of February 12/13 went after IZAF HQ, the Ministry of Defense, North Taji military-related facility No. 2 (with nine GBU-27 case-hardened penetrators), and the Baghdad conference center (a prestige project built when Saddam expected to host the Conference of the World's Unaligned Nations). Wave 2 maintained or heightened the pressure on the Iraqi capital. In addition to bombing two telephone exchanges and the international TV and press buildings and the Baghdad International Receiver/Radio, it slammed the Military Intelligence HQ, Baath Party HQ, and Iraqi CIA HQ. Finally, in wave 3, the 37th TFW(P) attacked two Baghdad bridges (not fiber-optic bridges), Baghdad Baath Party HQ, Iraqi CIA HQ, Security Forces HQ, Military Intelligence HQ, the Baghdad presidential residence and bunker, and the Camp Taji presidential residence, as well as the Al Firdos district bunker.⁹⁹

At the time of this series of leadership attacks, Saddam played host to Soviet Envoy Yevgeny M. Primakov. On February 12 the Iraqis claimed that the raids represented an attempt of the Coalition to wreck the peacemaking efforts of the Soviets.¹⁰⁰ The next day, Primakov toured the ruined Al Firdos bunker. In fact, at this time the diplomatic logjam began to show the first slight signs of breaking up. When Primakov met with Saddam, he had the foresight to bring Soviet satellite imagery with him. With the imagery, he convinced Saddam of the extent of the damage done by Coalition bombing.¹⁰¹ Saddam's reaction to bad news and

99. Printout, F-117A Mission Results, Days 1-34.

100. Capt. Steven B. Michael, comp., *The Persian Gulf War: An Air Staff Chronology of Desert Shield/Desert Storm* (Washington, D.C.: Center for Air Force History, Air Staff Historical Study, 1992), p. 326.

101. Cigar, "Iraq's Strategic Mindset," p. 25. Primakov had served as a *Pravda* reporter before rising to head the Soviet Institute of Oriental Studies. From 1985 to 1989 he served as Director of the Institute of World Economy and International Relations. Throughout his career he had close ties with the KGB, and by 1994 he had risen to the post of head of the Russian Foreign Intelligence Service (SVR). Given his intelligence connections, his personal friendship with Gorbachev, and his expertise in the Middle East, his claim that he brought satellite imagery to Saddam seems reasonable.

On Target

its bearers, as well as his insistence on sycophancy, had completely discouraged his entourage from passing along to him the actual amount of damage Iraq had suffered. Primakov's offer of Soviet good offices, his new realization of his losses, and perhaps the damage inflicted before his own eyes on his leadership apparatus brought about a change in his policy. Saddam reportedly told Primakov that Iraq would cooperate in efforts to achieve a cease-fire.

The bombing of the Al Firdos district bunker affected the course of the offensive air campaign. The U.S. government had imposed targeting restrictions on Baghdad before the weapons impacted the bunker. These restrictions became more frequent and absolute. CENTAF continued to bomb targets in the Baghdad area (NBC, Scud, and military support targets), albeit at a reduced rate (in part because many targets were already destroyed). This kept the city on edge. But prohibition on downtown Baghdad targets—such as C² nodes, leadership, and telecommunications—obviously eased some measure of the Iraqis' burdens.¹⁰² Public support of the world and within the United States for Desert Storm may have momentarily wavered, but it held firm. The support of CJCS and the CINCENT for targets in Baghdad withered.

From February 15 through 23 the strategic air campaign struck at targets throughout Iraq. Seventeen airfields saw a minimum of one raid each. The RAF Buccaneer/GR-1 combination abandoned bridge bombing to concentrate on airfield HASSs; it blasted seven Iraqi airfields including Tallil (twice), Jalibah (three times), and Ar Rumaylah (three times)—airfields capable of interfering with the anticipated ground operations. Two ten-aircraft or larger raids of F-117As followed up the RAF raids on Jalibah with missions on February 19 and 20. The Red Sea carrier aircraft hit Al Asad and Shayka Mazhar, while JTF Proven Force dispatched F-111Es south to strike Taji airfield. The raids continued the attrition and dispersal of the IZAF. Because the Coalition wished to leave Iraq with as



*Aircraft bunker
and shelter at
Tallil airfield*

102. Deptula, "Comments and Review of the Offensive Air Campaign," Feb 3, 1993, p. 36.

Continuing the Air Offensive Against Iraq

diminished an NBC capability as possible, the air campaign planners scheduled attacks on seventeen nuclear and CW targets. Squadron-sized raids of F-117As worked over the Latifiya solid-propellant plant six times, the Baghdad nuclear facility twice, and the Baghdad suspected research facility and the Taji SSM equipment plant once each. Pairs of F-117As hit the Al Taqaddum, Mosul, and Qayyarah West CW bunkers twice and gave equal attention to the BW bunkers at Habbaniyah and Taji. JTF Proven Force F-16s bombed the Al Hadre CW bunkers, and B-52Gs added their ordnance to the Taji SSM equipment plant. These raids may have hit nothing but empty buildings because the Iraqis may have already moved and concealed the bunkers' and plants' contents. But by forcing the Iraqis to undertake a dispersal program to counter the threat of Coalition air strikes, the Coalition inflicted damage and delay on Iraq's CW and BW programs. At a minimum, a policy of dispersal forced Iraq to dismantle equipment and store its CW and BW under less than optimum conditions, halted their production, created potential distribution problems to the field, and imposed some wastage.

The Coalition air planners ticketed fourteen C³ targets for attack during the period. JTF Proven Force sent its F-16s to the Kirkuk AM transmitter and the two Mosul direction-finding stations while the Red Sea carriers sent F/A-18s to the Al Qaim air warning site twice. F-117As hit two targets in Tikrit on February 21 as well as the Jenoub PTT three times, the Baghdad jammer and transmitter five times, and the pumping station No. 4 fiber-optic repeater four times. The raids, when successful, knocked out Iraqi work-arounds, slowed communications, and forced the use of less secure communications systems. Iraq's military support industry also required pruning to lessen its capability for rapid future growth. The air planners hoped to snip off thirty-one targets during the period. Formations of eight or more F-117As attacked the Latifiya Scud plant twice and the Ar Ramadi ammunition dump and the Baghdad SAM support plant once each. Formations of six F-117As hit the Shahiyat liquid-fuel plant four times and the Habbaniyah artillery and motor-case factories once each. The aircraft of JTF Proven Force struck Irbil ammunition dump (8 F-111Es), K-2 missile storage (16 F-16s), Mosul military R&D facility (four raids of 16, 20, 16, and 8 F-16s, respectively), and Taji airport (four times). The B-52Gs from Moron AB and RAF Fairford found many appropriate targets, including Taji airport (6 aircraft), Taji rocket plant (10 planes), Taji tank repair (6), Al Hadre ammunition dump (4), Al Iskandariyah arms plant (6), and Habbaniyah artillery production plant (two raids of 9 and 6 aircraft each). Short of inspecting dispersal areas throughout every meter of Iraq, one cannot make an accurate BDA of these missions. At a minimum, they destroyed millions of dollars worth of industrial structures, at little cost to the Coalition. They probably caught an indeterminate amount of industrial machinery as well, which the Iraqis cannot replace until the lifting of UN economic sanctions.

On Target

Thirteen bridges between Basra and Baghdad came under attack during the period February 15–23. F–117As and F–111Fs each attacked five bridges; GR–1s working alone and groups of F/A–18s attacked the others. In addition, three B–52Gs were to strike the Battikha railway station and yards, and four F/A–18s and two A–6s would hit those at Az Zubayr. Paired F–117As also went north to Tikrit where they bombed the rail yard, a bridge, and the radio communications control building on February 21. The bridge bombing kept the LOC snarled between Baghdad and the KTO. It further gave the good citizens of Tikrit a reminder that the Coalition had not forgotten them. During this period, Scud launchings increased to a level not seen for almost three weeks with the result that F–111Fs and F–117As joined the Scud hunt. On February 17, two F–117As and twelve F–111Fs tried with little success to shut the mine openings suspected of harboring Scud equipment near Al Qaim. Paired F–117As attacked three fiber-optic stations at Tallil, As Samawah, and Karbala four times each, hoping to disrupt the network between the capital and Basra. Aircraft from the Red Sea carriers would strike at Al Qaim propellant storage and Wadi al Jabariyah Scud storage. Scud launchings continued through the first day of the ground offensive.¹⁰³

End Game

At 0400L February 24, 1991, the Coalition ground offensive against Kuwait and Iraq commenced. The air war had now become the air-ground war. Secretary Cheney and General Powell had initially reviewed the army plan of operations employed during the conflict on their December 19–20, 1990, visit to the AOR. The secretary and the chairman approved the plan and on returning to Washington briefed the president, who also approved General Schwarzkopf's ground plan. The three agreed that the actual start of the ground campaign would require a formal presidential decision.¹⁰⁴ On February 10, after a briefing on the secretary's and chairman's visit to CENTCOM, the president authorized the commencement of a ground offensive, probably on or about February 23.

Soon after Secretary Cheney's departure from Saudi Arabia on February 9, Saddam had begun to change his diplomatic position. On February 15 Saddam announced that Iraq would discuss compliance with the UN Security Council resolutions calling for Iraqi withdrawal from Kuwait if the Coalition met certain conditions that included an immediate cease-fire. Not only did he tie his offer to the Arab-Israeli dispute by demanding that Israel withdraw from the occupied lands, the Golan Heights, and Lebanon, he disputed the right of the Al-Sabah family to govern Kuwait. He demanded that all Iraq's foreign debts be forgiven, even by countries not members of the Coalition, that all Coalition forces introduced after August 2, 1990, be withdrawn in one month, and that the Coalition

103. "Targets Attacked Day by Day by Aircraft," Printouts: Thirtieth through Forty-third 24 Hours. Also see the appropriately dated 37th TFW(P) Contingency Historical Reports.

104. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 231.

Continuing the Air Offensive Against Iraq

rebuild all facilities damaged by their actions.¹⁰⁵ As usual, Saddam made his first offer at the high end of the exchange; President Bush and the other leaders dismissed the offer out of hand—they expected to receive a surrender, not to offer one. It is possible that the timing of Saddam's offer stemmed not only from Envoy Primakov's visit but from the worldwide negative reaction and consequent sympathy for Iraq arising from the Al Firdos district bunker incident. In addition, the halt on the bombing of leadership targets in the Baghdad that was imposed on February 14 may have been perceived by the Iraqis as a response to the peace offer, rather than as an attempt to avoid more collateral damage.

On February 17, Iraqi Foreign Minister Aziz arrived in Moscow with Saddam's orders to explore the possibility of Soviet sponsorship or guarantees of a peace settlement. One source reported that the Iraqis would cancel their February 15 offer (which was dead in any case) and agree to withdraw from Kuwait in return for the territorial integrity of Iraq, a Soviet commitment to push for progress on the Palestinian problem (but no linkage of that issue to a Gulf settlement), the lifting of UN sanctions and embargoes, and a Soviet commitment to rearm Iraq.¹⁰⁶ These meetings in Moscow, whatever Foreign Minister Aziz's actual writ, indicated that Saddam now sought some means out of his difficulties acceptable to himself. If he and the Soviets could arrive at formula satisfactory to both Iraq and substantial portions of world opinion, Saddam might stalemate the Coalition. Both powers had incentives to reach a settlement. The Iraqis wished to salvage all they could; the Soviet regime needed a diplomatic triumph to increase its internal prestige. The Iraqi-Soviet talks added a new element of urgency to Coalition operations; given time, the Soviets and the Iraqis would devise some proposal. Only days or hours might remain to complete operations. On February 18, President Gorbachev presented his personal peace plan, which he had not discussed in advance with other leaders of the Coalition, to Foreign Minister Aziz, who promptly returned to Baghdad to brief Saddam on its contents. The Foreign Minister had stayed in Moscow less than sixteen hours. The plan called for full Iraqi withdrawal from Kuwait in compliance with appropriate UN resolutions. President Bush, British Prime Minister John Major, and other Coalition leaders rejected the plan the following day. On February 20, the Americans and the British informed the Soviets that they had rejected the proposal because it lacked a tight timetable for Iraq to withdraw from Kuwait and did not compel Iraq to accept UN resolutions.¹⁰⁷ The pace of diplomatic events

105. Patrick E. Tyler, "Iraqis Speak of a Withdrawal but Impose List of Conditions: Bush Denounces 'Cruel Hoax,'" *New York Times*, Feb 16, 1991, p. 1.

106. Msg, 180029Z Feb 91, CIA to DIA et al., Subj: Negotiating Position for Iraqi Foreign Minister's 17 February Discussions in Moscow [File No. CK/DS/War Termination].

107. Michael Dobbs, "Gorbachev Offers Peace Plan to Iraq," *Washington Post*, Feb 19, 1991, p. 1; David Lamb, "Schwarzkopf Says Iraqi Military Is Losing Tanks, on Verge of Collapse," *Washington Post*, Feb 20, 1991, p. 1; Andrew Rosenthal, "Bush Criticizes Soviet Plan As Inadequate to End War: Iraqi May Revisit Moscow," *New York Times*, Feb 20, 1991, p. 1; Paul Lewis, "U.S. and Britain Insist on Deadline," *New York Times*, Feb 21, 1991, p. 1.

On Target

had quickened. Not only did the American ground commanders fear an end to the war before a ground offensive, but some portions of the USAF saw the last chance to end the war with air power alone rapidly fading away.

In the evening of February 18, Checkmate faxed a new proposal to Riyadh. It called for CENTAF to concentrate its air operations for forty-eight hours to “induce Iraq to sue for peace immediately on terms acceptable to the Coalition; to avoid a ground conflict with its attendant casualties.”¹⁰⁸ The proposal bore all the hallmarks of a Warden group-inspired bombing plan.

On February 21, Colonel Deptula submitted seven leadership targets to General Horner and asked him to obtain General Schwarzkopf’s approval to hit them. Deptula cited intelligence indicating that Saddam’s grip on Iraq had substantially weakened. In their discussion of the memo, Colonel Deptula and General Glosson reduced the recommended targets from seven to five, and General Glosson elected to pass the request directly to General Schwarzkopf.¹⁰⁹ This appeal did not gain a positive response. There would be no CENTAF attempt to win the war before the start of the ground offensive.

Starting on the night of February 22/23, 1991, the strategic air campaign began to conduct raids designed to directly aid the impending ground campaign. On that night, ten F-117As left Khamis Mushait to strike Iraqi intelligence and special operations headquarters in Baghdad. One aircraft suffered an air abort but the other nine attacked.¹¹⁰ A week earlier, on the night of February 15/16, the F-117As flew their closest mission to the ground troops. Fourteen of the black birds swooped in on a portion of the Iraqi trench lines to attack an Iraqi incendiary defense system. The Iraqis had dug a series of open antitank-antipersonnel ditches in front of their trenches and had constructed a system of pipes and pumps capable of filling the ditches with crude oil. In theory, when set alight, the oil would make an effective barrier and smoke screen. The F-117As attacked the oil system’s T-junctions and distribution points and the Az Zubayr pump station.¹¹¹

In the night of February 23/24 and on the following day, several strategic raids assisted the opening of the ground offensive. They occurred in some of the worst weather seen during the campaign. Two missions of six Buccaneers and fifteen GR-1s each struck Tallil and Jalibah airfields. Two Buccaneers and four GR-1s also hit Al Kut airfield. These raids and those of the previous few days would reduce interference from the IZAF’s ground attack forces. From the evening of February 22/23 straight through February 24/25, the strike aircraft of JTF Proven Force bombed portions of the Taji complex on the outskirts of Baghdad. They targeted the Taji airport, tank-repair facilities, SAM training areas, the

108. Memo, [Checkmate] to [CENTAF], Subj: Capitalizing on Cracks in the Iraqi High Command, annotated, “Faxed 18 Feb 91 2240L” [File No. CK/DS/12-leadership].

109. Deptula, “Comments and Review of the Offensive Air Campaign,” Feb 3, 1993, p. 36.

110. Contingency Historical Rpt, 37th TFW(P), Feb 17–23, 1991, p. 35.

111. *Ibid.*, Feb 10–16, 1991, p. 35.

Continuing the Air Offensive Against Iraq

steel fabrication plant, and SSM storage and support facilities. The Gulf carriers sent six F/A-18s to hit the Rumaylah highway bridge while pairs of F-111Fs and F/A-18s attacked spans at An Nasiriyah, Ash Shuyukh, and Basra early on February 24.¹¹² The closure of the few working spans between Basra and Baghdad, if achieved, would prevent an Iraqi retreat. In retrospect, the bridges and other road bottlenecks might have been given higher priority during the ground offensive.

The F-117As returned to Baghdad and other sensitive targets as the Coalition land forces began to move forward. The evening's first wave consisted of thirty-two aircraft, the largest single mission sent out to date by the 37th TFW(P). It scored three hits on the Baghdad IIS HQ, seven hits on the Baghdad Special Security Services, eight on the Baghdad bomb assembly plant, eleven on CW bunkers and facilities at Samarra, and ten on the Ishkandariyah ammunition plant. The night's second, and final, wave which targeted communications in the KTO ran into foul weather. It achieved only two hits; the Az Zubayr cable drop and the Mufrash radio relay. The pattern continued on the night of February 24/25. The first wave placed its weapons on the Abu Ghurayb presidential complex (possibly the guard compound), Al Narawan, and on CW bunkers and facilities at Samarra. The next wave hit the Baghdad Special Security Services, Al Narawan, again, the Kirkuk ammunition depot, and the Abu Ghurayb presidential complex. The third wave, consisting of ten aircraft, struck the Al Musayyib rocket-motor plant and the Abu Ghurayb presidential complex.¹¹³ The planners intended the attacks on the intelligence and security organizations in the capital to keep the regime off balance and concerned about its survival rather than concentrating on the battle to the south.

General Schwarzkopf supported CENTAF's leadership and prestige targeting. Not only had he obtained approval from Washington for the individual targets, but on the evening of February 24 he asked General Powell to obtain permission to strike two targets eliminated from the list before the war—a triumphal arch of arms holding crossed swords and a giant statue of Saddam, both in downtown Baghdad. General Powell agreed to seek approval from the president. At 1510L the next day, the CJCS gave the CINCCENT the go-ahead, but he called back three hours later to rescind it. General Schwarzkopf sourly attributed the stopping and starting to second thoughts from Washington lawyers. At the conflict's end, the two monuments still stood, untouched by U.S. bombs.¹¹⁴

As the F-117As made life difficult for the Iraqis near Baghdad, other Coalition aircraft attacked airfields and bridges. When weather permitted, large formations of Buccaneers and GR-1s targeted Al Taqaddum and Shayka Mazhar airfields throughout February 25, 26, and 27. They also worked over Habbaniyah

112. "Targets Attacked Day by Day by Aircraft," Printout: Thirtieth through Thirty-ninth 24 Hours.

113. Contingency Historical Rpt, 37th TFW(P), Feb 24-Mar 2, 1991, pp. 15-18.

114. Schwarzkopf, *It Doesn't Take a Hero*, pp. 455, 457.

On Target

airfield on February 26 and 27. Red Sea carrier A-6s and A-7s attacked H-3 airfield on February 26 and 27, and Coalition aircraft hit Tallil airfield on February 25. Coalition aircraft, USN F/A-18s, and USAF F-16s struck Al Asad airfield from February 25 to 27. These missions hit IZAF main operating fields that housed ground attack aircraft or CW-capable helicopters to prevent these forces from entering the ground fight. JTF Proven Force continued to harass northern Iraq. On February 25 its F-16s and F-111Es hit the Mosul missile R&D facility, the Mosul suspected military R&D facility, the Tar Miya nuclear facility, and Kirkuk airfield. The next day, the JTF spent all its force on the Mosul R&D facilities and an unidentified production factory. On its last day of operations, February 27, it sent 24 F-16s to the Taji steel fabrication plant, 12 F-16s and 2 F-4Es (its one and only PGM mission of the conflict) to a Mosul production factory, 7 F-16s to the Mosul missile R&D facility, and 15 F-111Es to the Taji steel fabrication plant.¹¹⁵ The large expanse of the plant made it an ideal iron-bomb target. Gulf carrier aircraft and F-111Fs continued operations against bridges, striking at eight spans, pontoons, or bypasses on February 25 and 26.¹¹⁶

On the night of February 26/27 the 37th TFW(P) launched two attack waves with thirty-one aircraft in the first wave and thirty-two in the second. The planners pointed the entire first wave at leadership targets. No bombs hit their primary targets. For the planners, this had to be the most frustrating F-117A mission of the conflict. Most of the second wave did not go to Baghdad. Eight bombs intended for the rocket test and fuel facilities at Shahiyat hit home, as did two intended for the Habbaniyah artillery plant. Weather, an air abort, and a cancellation kept many bombs from dropping. For the night, the aircraft of 37th TFW(P) returned to base with 114 bombs still in their bays.¹¹⁷ If the ground offensive had not required every ounce of support, the wing might not have launched a plane.

The F-117A's last day in combat brought a happier result. The first wave of twenty aircraft headed for the capital. Eighteen would hit Baath Party HQ at least once. Eight GBUs struck the Salman Pak CW and BW research facilities; aircraft on the ground at Baghdad Muthenna airfield received four bombs intended for them; nineteen spoiled Baath Party HQ. Evidence that CENTAF had successfully made its mark was obtained when imagery dated February 28 documented severe damage to the regime's headquarters.¹¹⁸ At 2130L on February 27 the sec-

115. Rpt, D. Neilson, HQ USAFE Ops Anal Div, "[7440 CW(P) BDA, by date, January 18–February 27, 1991]," Mar 6, 1991 [File No. T/HO/USAFE Box 9–7440th Wg Prov/BDA].

116. "Targets Attacked Day by Day by Aircraft," Printout: Thirtieth through Thirty-ninth 24 Hours.

117. Contingency Historical Rpt, 37th TFW(P), Feb 24–Mar 2, 1991, pp. 19–23.

118. DIA, *Desert Storm BDA*, Vol. 1, pp. 38–39.

At the time, the planners thought that among the targets hit was a large statue of Saddam, one of many scattered about Iraq, but it was not the mammoth statue in downtown Baghdad that General Schwarzkopf had asked Washington for permission to destroy on February 24. In fact the statue hit in front of Baath Party Headquarters was to the founder of the party, not to Saddam.

Continuing the Air Offensive Against Iraq

ond wave took off. Even before it reached its targets, CENTAF HQ recalled the wing, cancelled the night's third wave, and put future missions on hold, with orders to stand by should events dictate renewed fighting. At approximately the instant when the second wave began its bomb runs (0015L February 28), CENTAF informed the wing that the CINCCENT had suspended all operations to give the Iraqis a chance to sign a cease-fire. The final F-117A mission of the conflict consisted of ten aircraft, all aimed at a single complex—the Al Musayyib missile R&D and production facility and the associated rocket-motor factory and rocket-motor test facility. One aircraft aborted and the other nine obtained many hits, two of which missed their primary target and struck nearby buildings. The last F-117A mission of the conflict, after their standard 2,000-mile round-trip flight, touched down in Khamis Mushait at 0341L February 28.¹¹⁹

On the night of February 27/28, the 48TFW(P) sent one of its last missions to a target that had withstood CENTAF from the first day of the war, the North Taji command bunker.¹²⁰ But the Aardvarks carried a new and untried weapon, two GBU-28 hard-target penetrating munitions. The GBU-28 weighed 4,700 pounds was built around an Army-surplus 8-inch howitzer barrel machined to accept the pieces and parts of a BLU-109. Unlike many of the service's weapons, the GBU-28 resulted from a hasty design using off-the-shelf components and existing technology. The service had begun the usual treadmill of acquisition road maps, concept briefings, calls for ideas, mission need statements, and so forth in mid-October. Maj. Gen. Michael E. Ryan, TAC Director of Operations, and Maj. Gen. Joseph W. Ralston, Director of Tactical Programs, Office of the Assistant Secretary of the Air Force for Acquisition, were instrumental in directing the procurement of the GBU-28 as well as in assuring its delivery to the theater in record time.¹²¹ They reviewed the contractors' proposals on February 8, selected the design, and ordered twenty-eight bombs (including two for testing) for \$17 million. By February 17 the first two warheads had arrived at Eglin AFB, Florida, for testing, before going to Nellis AFB and Holloman AFB for further tests. On February 24, at Tonopah Range, an F-111F established successful separation by dropping an inert bomb with a live fuse. Two days later, in a sled test at Holloman AFB, the bomb hit its target with tremendous force. CENTAF requested two bombs immediately.

At 1245Z February 26, a C-141 took off from Eglin AFB with two GBU-28s; it arrived at Taif, Saudi Arabia, at approximately 1000Z February 27.¹²² Eglin noted that even if the fuse failed, "a kinetic weapon (4,700 lbs at 1,400 ft per sec) will still have a serious impact on any bunker hit. Suggest both weapons down the same hole. See what crawls out."¹²³ The CENTAF planners, in a last-

119. Contingency Historical Rpt, 37th TFW(P), Feb 24–Mar 2, 1991, pp. 13, 24–27.

120. *GWAPS*, Vol. 4, pt. 1, *Weapons, Tactics, and Training* (2d ed.), pp. 43–44.

121. Deptula, "Comment and Review of the Offensive Air Campaign," Feb 3, 1993, p. 37.

122. Point Paper, Maj. Young, LGXX, "GBU-28/B LGB," Feb 27, 1991 [File No. CK/DS/12-leadership].

123. Msg, n.d. [Feb 26, 1991], TAWC/TX to CENTAF/DO, Subj: GBU-28 (HTPM).

On Target

minute raid, followed the Air Weapons Center's recommendations. That evening F-111Fs dropped the two bombs on Taji bunker No. 2. One missed, because the pilot could not correctly identify the target. The other landed dead-center on the bunker.¹²⁴ It impacted far more forcefully than the smaller GBU-27s, and camera footage showed a blast, indicating proper fuse functioning.¹²⁵ The GBU-28 went from concept to battlefield use in 4½ months (17 days for actual hardware development), a testimony to the ability of necessity to drive acquisition. Its use demonstrated the difficulty of evaluating the damage inflicted by PGMs, a problem from the campaign's start to its finish.

124. Donna L. Clark and SSgt. Douglas B. Lawson, "Nellis Air Force Base Contributions toward the Persian Gulf Conflict," Vol. 1, "Narrative and Appendices," Aug 2, 1990–Sep 30, 1991, pp. 108–114.

125. DIA, *Desert Storm BDA*, Vol. 1, pp. 28–29.

Chapter Nine

Assessment

War outcome will be determined by a single massed strike by precision-guided conventional weapons. Consequently, the traditional role of armed forces equipped with infantry, tanks, and artillery is virtually eliminated.

Maj Gen Slipchenko
Red Army, September 1990
NDU General Staff Exchange¹

A strategic bombing campaign must answer three fundamental questions: Did it expend its efforts on targets vital to the enemy's conduct of the war? Did it select targets vulnerable to friendly air action? Did it contribute decisively to the overall success of air, ground, and sea operations, and to the national political objectives? For air power in the Gulf War a quick answer to all three is "yes." It is profitable, however, to examine each aspect in greater detail and learn what succeeded and what failed.

Lack of BDA data and the inability to definitively prove cause and effect relationships between bombing and eventual outcome has hampered analysis of all air operations. The war in the Persian Gulf proves no exception. A large percentage of U.S.-produced BDA and associated imagery on the war as well as electronic and cryptographic intelligence lies in the security-classified vaults of intelligence agencies. The fragmentation of the U.S. intelligence community into a conglomeration of independent fiefdoms means that information may remain unavailable for decades. The scraps of BDA and other intelligence that have

1. SOV M 91-20030X, CIA, Directorate of Intelligence, Subj: USSR: Initial Military Reaction to Desert Storm, Feb 26, 1991, p. 3. General Slipchenko is further identified as Chief of Military Science, General Staff Academy.

On Target

escaped the system leave large lacunae and serve only to enhance the image of the organization that preserved or leaked it. Without access to significant BDA, analysis of the Gulf War bombing must be speculative and subject to major revision. However, the data available suffices to supply a portrait, but not a photograph, of the conflict's results.

Beginning with Instant Thunder on August 10, 1990, through General Schwarzkopf's final Desert Storm OPORD of January 16, 1991, the supporters and the authors of the offensive air campaign expected much and promised more. Analysis of the offensive air campaign's results must rest on "unconnected facts" strung together by "informed logic," none of which can stand alone. The traditional method of BDA interpretation, favored by professional civilian and military intelligence analysts and other congenial skeptics, quickly becomes an exercise in double-entry bookkeeping. First, examination of target imagery is made, preferably imagery from two independent sources, so that one confirms the other. Next, the number of plants damaged and destroyed is determined. Then, the percentage of targets still operable is derived. For example, fifty-four key bridges support the Iraqi Army in Kuwait. If nine are down and two are damaged, then the Iraqi supply line has suffered a 20-percent loss of throughput, and air power has 80 percent of its goal remaining. This method of interpretation is career-safe for the analyst, who can always point to the imagery in case of dispute, and conservative for the military planner, for it minimizes unpleasant surprises. It rests on indisputable "facts" and refuses to expand on them.

However, members of the CENTAF Directorate of Campaign Plans and the Warden group would argue that the new style of air warfare has left the traditional method of BDA as "plinked" as any Iraqi T-55 in the desert. They take a more holistic, systems-oriented approach to BDA. We cannot, they would argue, look only at a single target set in isolation; it exists as a fully integrated portion of the enemy's economy and transport system. It both affects and is affected by what happens to the enemy as a whole. For example, the closure of 20 percent of the bridges may reduce supply throughput by far more or far less than 20 percent. If bombing has damaged communications, truck backups vulnerable to air action may occur at the downed bridges or at the other 80 percent of the now overloaded bridges. If bombing has reduced the domestic oil supply, trucks forced to divert or left sitting in traffic jams will consume fuel at a higher rate and deplete remaining stocks more quickly. If electricity has shut down because of air operations, drawbridges may not function, hampering riverine traffic and further slowing supply to the front, or manual operation may be required, which would delay truck traffic and cause shipping and vehicle jams. Downed bridges may have housed key fiber optics or other C³ lines, or their loss may have split a city in half, fostering popular dissatisfaction with the regime. Ripples of disruption caused by the loss of bridges impact the entire enemy state and reinforce and are reinforced by other bombing. This reasoning, if unconstrained, could lead an analyst to the most optimistic or pessimistic of conclusions. Adherents of the tra-

ditional method of BDA find it little better than reading tea leaves—entirely too speculative. A spacious middle ground exists between these alternatives and serves as a starting point for this analysis.

In mid-August 1990, Instant Thunder sketched a six-day stand-alone strategic air campaign designed to force Iraq to surrender. It called for 5,700 sorties (including SEAD and offensive sweeps) directed against ten strategic target systems. In days 1 and 2 it would hit its eighty-four-target list; on days 3 and 4 it would reattack the list; and on days 5 and 6 it would exert maximum effort against CW production and military-support infrastructure. As of September 1, 1990, it expected to produce its high level of sorties by attacking throughout the day and employing 547 USAF, USN, and USMC aircraft plus approximately 100 Coalition aircraft. The PGM capable aircraft consisted of twenty-four F-117As, thirty-two F-111Fs, and fifty-five USN/USMC A-6s. The planning further assumed a summer attack, good flying weather, little time for the Iraqis to disperse strategic assets, and a duration of six days. General Schwarzkopf incorporated major features of Instant Thunder into his own plan of action that he presented to Secretary Cheney and General Powell on August 25, 1990. He intended to give four to six days of major air effort to the strategic plan and to continue it at a reduced effort thereafter.² The air campaign no longer stood alone; it had become part of the buildup to a ground offensive. Nor did it have a definite cutoff date. Its targeting philosophy remained unchanged. General Horner's September 2, 1990, OPOD, Offensive Campaign—Phase I, written by the special planning group, also subsumed major elements of Instant Thunder.

Examination of the physical results of the strategic air campaign against Iraq, insofar as they are presently known and based on the target sets developed by the CENTAF special planning group, reveals the extent of air power's accomplishment.

The “Core”³ Strategic Target Sets

The core strategic target sets, target sets most important to maintaining Iraq's current and future military capability, consisted of Iraq's

1. National Leadership,
2. Military and civil C³,

2. Brfg, [Schwarzkopf to CJCS/SECDEF], “Offensive Campaign Concept of Operations Outline,” Aug 26, 1990 [File No. CK/DS/CENTCOM].

3. I have borrowed the term “core” from the *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 265. The chief authors of that volume, Barry D. Watts and Thomas A. Keaney, use it to define what they consider “the eight ‘strategic’ target categories that were perceived by those who planned and executed the Desert Storm air campaign as constituting the core of Iraq's current and future military power.” However, I have deleted one of their eight categories, “Rail and Highway Bridges,” from the “core” and placed that into what I designate the “mixed” target category. Since much of Iraq's political status in the region rested on its powerful military capabilities, attack on those capabilities can also be constituted as an attack on its political position in the region, as well.

On Target

3. Electric power generation,
4. Oil refineries, distribution, and storage,
5. NBC weapons research, development, and production,
6. Military support (research, development, production, and storage of conventional armaments), and
7. Scuds.

The strategic air campaign targeted Iraqi leadership and C³ targets in order to incapacitate the regime⁴ and slow the Iraqi leadership's capability to react and transmit their decisions. From January 16, 1991, to February 28, 1991, the number of leadership targets grew from 33 to 44 while the C² targets grew from 56 to 146.⁵ The latter target set grew because of the necessity to widen the target base to ensure a shutdown in alternate means of civil and military communications.

In the past half-century the flow of information and the speed of information exchanged between a modern military and its leadership has greatly expanded. Narrowing and slowing a foe's information flow delays his reaction time, and it can be progressive, causing him to fall further and further behind your actions until he is knocked out. The inclusion for the first time of these target sets in a strategic air attack stemmed directly from the ideas of the Warden group. However, the promises of August 1990—incapacitation of the regime and the severing of its communications with the forces in Kuwait—were based on inadequate intelligence. Some important means of communication remained unknown until a few days before the war; some were too closely associated with off-limits targets; some were more damage-resistant than realized; some were difficult (small) targets even for PGMs; and some remained hidden throughout the entire course of the war.

Other than images of damaged facilities, such as the well-known strike footage of the IZAF HQ and the news footage of the destruction of the minaret-shaped microwave tower of the Al Karakh telephone exchange building, *no solid data is available to connect bombing of leadership and of C² with specific consequences*. Nevertheless, the bombing of primary facilities did force the Iraqi

4. Warden expected that leadership bombing would result in Saddam Hussein's elimination or overthrow. Most others, including some of his own planners, thought not. But they did not deny that Saddam Hussein's overthrow would be a welcome and positive result of bombing leadership targets, even if it was not a given. In September 1990 the Black Hole proposed to "Decapitate the Saddam Regime," and bring about a change in regime. (See Brfg Slide 17, Brig Gen Glosson to CJCS, Sep 13, 1990.) When General Glosson briefed President Bush on October 11, 1990, he stated that the strategic air campaign would destroy the Iraqi leadership's command and communications and disrupt its ability to communicate with the Iraqi people. Glosson also received the impression the President did not want to go on the record as authorizing the targeting Saddam Hussein directly. [It was permissible to target Hussein, but you are on your own—without explicit presidential authorization]. (See *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 277.)

5. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 280 Fig. 30 "Total Strikes Against L and CCC during Desert Storm."

leadership to resort to less secure methods for communication,⁶ a circumstance especially welcomed during the ground war by Coalition forces.⁷ Prisoner accounts were replete with reports of Iraqi units dependent for information on messages delivered by bicycle or motorcycle. Bombing of security and intelligence ministries assuredly disrupted their operations that caused some decline in productivity, some loss of files, and some loss of control over the populace. The Shia and Kurdish rebellions against the Iraqi central government, which erupted after the war, probably underscored the regime's loss of control. The visit of Soviet special envoy Yevgeny Primakov to Saddam Hussein in Baghdad from February 12 to 14, 1991, shed some light on Saddam Hussein's communication's difficulties. Primakov brought with him Soviet satellite imagery of Iraq to show the Iraqi president, and he seemed surprised at the extent of the damage.⁸ From that point onward,⁹ using Soviet good offices, Saddam Hussein began to actively seek a way out of his predicament.

Although the bombing of C³ targets apparently had little effect on Saddam Hussein's control of his Scuds, the PGM seemed to be the ideal weapon for use in attacking Iraqi government buildings and communications centers. As the war progressed, however, it became clear that the planners had selected more elusive and redundant targets than they had suspected; fiber-optic networks and computerized switching systems provided difficult targets. Some of these networks ran along the Baghdad-Tigris bridges. Stealth bombers cut the spans on two bridges, but apparently fear of international condemnation coupled with the Al Firdos bunker incident led Washington¹⁰ to place the remaining bridges off-limits in mid-February.¹¹ The leadership and communications targets placed off-limits in Baghdad were the only target systems subjected to detailed approval and review by higher authorities, not only Schwarzkopf and Powell, but possibly others. This higher review prevented full execution of the attack on these systems.

The Instant Thunder planners, as part of their integrated attack on the regime, had also hoped to use another weapon to separate Saddam Hussein from the populace, PSYOP. They thought this might be effective against such a high-

6. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 150.

7. *Ibid.*, p. 152.

8. Cigar, "Iraq's Strategic Mindset," p. 25.

9. The bombing of the Al Firdos bunker, which took place during Primakov's visit, may also have affected Saddam Hussein's calculations.

10. The origin of the Baghdad targeting holds is a problem requiring further investigation. General Schwarzkopf placed the Baghdad bridges off-limits in early February. After the Al Firdos bunker incident on February 13, General Horner had to obtain General Schwarzkopf's approval for any targets in downtown Baghdad. General Schwarzkopf, in turn, discussed the targets with General Powell in Washington before granting his permission. General Powell seems to have imposed this restriction by his own authority, but there is some evidence that the target hold may have come from the White House. Secretary Cheney apparently went to the White House to get the bombing hold removed on February 21, 1991. See *GWAPS*, Vol. 2, pt. 1, *Operations* (2d ed.), pp. 241–243.

11. *GWAPS*, Vol 2, pt, 2, *Effects and Effectiveness* (2d ed.), p. 287.

On Target

ly centralized state. However, bureaucratic problems within the United States and fears of the host nations in the Arabian peninsula stymied implementation of such operations, denying an effective follow-up punch to the attack on Iraqi leadership. In any case, the regime did not fall, and it still possessed a minimal ability to communicate with its forces in Kuwait and its organs of control in other areas.

Bombing loosened the bonds between Saddam and the more disaffected populations of his state. It prevented the speedy transfer of his orders, thus slowing his response to crisis. It forced him to live on the run, thereby limiting his access to key, top-of-the-line communications individuals. It damaged his prestige, because all could see that he had clearly misjudged both the international situation and the ability of his armed forces to deal with it. It weakened his organs of internal control by destroying files, facilities, C², and perhaps key personnel; it thus degraded the functioning of Iraq's vast security bureaucracy, a characteristic of any police state. It facilitated insurrection.

The international embargo; the condemnation of the Arab world and erstwhile arms suppliers such as France and the USSR; and the seemingly unstoppable Coalition ground offensive, which visibly destroyed thousands of armored fighting vehicles and captured tens of thousands of Iraqis, greatly influenced the rebels' decision-making. Air power served as an enabling element, not the sole determinant, of rebellion. In a sense, the Shia made a calculation similar to that made by the anticommunist Polish Home Army in Warsaw at the end of July 1944. The Poles rose against the Germans on August 1 in an attempt to seize the capital and turn it over to the Western-recognized government in exile. But the success of the uprising depended on the continued pressure of the Red Army, which would have prevented the Germans' concentration on Warsaw and would break through to relieve the city. Instead, the Soviets, in an apparently calculated move directed by Stalin, halted their Summer Offensive in Central Poland and abandoned the Home Army. Similarly, but not so cynically, the Coalition-Iraqi cease-fire negotiated at the Safwan airfield should have made the Iraqi rebels pause. In both cases the decision to fight appears to have been made on the assumption of speedy relief on the ground (the Shia may also have been misled by the Iranians on the level of aid to be expected).

However, such was Saddam's grasp on his country and so maladroitness was the timing of the rebels that the dictator even managed to survive (by how close a margin the West may never know) the catastrophic situation in which he had placed himself. There are indications that Saddam's security forces, well aware of the concentration of the regular forces in Kuwait, took extensive and thorough precautions to prevent such uprisings.¹² The significant portions of both the relatively organized Kurdish jacquerie and the more spontaneous Shia mutiny occurred *after* the Safwan cease-fire. Neither of the two rebellious factions seems

12. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 378.

to have made a concerted effort to synchronize their actions, which allowed Saddam to fight and subdue them as separate forces rather than as a combined entity. By rising after the cessation of Coalition military action, the insurgents sacrificed two major advantages. Had they begun fighting before the cease-fire, they might have been able to claim they acted on direct Coalition urgings and might have had an exceedingly small chance of gaining Coalition aid or a continuation of hostilities against Iraq. Instead, they waited until the rump of Saddam's armed force was free to devote its energies to suppressing them rather than having to hide in dugouts to avoid Coalition bombing. How would the rebellions have fared had the Iraqi armed forces been unable to move, communicate, or even supply themselves? The poor timing and coordination of the two uprisings, no doubt in part because of the enfeebled state of Iraqi internal communications induced by Coalition bombing, doomed them. It also left the Coalition open to the same charge leveled against the Western nations in the aftermath of the Hungarian revolution of 1956—having egged on the rebels with no intention of aiding them.

The Hussein regime did not fall. The disappointment of air planners stemmed from overly ambitious goals and circumstances beyond their control. Still, the bombing of the leadership and communications network served a vital purpose. It caused the regime untold inconveniences, possibly slowed effective communication and thus interfered with Hussein's responses to the Coalition onslaught, forced expenditure of valuable and not easily replaced spares, consumed specialized repair efforts, and damaged government buildings and key communications facilities.

The bombing of C³ and leadership targets consumed approximately 1,000 sorties, 8 percent of the entire strategic effort but only 2 percent of overall Coalition air effort. The result of that bombing may have been minimal, as some critics have claimed, or extensive, as some air power advocates have hoped. Until, or if ever, hard evidence of its effects is obtained from unbiased Iraqi sources, the outside analyst can form no certain opinion as to its actual effectiveness. However, given the potentially great benefits of such bombing, an investment of a small fraction of the air effort toward it seems reasonable and justifiable, in both the Persian Gulf War and for future strategic efforts. Conversely, given the fact that no hard data are available concerning the actual results, building an air campaign around or devoting a substantial portion of an air campaign against these target systems in the future would be too great a leap of faith into an uncertain area and would rest on the unsubstantiated claim and the wishes of only one faction of air power activists. The eventual place of C³ and leadership bombing and their respective priorities in the scheme of air campaign operations is, at best, yet to be determined. More experience, testing, and hard information are required.

Iraq's twenty-five major electrical plants constituted a compact, highly leveraged target system. Their loss would force the Iraqi military to use backup

On Target

generators, greatly complicating its operations, and would probably inflict some hardship on the civilian population, weakening its loyalty to the regime. Coalition air attacks, the vast majority employing TLAMs, shut down the southern and central Iraqi power grids within hours of the initial attacks. The appropriate weapon applied to a vulnerable target produced outstanding results.

Three refineries produced 90 percent of Iraq's refined petroleum products. TLAMs hit the distillation towers of two of those refineries in the first two days.¹³ Aircraft equipped with missiles other than PGMs also conducted extensive raids on Iraqi refineries. By the conflict's end, the production of finished petroleum products had dropped precipitously. Nevertheless, despite many successful strikes on Iraqi oil-tank farms and other storage facilities, the Iraqi military had considerable finished petroleum stocks spread throughout in its military logistics system and supply dumps, where from the air it could not easily be distinguished from other supplies. Given these supplies and the relative lack of IZAF and Iraqi ground force activity until the last of the conflict, the oil bombing may not have had a direct effect on the war's outcome. The planners, of course, could not foresee the conflict's speedy conclusion, and military prudence dictated an attack on this system that in the long run controlled Iraqi mobility, hence the assault on oil.

As an added effect of hitting these two related targets, electricity and finished petroleum, the planners had hoped that lack of heat, hot water, cooking fuel, private automobile fuel, and labor-saving electric appliances would combine to alienate the populace from their leadership and help contribute to its change. This stress added to everyday living certainly angered and frustrated Iraqi civilians and may have fostered some feeling of malaise. When added to traditional grievances, it may have helped spark the Shia and Kurdish mutinies. But the air planners underestimated the strength of the Iraqi internal security apparatus and its ability to bank or deflect the fires of popular dissatisfaction from the regime and the stake that Saddam Hussein's Sunni followers had in the status quo. Even when the bombing of electrical and petroleum targets is combined with that of leadership and C² targets, the regime survived, though barely.

This underestimation of the hold that a police state has on its thralls was not unique to USAF planners. Outside observers also underestimated the hold of both the Nazi and Soviet states on their populace before World War II. One might also suggest that the fall of the Soviet Union in the late 1980s resulted more from a recognition of economic failure among the regime's ruling elite than from disapproval by the general population. As to the strength of an internal security apparatus, the continued survival of the KGB and its successors provides an object lesson in their durability and strength.

For both the electrical and petroleum target systems the planners' had sought to limit damage in order to facilitate eventual and speedy repairs.¹⁴ In order to

13. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 299.

14. The planners assumed Saddam Hussein would have fallen and there would be few or

stop the flow of electricity to the Iraqi national power grid, Coalition air power did not have to bomb the electrical generating plants into rubble; they merely had to stop their operations for a few weeks or months, during the time of the actual fighting. To encourage oil exports, they did not bomb oil fields nor did they intend to level refineries. In the immediate postwar period, the Iraqi government and several international visitors indulged in breast-beating over the public health and economic consequences of the damage inflicted on the electrical power and oil systems. However, despite a continuing international embargo and noncooperation from Saddam Hussein's regime, Iraq had recovered much of its electrical generating capacity by mid-1992, and by October 1992 it was exporting finished petroleum products.¹⁵ So much for Iraqi claims of excessive damage inflicted on these targets by air power. Coalition air power accomplished its goals perfectly: a shutdown of electricity and finished petroleum production during the conflict with little long-term effect on Iraqi capacity. The location of these targets, beyond city areas, resulted in little collateral damage. They were an almost perfect example of the Warden's groups theories of bombing for *effect*, not *destruction*.

The Coalition attempted to destroy Saddam Hussein's NBC weapons R&D and production because they served as key tools in his efforts to destabilize the Persian Gulf region. They formed part of the original Instant Thunder plan which promised to "destroy," that is obliterate, these target sets. That plan, however, was based on quite limited intelligence and intended for execution in late August 1990. Although more intelligence did become available, the Iraqis also gained five months to take countermeasures. By January 16, 1991, the earlier promise of "destruction"¹⁶ of these targets, if ever viable, had become a planning goal rather than a realistic objective. Iraq's NBC capabilities proved far less accessible than the air planners had imagined. After the 1981 Israeli air raid on their reactor complex at Tuwaitha, just south of Baghdad, the Iraqis dispersed and duplicated all the important segments of their nuclear program. Before the war began, they removed all fissionable materials, equipment, and documentation from facilities and dispersed and/or buried it.¹⁷ Moreover, U.S. intelligence failed to locate and identify the bulk of Iraq's nuclear effort.

The strategic air campaign planners on January 16, 1991, carried only two nuclear targets: Tuwaitha and the Al Qaim uranium mine near the Syrian border. The list grew to eight (five destroyed and two damaged) by the end of war. The facilities the USAF knew about, it hit hard. But by October 1991 UN inspection

no import restrictions on the new regime. By making oil and electricity unavailable during the conflict but speedily available to the new regime, the planners hoped to a strengthen Saddam Hussein's successors in the eyes of the Iraqi people.

15. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 308, 310.

16. The author has discussed the use of the word "destroy" in relationship to Iraqi NBC capabilities with members of Checkmate and the Black Hole. They intended to totally eliminate all such capability, not just damage it.

17. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 314–315.

On Target

teams, hindered by the Iraqis as much as they dared, had uncovered twenty-one nuclear weapons-related facilities.¹⁸ Lack of adequate intelligence, not lack of capability, hindered aerial destruction of the Iraqi nuclear program. To an unknown extent, but certainly consisting of many months, the Coalition air effort and the forced dispersion delayed the Iraqi atomic bomb project.¹⁹

Attacks on Iraq's CW and BW production and research facilities fared only marginally better than those on Iraq's nuclear effort. The Coalition destroyed or heavily damaged 75 percent of Iraq's known CW research and production and almost all of its known BW capability.²⁰ Nonetheless, in addition to facilities it concealed or those that had escaped Coalition intelligence, Iraq had a fair-sized pharmaceutical industry that on relatively short notice could convert to CW purposes and could produce enough material to threaten its neighbors. As for the weapons themselves, UN inspectors located more than 150,000 CW-capable artillery shells but found no evidence of actual BW.²¹ The strategic bombing campaign delayed production and reconstitution of this target system for an indeterminate period that was certainly many months, if not years. It failed to remove these terror weapons as a destabilizing element in regional politics. The planners' promise to "destroy" them was a promise beyond the capability of air power alone.

In all, NBC targets accounted for only 7 percent of the strategic air campaign's total sorties. Significantly, little evidence exists to show that the strategic air planners received pressure from higher authorities to increase their efforts against these systems. The higher U.S. authorities, of course, worked with the same intelligence limitations as did the air planners, and like them, apparently did not realize that the attack on Iraq's NBC complexes had failed to destroy them.

The inability of air power to strike such weapons from Saddam Hussein's hand raises a problem of disturbing magnitude for international political and military leaders alike. Such weapons are an all-or-nothing proposition. If a potential foe retains just a handful of them, or the ability to produce them quickly, he is in almost as good a political/diplomatic/military position as if he had dozens or hundreds of them. But unless an enemy is physically occupied and his land thoroughly searched (100-percent accurate intelligence), one can never ensure that the enemy has none. In fact, the Iraqis have demonstrated that even the most sensitive components can be relocated at will, which makes them virtually invulnerable to any nonnuclear weapon. By January 1991 Iraq had 20,000 modern centrifuges, three separate and concealed methods of uranium extraction, and 25 pounds of enriched uranium (one-third the amount needed for an A-bomb). Iraq

18. *Ibid.*, p. 328.

19. Evidence indicates that Iraq had launched a crash program to produce one A-bomb in August 1990. The outbreak of hostilities apparently halted this program.

20. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 155.

21. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 325 n. 137.



Stored in the destroyed warehouse at the Iraqi Muhammadiyat storage site (upper left) had been sarin-filled bombs, and the jerry cans at the Al Walid airbase that the inspectors are viewing contain a component for nerve agent bombs.

had even begun preliminary research on a fusion bomb.²² U.S. intelligence knew virtually nothing of these developments. The lesson is no less ominous now than it was in 1945—any nation wishing to expend the resources can acquire and maintain atomic and other terror weapons. Ultimately, without a basic change in the philosophy of a nation’s ruling class, such as occurred in West Germany’s and Japan’s ruling class after World War II, physical destruction is not enough. Air power cannot bomb the desire for these weapons from Saddam Hussein’s psyche, nor can it remove the knowledge of them from the minds of Iraq’s physicists, biologists, and chemists. Indeed, five months after the war, Iraq’s chief nuclear scientist, Dr. Jarrar Dhia Jaffar, stated that when Iraq began reconstruction of its war industries, it would follow the results of its own bombing survey “so as to better survive aggression.”²³

The U.S. decision to devote minimal national intelligence priorities to Iraq and its NBC weapons programs before August 1990 resulted in a failure to identify the extent and diversity of these programs. That shortfall caused a breakdown in the link between intelligence, targeting, and campaign planners that

22. Ibid., pp. 315–316.

23. Ltr, David A. Kay to Barry Watts, GWAPS, Oct 20, 1992 [GWAPS, National Archives, Record Group 375].

On Target

interfered with the necessity for the closest possible relationship among them—weak intelligence makes poor plans. In the event, not only national intelligence but air power failed. Air power is not just technology, it is the power projection of an air service fully integrated as to all aspects of the military profession to include intelligence, logistics, operations, plans, and personnel. In this instance, USAF intelligence and plans did not work as a fully functioning team. To create a more effective force, the USAF must take a closer look at how it integrates its intelligence function with the remainder of the service.

The strategic air campaign planners struck at Iraq's massive military storage and production network in order to reduce Saddam Hussein's ability to field and sustain his armed forces for future use in destabilizing the Persian Gulf area. The target system included Scud component production and assembly. Twenty-two percent (2,756) of the total sorties of the strategic air campaign and probably even more of the strategic air campaign's total bomb tonnage went into this target system. This equaled the amount of sorties expended on Scuds (2,767). Other than American BDA data, little evidence is available to determine whether the Coalition's air effort inflicted significant, lasting damage to this target category or whether the Iraqis once again dodged the bullet with a dispersal program. Certainly Coalition aircraft destroyed or heavily damaged many physical plants and possibly some equipment too bulky to move. As a DoD report stated,

At least 30 percent of Iraq's conventional weapons production capability, which made small arms, artillery, small- and large-caliber ammunition, electronic and optical systems, and repaired armored vehicles, was damaged or destroyed.²⁴

The damage to those specific key maintenance and manufacturing bottlenecks as well as to specialty metallurgy and aircraft engine repair meant that the effect on overall Iraqi arms production was probably even greater than the loss of 30 percent of production capability. Nonetheless, given its size, diffusion, lack of high priority, and the short duration of the conflict, the bulk of the target system survived.

In all probability the Scud diversion saved this large, easily located target system from even more damage, as did the concentration of air effort on Iraqi ground forces in the KTO. A greater use of non-PGM-carrying B-52s and F-16s, as well as PGM sorties diverted from tank plinking, would have inflicted far greater harm on the military-support target system, with the possible disadvantage of also inflicting greater collateral damage. The strategic air campaign inflicted expensive and inconvenient damage to this target system. Air power had the capacity to virtually destroy Iraq's conventional military manufacturing system, but only with a commitment of resources greater than those available to the strategic air campaign. Once Saddam Hussein regains access to the international arms market, as he assuredly will at some point, the Iraqis will rapidly repair their conventional arms industry.

24. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 159.

The strategic air campaign planners also directed the attack on Scud support facilities, communications and testing centers, and launchers in order to protect Coalition forces and procure stability in the Persian Gulf region. They targeted the Scuds to prevent Saddam Hussein from using them to attack Israel and provoke Israeli retaliation, which might have fractured the Coalition.²⁵ Coalition bombing heavily damaged almost all known production and research facilities, but subsequent UN inspection revealed that the Iraqis had removed most Scud production equipment, components, and documents before the air campaign began. The DoD *Final Report* ruefully stated that the “actual damage to Scud production and storage facilities is less than previously thought.”²⁶

The attack on Scud MELs failed to destroy any significant number of them. The Iraqis never used the exposed fixed launchers. Bombs expended on them served little purpose. By the end of August the Iraqis had dispersed their MELs to areas within range of Israel and Saudi Arabia, where they continued to operate until the end of the conflict. The MELs proved a difficult target for strike aircraft. A MEL could move more than five miles from its firing site in ten minutes without the use of roads. To mislead Coalition aircraft, the Iraqis employed numerous high- and low-quality decoys, some indistinguishable from the actual launcher at more than twenty-five yards. Launcher crews practiced extreme electronic emissions control and nighttime light discipline and had streamlined Soviet launch procedures, shaving launch time from hours to minutes. The crews received their launching instructions via landlines and couriers, which made interpretation by Coalition electronic intelligence impossible.

In late 1990 USAF exploitation flights against a borrowed launcher and crew showed that U.S. strike aircraft had difficulty in visually or electronically acquiring launchers in daytime and that at night these sensory organs and devices proved even less effective.²⁷ The Iraqi mobile Scuds were a mismatch of available weapons to the selected target. The missiles were invulnerable to air attack because they could not be located with existing air technology. However, a friendly ground spotter might physically locate a mobile Scud and fix it with his own laser designator to illuminate the target for a laser-guided weapon. As of early February, when Coalition air had already expended more than half its total effort against Scuds, no confirmed kills of Scud MELs had yet been recorded.²⁸ Even if Coalition aircraft did manage to destroy one or two launchers later in the remainder of the war, it still illustrates the relative immunity of the Scud to air attack. Although the air planners had constantly upgraded Scud targeting priority before the war, as evidenced by their breaking it out as a separate target sys-

25. As noted, the Iraqis possessed an inventory of several hundred missiles, several fixed launchers (simple rails on a concrete pad), and probably no more than twenty-five to forty MELs. For a detailed discussion, see *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 317–319, 336.

26. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 156.

27. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 334–336.

28. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 168.

On Target

tem and by scheduling some of the very first air strikes against it, they underestimated the Scud's survivability. After the war UN inspectors oversaw the destruction of nineteen MELs and several decoys that Iraqis admitted they still possessed.²⁹

The Coalition anti-Scud effort was not a complete loss to the overall war effort. It kept the rate of Scud firings to levels tolerable to both the Israelis and Saudis. Israeli counterattacks might have given Saddam Hussein his one chance to end the war on favorable terms. The comparative success of the Scuds presented a troubling new problem for air power. Scuds were relatively cheap to purchase or produce, easy to hide, and accurate enough to inflict great, if indiscriminate, damage when fitted with NBC warheads. The Scud confronts modern air forces with many of the problems of guerrilla warfare, with all its complications. Militarily, the anti-Scud effort was a successful strategic diversion imposed by the Iraqis on the Coalition—strategic sorties expended on those missiles might have damaged targets of more lasting significance. But in the political and diplomatic sense, they failed. Scuds neither drove Saudi Arabia from the conflict nor dragged Israel into it.

The core target sets and the methods and means used to attack them were the centerpiece of the strategic air campaign against Iraq, which expended 65 percent of its effort (8,188 sorties) against them. They were targets of vital importance to the Iraqi war effort. As will be seen below, their vulnerability to air attack varied. The attack on the Iraqi leadership and C³ produced problematic and unverifiable results. It failed in its primary objective, the deposition of Saddam Hussein, to such an extent that it discredited the entire concept of employing air power *alone* to overthrow a police state. But the secondary results of the attacks greatly complicated the Iraqis' ability to prosecute their war effort and should constitute a useful line of attack for future strategic air operations. The assault may have been fraught with failure, but it was potentially useful.

In contrast, the attacks on electrical and oil targets, especially the electrical targets, were uniformly successful. They produced immediate and damaging results and to some extent validated the Warden group's methodology of searching for centers of gravity and bombing for effect. The attack on NBC targets was effective against known targets and inflicted significant delay on Iraqi weapons programs, but it did not destroy them because intelligence shortfalls denied air power the opportunity to strike these target systems in their entirety. The results of the assault on this target system must receive a split grade of "A" for effort but "D" for results.

In the same vein, strikes on the Iraqi military support caused delays in production and consequent delay in full reconstitution of the Iraqi armed forces, but they did not destroy Iraqi capabilities. Of course, delay in and of itself might prove beneficial to Iraq's neighbors, if they use the time granted them to prepare

29. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 334, 336.

their defenses against a renascent Saddam Hussein. This aspect of the campaign should conclusively demonstrate the difficulty of bombing the military support industry which, in spite of Saddam Hussein's centralizing proclivities, proved too diffuse for the resources available. It was the very type of low-leverage target system that the original Warden group had sought to avoid. Instead of bombing the many factories that produce the arms directly for the military, it is far more economical to disrupt the power sources and transportation nets that feed them.

Finally, the Scud target system illustrates the intimate link between military and political power. When considered alone, the anti-Scud effort was an almost complete military failure that raises disturbing problems for future air power campaigns. But when one examines the anti-Scud effort in the Clausewitzian sense, that is viewing warfare as extension of the state's politics, then the anti-Scud effort justified the military resources invested in it by keeping Israel neutral. At the strategic level, almost every target system will involve both political and military calculus. In this instance the political objective was paramount, and the assault on the target system was ironically successful.

Self-Defense Targets

The achievement of air superiority and the protection of friendly bases and forces are necessities for a successful strategic air campaign. To guarantee those prerequisites, Coalition air forces attacked three strategic target sets dealing with Iraqi defenses capable of harming Coalition air and naval forces or protecting the "core" strategic targets:

1. The Iraqi IADS,
2. The IZAF, and
3. The Iraqi Navy with its associated port facilities and antishipping missiles.

The Coalition directed 29 percent of its strategic air effort to the suppression or destruction of these three target sets vital to Iraqi and Coalition war efforts. These Iraqi targets proved extremely vulnerable to Coalition air action.

CENTAF planners directed their first air action against Iraq's strategic IADS as the first prong of the Coalition's effort to gain air supremacy over the area of conflict. Coalition air forces could not attack 7,000 AAA pieces and 3,700 SAMs individually, but they could attack the element that controlled and integrated the guns and missiles. The near destruction of the Kari C² illustrated the effectiveness of concentrating on a system's center of gravity. Kari, including its most effective backup capability, consisted of fewer than thirty large and easily identifiable targets with probably only twice as many aiming points. A relatively small system such as Kari, the center of gravity of the Iraqi air defense system, lent itself to the quick, hard strike envisioned by the campaign planners. Coalition aircraft antiradiation missiles intimidated Iraqi SAM and AAA radar operators who hesitated to operate their equipment lest their signal lock-on

On Target

attract a destructive response. Many Iraqi search radars succumbed to roving USAF A-10As. Within hours of the start of hostilities, Coalition aircraft could operate with impunity at high and medium altitudes.³⁰ They took losses only when they chose to operate at low altitude during the last weeks of the conflict, when Coalition aircraft began more accurate, low-level attacks on Iraqi ground forces in advance of the Coalition ground offensive, and when they supplied CAS for the ground offensive that began on February 24, 1991. By January 27, Western intelligence detected no C³ activity at the SOC level and only limited activity at the IOCs.³¹ At the end of the conflict, the DIA assessed the degradation of the overall Iraqi air defense system at 75 percent or greater. The Kari system had cost \$400 million and taken a decade to install. DIA judged it would take a similar period, plus five years for personnel training, to reconstitute it. Until then and until Iraq learned to fight a modern air war, “its C² and air defenses will remain ineffective against sophisticated air forces.”³² The ability of the Coalition air forces to operate with near impunity above 10,000 feet for all but the first two days of the conflict testifies to the effectiveness of the attack on Iraq’s air defenses. The defeat of the Iraqi IADS allowed Coalition air power freedom of the air. This speedy accomplishment was a success for the strategic air campaign.

Iraqi airfields and the aircraft they housed absorbed 24 percent (3,047) of the strategic air campaign’s total sorties. Initial Coalition air attacks concentrated on runway denial and then switched to HASs. These attacks destroyed or forced out of the country half of the IZAF and damaged its essential support facilities and equipment; the remaining IZAF would suffer from spare parts, maintenance, and training problems until it regained access to the international arms market. Given the Coalition air forces’ lopsided advantages in quality and quantity of men and matériel, destruction of the IZAF was but a question of time and blood and how much of each the Coalition wished to sacrifice. The Coalition lost only one F/A-18 and pilot in air-to-air combat (to a look-down, shoot-down MiG-25) and only a handful of aircraft and pilots in missions against airfields.³³ It achieved air superiority the moment the first F-15C crossed into Iraqi airspace, and air supremacy soon after. The USAF had trained for counterair operations, and its use of PGMs denied the Iraqis a secure sanctuary. The Coalition air forces achieved a more complete success sooner than even they had anticipated.

Of Iraq’s 750 or more fixed-wing combat aircraft, at least 109 fled to Iran, 151 fell victim to Coalition bombing, and 33 were shot down.³⁴ Coalition ground

30. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 154.

31. Point Paper, Maj. Terry New, XOXWF, “BDA—Desert Storm—Operator’s Look (As of 27 Jan/0900L Baghdad),” 0420 EST January 27, 1991.

32. Msg, 140205Z Mar 91, DIA to CINCCENT et al., Subj: Final BDA Status Report [File No. CK/DS/BDA/=DIA].

33. The sources disagree on this. According to somewhat inconclusive evidence, a MiG-25 or a MiG-29 may have shot down a USN F/A-18, killing the pilot, near Baghdad on the night of January 16/17, 1991.

34. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 154.

On Target

absorbed 2 percent (247 sorties) of the total strategic effort, to which the USN added approximately another 750 tactical sorties.³⁷

The attack on Iraq's defenses was by far the most successful portion of the strategic air campaign against Iraq because it posed the simplest strategic problem. American intelligence could easily locate the massive facilities (hardened air operations centers, airfields, and naval ports) that supported them, while the Iraqis could hardly dismantle, disperse, and bury them. SAMs and AAA without central control rapidly lose effectiveness, as do aircraft and ships separated from their permanent bases.

The "Mixed" Target Sets

The two "mixed" target systems of the strategic air campaign—the rail and highway bridges and the Republican Guard—possessed political and strictly military aspects that belonged to both the tactical air campaign conducted by the Coalition in the KTO and the strategic air campaign against Iraq. The bombing of bridges for the purposes of interdicting Iraqi LOCs³⁸ into Kuwait and depriving the Iraqi forces there of the necessary means to fight is a strictly military objective. The destruction of bridges to prevent the escape from Kuwait of the Iraqi ground forces, particularly the Republican Guard (permitting their destruction there and preventing their subsequent use by the regime in Iraq to ensure its internal security), involved both military and political considerations.

The strategic air campaign expended 6 percent of its effort against bridges,³⁹ a vital target system but less critical to the Iraqi war effort than the air planners had anticipated. This target system proved highly resistant to the effects of dumb bombs but vulnerable to PGMs. The strategic air campaign destroyed or heavily damaged three-fourths of the major bridges between Baghdad and Basra, including all nine of the railroad bridges.⁴⁰ This single-track railroad carried a large

37. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 89.

38. LOCs are all routes—land, water, and air—that connect an operating military force with a base of operations and along which supplies and military forces move. *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, s.v. line of communications.

39. I count all bridge sorties, even the 55 percent conducted by F-16s, F/A-18s, and other non-PGM-equipped aircraft, as belonging to the strategic air campaign. The aircraft serving as the bombing platform, even though identified with "strategic" bombing, such as a B-17 or B-52, or with "tactical" bombing, such as a P-47 or F-105, does not define whether or not a target is strategic or tactical. Depending on the situation, such as the "mixed" Gulf War targets sets, a given target set can have aspects of both. In this case I place bridges in the category of strategic bombing because the physical targeting and planning was handled by the CENTAF strategic air planners, many of the targets lay outside the KTO, and, as will be discussed below, the political objective of destroying the Republican Guard may have had more practical significance than the objective of restricting Iraqi supply lines.

40. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 158. *GWAPS* offers a more pessimistic view, noting that by February 28, 1991, bombing had rendered all the railroad bridges unusable but only a little less than a third of the highway bridges unusable. (See *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 181. The difference in the two figures stems from

majority of Iraqi Army and Republican Guard heavy equipment when those units moved for other than tactical or battlefield operations. Complete loss of Iraqi rail capacity *from* the KTO inhibited any speedy retreat of Iraqi armored and mechanized units. The elimination of rail transport also limited the capacity of Iraqi lines of supply to Az Zubayr on the Iraqi-Kuwaiti border, which served as the Iraqi supply head for their troops in Kuwait. Loss of highway bridges reduced truck traffic to Az Zubayr and from there down the four-lane superhighway which linked Az Zubayr to Kuwait City and points west and south. The Iraqis' ability to resupply their forces in Kuwait dropped to a small fraction of its pre-war level.⁴¹

Bridge bombing produced traffic jams vulnerable to Coalition air action and increased the wear and tear on the Iraqi motor transport fleet which was forced to travel greater distances to find alternative routes. In response the Iraqis built numerous pontoon bridges (of much lesser capacity than the permanent structures they replaced) and other work-around solutions such as earthen causeways. Coalition air countered by destroying many of them and by mounting frequent "river reconnaissance" patrols to disrupt these Iraqi efforts. As in Linebacker I, the PGM proved the most effective weapon against bridges. PGMs constituted 45 percent of Coalition bomb tonnage expended on bridges and inflicted the bulk of the damage to them. In this instance the strategic air campaign achieved a good match between weapons capability and the target system attacked.

Anticipating the interdiction campaign, Iraq's forces in Kuwait partially offset the effect of Coalition air power's severe constriction of their LOCs by stockpiling large amounts of supply and matériel in the months between their invasion of Kuwait and mid-January 1991. In fact, the vast physical extent of the numerous, revetted, and highly dispersed Iraqi supply dumps so discouraged the Coalition tactical air planners that they "never attempted a coherent campaign to interdict the flow of supplies into the theater."⁴² Iraqi forces in Kuwait had consumed only a fraction of the supplies available in theater before the ground offensive commenced on February 24, 1991.⁴³ Had the ground war lasted for an

differing definitions of bridges. DoD, like CENTAF and Checkmate, counted only the fifty-four "major" bridges, while GWAPS counted all bridges.

41. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), pp. 188–189.

42. *GWAPS*, Vol. 2, pt. 1, *Operations* (2d ed.), pp. 321–322.

43. The Coalition tactical air campaign in Kuwait succeeded in greatly complicating Iraqi supply distribution from their dumps in Kuwait to the unit logistics centers and thence to the troops in the field by attacking supply convoys and even individual trucks. Although the Iraqis had adequate supplies in Kuwait they could not get them to the front, where some units had few or no deliveries of rations and water from the beginning of the air offensive. This interference with Iraqi supply distribution resulted more from the pattern of Coalition tactical air attack than from a consistent assault on the supply system. Coalition aircraft operating in their assigned kill boxes routinely struck at any moving target (supply, fuel, and water trucks are more vulnerable to enemy fire than armored fighting vehicles) or at any target in the open (the Iraqis did not routinely park their trucks in revetments). Reports from Iraqi prisoners of war reveal that tactical air power had caused serious logistical difficulties for the Iraqi front-line forces. (See *GWAPS*, Vol. 2, pt. 1, *Operations* (2d ed.), p. 323.

On Target

extended period of intense combat, the lack of resupply capacity would have become a fatal handicap.

Schwarzkopf's OPORD of January 16, 1991, reflecting his instructions from Secretary Cheney, identified the Republican Guard as an "Iraqi center of gravity,"⁴⁴ that is a target essential to the Iraqi conduct of the war and the survival of the Saddam Hussein regime. The DoD *Final Report* states that 31 percent (5,646) of the total *strategic air campaign* sorties flew against these units. Although the number of strategic sorties expended on the Republican Guard is "official," it is a most misleading number in two ways. Inclusion of all Coalition air sorties flown against the Republican Guard in the summarized total for strategic target sets (it is the largest number of sorties flown against any of the twelve target strategic target sets) overstates the overall size and level of the strategic effort by one-third as compared with both the Coalition's air effort in Kuwait and the Coalition's overall air effort.⁴⁵ Second, as will be explained below, a higher percentage of Republican Guard units and their heavy equipment escaped destruction in Kuwait as compared to any other portion of the Iraqi army.⁴⁶ Categorizing all sorties flown against the Republican Guard as part of the strategic air campaign appears to put the blame, if any, for failure to destroy the Republican Guard on the strategic air campaign alone, to its detriment. It also, to some extent, absolves tactical air power, Coalition ground forces, and the American military and political leadership of their responsibility for any failure to destroy Saddam Hussein's political lifeguards.

The fact that much of the Republican Guard survived the war intact has become an increasingly controversial and heated matter that has already generated revisionist interpretations.⁴⁷ Much like the successful German and Italian evacuation from Sicily in August 1943 that occurred in the face of overwhelming Allied land, sea, and air superiority, the survival of the Republican Guard rested as much on a complicated series of decisions taken by Coalition air and ground commanders and political leaders as it did on Iraqi initiatives. Saddam

44. DoD, *Conduct of the Persian Gulf War* p. 159.

45. *GWAPS*, a study paid for by the USAF and much less widely circulated than the unclassified DoD *Conduct of the Persian Gulf War: Final Report to Congress* uses "strikes," defined as the delivery of a weapon against a specific target, instead of "sorties." Using the CENTAF strategic air planners' Master Target List target categories, it records only 33 strikes of the total 9,731 strategic strikes against Republican Guard targets (the least of any target category). *GWAPS* also notes that the strategic campaign flew only 9,731 of a total of 41,309 Coalition strikes, 24 percent of the Coalition air effort. (See *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium* (2d ed.), p. 517 Table 185 "Strikes by Master Target List Categories.")

46. Some of these surviving Republican Guard units, as well as other Republican Guard formations never committed to the KTO and held in Baghdad during the conflict (to provide security for the Saddam Hussein Regime), proved instrumental in suppressing the postwar Shia and Kurdish insurrections.

47. For an example of the controversy beginning to surround this subject, see Ltr, William S. Lind to Editor, *Proceedings*, Dec 1993, pp. 23–24, and J. G. Burton "Pushing Them Out the Back Door," *Proceedings*, Jun 1993, pp. 37–42.

Hussein committed eight divisions of the Republican Guard to Kuwait.⁴⁸ The three heavy divisions, the Tawakalna (We Trust in God) Mechanized Division and the Hammurabi and Madinah Armored Divisions held second-echelon, or reserve, positions on the Kuwaiti-Iraqi border. After an operation, such as in the invasion of Kuwait, the Iraqis habitually withdrew the Republican Guard from the front to rest, rehabilitate, and retrain for future operations and to maintain their elite edge by avoiding the daily depletion of human resources and matériel associated with front-line duty. Because of their internal security functions, it was essential that Saddam's regime preserve their fighting ability at all times. The southern and westernmost, as well as the most powerful, of the three divisions, the Tawakalna, occupied a position covering the Wadi al-Batin where the Iraqis anticipated a major Coalition ground attack. Its placement also gave it the potential to swing westward to confront a Coalition flanking attack (the actual Coalition maneuver), making it the most militarily threatening of the Republican Guard divisions. Consequently, it received the heaviest aerial bombardment of any of Republican Guard division.⁴⁹ The Madinah Division had dug in and dispersed at the point where the Kuwaiti-Iraqi border began to curve to the south, while the Hammurabi Division stood on the border midway between the Persian Gulf and the Madinah Division.⁵⁰

When the Coalition ground and air commanders referred to the Republican Guard, they invariably meant these three units. The three kill boxes containing the heavy Republican Guard Divisions and parts or all of eight of the twelve regular Iraqi Army heavy divisions ranked as the top three boxes in numbers of Coalition air strikes, absorbing nearly one-third of the total fixed-wing strike sorties allotted to the KTO.⁵¹ Prior to G-day, the Republican Guard heavy divisions had lost 24 percent of their armored fighting vehicles.⁵² By the end of the war, the Iraqi Army deployed in the KTO had suffered the loss of approximately 76 percent of its tanks, 55 percent of its armored personnel carriers, and 90 percent

48. Two to four independent Republican Guard brigades and some lesser units remained deep in Iraq where they performed internal security duties, such as being the only troops allowed to garrison Baghdad.

49. The two strike boxes (AE6 and AF6) that contained the Tawakalna Division received almost one-quarter of all the Coalition fixed-wing strike sorties directed at kill boxes in the KTO. See *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium* (2d ed.), p. 468, Table 181 "Kill Box Strikes."

50. 24th Infantry Division (Mechanized), OPLAN Desert Storm 91-3 (Offensive Operations), Jan 17, 1991, App. 1 "Intelligence Estimate," Tab C "Enemy Situation," to Annex B "Intelligence," to the 24th Infantry Division (Mech) OPLAN DESERT STORM, pp. B-1-C-3, C-4, published in full in *24th Mechanized Infantry Division Combat Team, Operation Desert Storm, Attack Plan OPLAN 91-3* (Fort Stewart, Ga.: 24th Infantry Division [Mech], Apr 1991).

51. *GWAPS*, Vol. 5, pt. 1, *A Statistical Compendium* (2d ed.), pp. 464-465, Table 179 "KTO Ground Order of Battle (as of 21 Feb 91)," and p. 468, Table 181 "Kill Box Strikes." Table 181 notes that the three boxes (AF7, AG7, and AE6) received 6,517 strikes of the 21,973 sent against kill boxes.

52. Keaney and Cohen, *Gulf War Air Power Survey: Summary Report*, p. 106.

On Target

of its artillery; the Republican Guard heavy divisions had suffered a 50-percent loss in the same categories.⁵³

Several factors account for the lighter loss of the Republican Guard heavy divisions. First was the nature of the desert itself. Many analysts have remarked that the open spaces of the desert served air power well by making concealment more difficult for the enemy and by revealing its movement. Few have noted that the desert sand gave the defenders a somewhat compensating advantage. Sand absorbed and muffled the high-explosive effects and concussion of bombs and shells. Unlike more compact soils, which help spread the blast and fragments over a wide area, sand limits a shell's impact.⁵⁴ This factor reduced secondary bomb damage and made direct-hit accuracy even more important. In fact review of tank-plinking videotapes and other data appears to reveal that the kill rate of the GBU-12/F-111F combination for Republican Guard armor was somewhere between 35 and 45 percent—an outstanding ratio, albeit less than original CENTAF estimates.⁵⁵

The Republican Guard's geographic position in the Iraqi theater reserve, fifty or more miles removed from the front line, enabled it to exit the theater or avoid combat before becoming fully engaged with Coalition ground forces. The Tawakalna Division, the closest Republican Guard division to the front, suffered the heaviest loss.⁵⁶ The heavy divisions' geographic positions also put them closer to the Iraqi military's excellent combat engineering corps, which apparently constructed more permanent and more bombproof revetments for the Republican Guard heavy divisions' equipment than it provided for other Iraqi formations closer to the front. In addition, their distance from the front line meant that the heavy divisions did not have to deploy themselves into relatively tight tactical defensive positions intended to repel immediate Coalition ground attacks. Instead, they could disperse themselves over a much wider physical area that further attenuated the effect of tactical bombing done in the bulk with non-PGM ordnance. This extra protection made them a more difficult target. Their distance from the front increased the logistical effort needed to mount an air package against them, and their heavier air defenses⁵⁷ made approaching them more cost-

53. Ibid.

54. Conversely, correctly timed air bursts and proximity fused shells or bombs can be very effective in the desert because their blast is still spread over a wide area and the defender finds it more difficult to prepare shelters with adequate overhead cover because of a dearth of proper and easily available local building materials

55. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 36.

56. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (1st ed.), p. 217, Table 15 "Equipment Destroyed or Abandoned in Republican Guard Heavy Division Areas." The Tawakalna Division lost approximately 93 percent of its tanks, 76 percent of its armored personnel carriers, and 50 percent of its artillery.

57. Iraqi Regular Army division air defense elements had a very few obsolescent Soviet SA-2s or -3s (maximum altitude, 25,000 meters or 82,000 ft), a few more modern SA-9s (maximum effective altitude, only 4,500 meters or 14,760 ft), and some shoulder-launched SAMs. Republican Guard division air defense elements possessed more plentiful numbers of

ly for Coalition aircraft. Both factors tended to decrease the accuracy of Coalition air attacks. The Coalition policy of avoiding casualties also contributed to the Republican Guard's survival. When CENTAF lost two A-10As to ground air defenses in Republican Guard areas on February 15, 1991, it limited that aircraft to less deep penetrations.⁵⁸ At the insistence of the Coalition ground force corps commanders and as part of the overall theater deception plan, the CINCCENT also concentrated tactical air efforts upon the Iraqi front-line divisions, which lessened the effort applied against the Republican Guard.⁵⁹

During the Coalition ground assault, U.S. Army VII Corps caught up with the Tawakalna Division, apparently serving as a rear guard, and inflicted severe casualties on it. VII Corps also encountered elements of the Madinah Division (which suffered about a 50-percent loss of equipment from all Coalition ground and air action) as it retreating into the assembled Iraqi forces near Basra, an area known as the Basra pocket. The Hammurabi Division (which sustained 25-percent loss of equipment to all Coalition action) also retreated into the Basra pocket. Unlike the desert, the Basra pocket contained a large city, its suburbs, and numerous farming villages. Imagery shows that the Republican Guard and other Iraqi ground forces, well aware of the Coalition policy of limiting collateral damage, took advantage of that policy to huddle as close as possible to civilian structures in the pocket. This fact, plus poor weather that lowered bombing accuracy, frustrated air operations, as did other factors. The close proximity of Coalition ground forces which heightened chances of instances of losses to friendly fire necessitated carefully identified ground targets. General Schwarzkopf placed Iraqi territory bordering the Islamic Republic of Iran off-limits in order to avoid airspace incursions and unnecessary international incidents.⁶⁰ Nonetheless, by the last day of the war, Coalition air power had damaged or destroyed all bridges permitting egress from the pocket.⁶¹ On February 28, 1991, both the Hammurabi and Madinah Divisions were in Iraqi-controlled territory in the Basra pocket.

The tale of the Republican Guard infantry⁶² and Iraqi Special Forces divisions is quickly told. They occupied positions at least ten to fifteen miles behind the Republican Guard heavy divisions in an arc stretching from An Nasiriyah to the Persian Gulf, which made them the Iraqi ground units closest to the easiest escape routes (the Euphrates River and Basra bridges) and the furthest removed

the more modern Soviet SA-6s (maximum effective altitude, 10–15,000 meters or 33–49,200 ft) and SA-13s (maximum effective altitude, 5,500 meters or 18,040 ft), as well as more modern shoulder-launched missiles. All Iraqi heavy divisions had plentiful AAA.

58. DoD, *Conduct of the Persian Gulf War* (2d ed.), pp. 141–143

59. *Ibid.*, p. 254.

60. *GWAPS*, Vol. 2, pt. 1, *Operations* (2d ed.), p. 313.

61. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 256.

62. U.S. intelligence sources differed as to the exact number of Republican Guard infantry divisions in the theater and variously place the number at two, three, or four divisions. *GWAPS* uses the high figure. I see no reason to disagree. *GWAPS* places the infantry divisions, from west to east within the KTO, as follows: Nebuchadnezzar, Baghdad, Adnan, and Al-Faw. The Special Forces division appears to have stationed one brigade at each end of this line.

On Target

from Coalition ground and air forces of all the Iraqi ground forces in the KTO.⁶³ As cynics have pointed out, they not only occupied reserve positions, but positions that blocked the retreat of individual Iraqi deserters from all other Iraqi ground forces. These units may not have brought their organic armor battalions into the theater and, as infantry forces far from the potential ground battle areas, they offered little military threat to Coalition ground operations. If they moved forward, they would have to oppose heavy Coalition units from the march or from hastily prepared defensive positions, both of which offered little prospect of their long-term survival. As infantry divisions far from the ground battle zones, they received far less tactical air bombardment than the Republican Guard and Regular Army heavy divisions received. They made no attempt to engage Coalition ground forces. By the end of the first twenty-four hours of the ground war, three of these divisions had left the theater.⁶⁴ The remaining two either left the theater soon after or else retreated to the relative safety of the Basra pocket. Although not unscathed by Coalition air operations, the casualties sustained by all five divisions are unknown.⁶⁵ It seems probable that they suffered light casualties in the course of the war. These units, not the heavy Republican Guard divisions, aided by troops left in Iraq and other relatively intact units escaping from the theater would prove decisive in suppressing the Kurdish and Shia uprisings.⁶⁶ Even if the ground campaign had continued for another 24 to 48 hours and forced the surrender of the Basra pocket, Coalition ground and air power failed to destroy the Republican Guard as a political prop to the Hussein regime.

The theater commander directed his air and ground forces against the Republican Guard, a force he himself had designated as a center of gravity in a fashion that emphasized its military threat to Coalition ground operations, not its political function in maintaining the regime. He concentrated his ground and air forces on the three Republican Guard heavy divisions and made little effort against the Republican Guard infantry, which had little military significance and was a difficult target for both air and ground operations. Given that the theater commander's direction of effort accented the tactical rather than the strategic implications of the target system and that the CENTAF tactical air planners handled the physical targeting and planning for all strikes against the target system,⁶⁷

63. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 222, Map 8 "Cumulative Air Strikes by Kill Box, 17 Jan–28 Feb 1991 (Total Strikes 21,391)."

64. *Ibid.*, p. 251.

65. *Ibid.*

66. The lightly armed, haphazardly organized and trained, and internationally isolated rebels would stand little chance of sustained resistance against the Iraqi Army units, let alone the Republican Guard. The Iraqis also had large stockpiles of second-line armored and other equipment, notably around Tikrit, that they could and did use to reequip their forces. Thus they could readily field repatriated prisoners or units that had escaped with their personnel but had abandoned their equipment.

67. In fact the internal records of the CENTAF Strategic Planning Cell do not list a single mission against the Republican Guard in Kuwait, but only for the Guard headquarters in Baghdad, as part of the campaign against leadership and C³ targets. The CENTAF strategic planners

the Republican Guard in practice and in actuality was not a strategic target system. This statement is not meant to obviate the fact that air power failed to destroy the Republican Guard nor to assign fault for that failure solely with tactical air power. Rather, it is merely meant to say that the survival of the Republican Guard should not be used as a circumstance to discredit the concept of strategic bombing as a method of waging war. The inability to destroy the Republican Guard accentuates the current limitations of air power to destroy such a target.

All forms of military power, including air power, have inherent limitations. The bombing of the Republican Guard heavy divisions as well as NBC targets, Scuds, and, to a lesser extent, the military support industry illustrates a key limitation of conventionally armed (versus nuclear-armed) air power. *Dispersion and concealment of targets drastically affects bombing results.* Obviously, if aircraft cannot see a target because it is too small or is hidden, even if the aircraft are armed with PGMs, they cannot strike their target and must resort to the most inefficient type of attack: area bombing—drenching a geographic location with a tremendous volume of ordnance. Area bombing’s inordinately great consumption of air power resources compared to the questionable results it achieves makes it a tactic of last resort because of how it affects the resources committed to any other theater, or even those committed to national air operations. If every PGM-capable aircraft available to the Coalition had bombed every visible fox-hole in the Republican Guard areas for one or two straight weeks, or one or two days of every week, possibly shutting down the strategic air campaign in the process, would the possible achievement of one Coalition war aim justify abandoning the other war aims? In the case of the Republican Guard, Schwarzkopf and Horner correctly judged that it did not.

In addition, the option of massing aircraft still available for tactical purposes no longer applies to conventionally armed strategic air power. Hence, the search by current air power theoreticians, such as the Warden group members, for compact, key targets or centers of gravity. As for the strategic bombardment of Iraq, would concentration on NBC or Scud targets, all of which could not even be located in the first place, have justified the virtual cessation of the bombing of airfields, bridges, electrical power sources, and so on?

In spite of the well-deserved praise for the USAF’s superlative performance in the Gulf War, that conflict did reveal two potentially grave organizational flaws: the difficulty of melding the USAF planning, operations, and intelligence functions into a smoothly functioning team, and the lack of an organization at the operational level charged with strategic targeting and planning. Looking back on the war, General Horner stated,

One final area that requires significant attention and change is intelligence. In peacetime, we train our intelligence personnel to hedge, to be mediocre rather

obviously did not consider the Guard a “strategic target.” (CENTAF Strategic Planning Cell, “Missions-Day-by-Day Log.”)

On Target

than wrong. In wartime, it all starts and ends with intelligence. Intel defines what you need to do and how you will do it. Each of the various communities that make up our military staffs—A-2 Intelligence, A-3 Operations, A-4 Logistics and A-6 Communications—is important. But each develops self-serving organizational walls and formal processes of interaction designed to protect its own prerogatives. This is inappropriate in war, where success depends on detailed interaction among all of them. Where air power is concerned, staffs should be reorganized so that the artificial walls of the past are eliminated and cooperation is enhanced. Perhaps the way to do this is to create a functional staff along the lines of “strategy” needed to plan the campaign and “execution” needed to carry out the ATO once it is created.⁶⁸

As of 1997 the service had not addressed the problems observed by General Horner. After the war, the Black Hole, always an ad hoc group, disappeared as its members returned to regular duties. Within two years of the war’s end, an Air Staff reorganization eliminated the Deputy Directorate of Warfighting Concepts. As of 1997 within the USAF’s numbered air forces, which will form the core of the USAF components of any Joint Command, strategic thinking has been instituted only haphazardly. What should be done is yet to be decided, but the longer the problems continue, the less likely their solution and the more likely their reoccurrence in a future conflict become.

Of the twelve target sets attacked in the strategic air campaign against Iraq, Coalition air power fully achieved its goals in four—electrical power, Iraqi IADS, IZAF, and Iraqi Navy. Attacks against oil and bridges were physically destructive but probably moot because of the war’s short duration. The result of attacks against leadership, C³, and Republican Guard infantry divisions cannot be verified, but the Coalition devoted only 1,030 sorties of 12,630 strategic sorties to leadership and communications, a small gamble of resources against the gains envisioned and which to some unknown extent may have been achieved. The air attacks on Scuds and to a lesser extent on NBC targets failed militarily. These were targets very resistant to conventional air power. But keeping the Coalition intact and delaying Iraq’s special weapons programs for months, if not years, are not negative results politically. In this instance, the political result gained through military action outweighed the fact that military action itself accomplished much less than was hoped or claimed. The same equation applies to Iraq’s military support industry, except that in this case military action was more successful, and the political effect, somewhat less.

The strategic air campaign, especially when compared to earlier strategic bombing, had a final and significant achievement: avoidance of large numbers of civilian (and military) casualties. Three years after end of the conflict, both civilian and military casualties inflicted on Iraq by Coalition air operations remain a matter of great controversy.⁶⁹ In an estimate for enemy forces in the KTO only,

68. Gen. Charles A. Horner, USAF (Ret.), “Air Power Growing Beyond Desert Storm,” *Aviation Week & Space Technology* 146, No. 16 (Apr 16, 1997), p. 74.

69. The U.S. government has stated no official estimate of Iraqi casualties. Consequently,



The incineration chamber on the left and the large-scale nerve agent hydrolysis plant on the right are to be used for the destruction of chemical agents, due to begin a few months after these pictures were taken.

later disavowed by the U.S. government, the DIA guessed, with an error factor of ± 50 percent or greater:

Killed in action: Approx. 100,000
 Wounded in action: Approx. 300,000
 Deserters: Approx. 150,000⁷⁰

In an interview televised in January 1992, General Horner guessed the casualty figure to be between 10,000 and 30,000 and noted the absence of mass graves and large numbers of dead on the battlefield. As John G. Heidenrich, former DIA analyst and Iraqi Army analyst and author of the best article on this subject, points out, the Coalition counted only 2,000 wounded among its 69,000 plus prisoners. This is a telling figure that undermines most previous estimates. In a traditional conflict, the ratio of wounded to killed is three to one. Given Iraq's underdeveloped support services and its inability to evacuate casualties (because of air interdiction), its casualty ratio may have been as low as two to one. Given that Coalition forces discovered no mass graves, no field or other types of hospitals, and no bunkers filled to the brim with the dying and wounded, where are Iraq's 200,000 wounded and 100,000 dead? Surely it would not have been in Iraq's interest to conceal such horrific scenes from the international press as it sought to bolster its image as a small, put-upon Arab nation. How did so many

the opinions expressed in this discussion are those of the author and do not reflect the official judgment of the Department of Defense or the USAF.

70. Estimate, DIA, response to a FOIA request, May 1991, cited in John G. Heidenrich, "The Gulf War: How Many Iraqis Died?" *Foreign Policy*, No. 90 (Spring 1993), p. 109. This article seems one of the most sensible, conservative, logical, and balanced discussions on the topic of Iraqi casualties. It greatly influenced the author's opinions on this subject.

On Target

wounded get away when their healthy compatriots did not? Heidenrich gave a low figure of 3,000 dead and 7,000 wounded in the KTO; *U.S. News and World Report* gave a figure of 8,000 dead and 24,000 wounded total. The House Armed Services Committee attributed 9,000 dead and 17,000 wounded to the air campaign alone.⁷¹ These low casualties are a testimonial to the accuracy of the Coalition air assault which concentrated on vehicles, equipment, and facilities rather than on human beings. As for Iraqi civilian bombing casualties, Greenpeace, an international environmental and pacifist organization, listed them as 2,278 dead and 5,976 wounded.⁷² Greenpeace also attributes 70,000 to 110,000 civilian deaths to detrimental health effects after the hostilities ended. Whatever one makes of those figures, one must attribute a substantial portion of the guilt for them to Saddam's regime and its refusal to cooperate with the UN postwar embargo.

On balance, the strategic bombardment of Iraq did not achieve the lofty goals set for it by the USAF Air Staff (Checkmate) and the CENTAF special planning group (though it came much closer to fulfilling the theater commander's more modest expectations), but it played a great role in fulfilling President Bush's announced political objectives. To say that the strategic air campaign against Iraq failed because it was not 100-percent successful would mean adopting an argument of perfection, which no work of mankind has yet achieved. Such an argument reduces the most successful air campaign of the second half of the twentieth century to a nullity. As with any military operation, the strategic bombardment of Iraq had flaws and shortcomings, some of which the enemy failed to use to its advantage.

Although the air campaign went well, like the remainder of the American effort in the Persian Gulf War, it rested on a weak economic foundation. Tin cup in hand, the U.S. government went to its allies and extracted almost \$54 billion in cash and other subsidies to pay for the American war effort. Without this funding, the United States might have been hard-pressed to field the multidivision, multicarrier, multiwing force that overwhelmed the Iraqis. Throughout Desert Shield, the executive and legislative branches of the federal government were at loggerheads over how to address taxation and the federal deficit. These important negotiations only ended shortly before the conflict and might have been even more complicated had the parties had to find tens of billions of dollars of additional revenue. Of course, a dire national emergency could have started the government money presses rolling, but that would not have solved the nation's basic economic problems. It would appear that for the future, America's attenuated economic base will severely limit the United States' international options, forcing it to participate in coalition warfare because it can not afford economically to go it alone in a major crisis. An activist U.S. foreign policy has become far more expensive.

71. All figures cited in Heidenrich, "How Many Iraqis Died?" pp. 113–114.

72. *GWAPS*, Vol 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 305.

The Implications

Every USAF unit and organization associated with Desert Shield/Storm, as well as those from the other services, has generated “lessons learned” reports covering its aspect of the war. These often highly technical reports contain much useful information, but it is not the purpose of this study to compile lists of suggestions and regurgitate them. Instead, this conclusion will briefly examine the use and application of military power and its effects on the employing organization and on the enemy during the war in the Persian Gulf.

Earlier in the twentieth century, the USAF fought in four so-called strategic bombing campaigns: those against Germany and Japan in World War II and those against North Korea and North Vietnam in the post-World War II era. A brief examination of these campaigns, particularly their political objectives rather than the technology extant, puts the war in the Persian Gulf into perspective. From 1943 to 1945 the USAAF fought at the side of RAF Bomber Command in a daylight and nighttime Combined Bomber Offensive directed at Hitler’s Germany. The British, who could not overcome the daytime defenses over Europe, chose to bomb at night, when accuracy shortfalls soon forced them to resort to the area bombing of German cities. The RAF justified this policy on the grounds that the destruction of workers’ houses and communities would substantially lower production and weaken morale. In fact, the bombing of houses in German city centers, which the RAF could hit, left workers with little choice but to spend more time at the war factories on the cities’ outskirts, which the RAF had difficulty hitting. In some instances, production in German cities, after an initial dip, increased after RAF bombing. The bombing may have lowered morale, but the dreaded Secret State Police (Gestapo) and other organs of the regime ensured that low morale and antigovernment humor did not turn to open disaffection. The USAAF in Europe took on German daytime defenses directly and reduced the Luftwaffe to impotence. They then launched a precision bombing campaign targeting German synthetic oil production (a small, compact system of two dozen targets) and an area bombing campaign against rail marshaling yards in German cities. The synthetic oil campaign hamstrung the German air and ground forces, while the marshaling yard campaign gave the weakening German war economy its final push into ruin and inflicted significant collateral damage. At one point the Anglo-American allies even considered a strategic bombing campaign directed at German leaders and organs of control, such as the S.S. protection squads and the Gestapo.⁷³ On February 3, 1945, the U.S. Eighth Air Force attempted to spark a German surrender by bombing the center of government in Berlin, but the only result obtained was large-scale collateral damage to the heart of the German capital. Despite almost 2 million tons of bombs and the presence of almost 5,000 heavy bombers, the RAF and USAAF strategic bombing did not

73. Richard G. Davis, “Operation ‘Thunderclap’: The US Army Air Forces and the Bombing of Berlin,” *Journal of Strategic Studies* 14, No.1 (March 1991), pp. 90–111.

On Target

separate the German people from their leaders, nor did it weaken the German government's ability to maintain its iron grip. Their effort did subject German cities and industry to significant damage. The Combined Bomber Offensive proved to be one of the decisive factors in defeating the Germans, but it was not the only factor. Without the constant attritional pressure of the Allied ground forces from the west and south and the Red Army from the east, as well as the ground forces' physical occupation of Germany, air power would not have collapsed the German state.

In the Far East, the USAAF Twentieth Air Force's bombing of Japan was one of the most significant elements in the surrender of that state. Even before the use of atomic weapons, conventional strategic bombing, aerial mining, and the USN's submarine warfare against her seaborne commerce brought Japan's industry and internal economy to a halt, and U.S. and British Commonwealth naval and ground forces destroyed the Imperial Navy and decisively defeated major units of the Imperial Army. Although Japan could not mount an effective defense against the high-flying U.S. B-29 heavy bombers, those bombers failed to successfully complete a daylight precision bombing campaign against her. Weather, the jet stream, and the immense distances from bases to targets all combined to render the U.S. effort ineffective. However, starting in March 1945 the USAAF switched to a low-level, night, area bombing campaign directed at the heart of Japan's major cities. The campaign leveled metropolitan Japan, inflicted great collateral damage, caused untold misery among civilians, lowered morale, and applied the coup de grâce to war production. Like the strategic bombing campaign in Europe, American bombing failed to weaken the hold on the people by a regime that had not only the cords of a police state but the bonds of religion to tie the people to the state. If the Japanese leadership had wished to resist a ground invasion of the home islands, untold millions of their followers would have perished or committed suicide before accepting defeat. The use of atomic weapons, the Soviet declaration of war, and the rapid conquest of Japan's holdings on the mainland of Asia eliminated the last vestige of hope and enabled a peace group within the Japanese leadership to gain control and force a surrender. Did unconventional weapons spark capitulation? Undoubtedly, but they served only as one decisive consideration in a host of disasters confronting the enemy. Strategic air power unaided did not bring down the Japanese state.

The strategic bombing of North Korea and North Vietnam produced less satisfactory results than those obtained in World War II. Neither state depended on its own industry to produce the war matériel it consumed. In addition, U.S. international political policy fenced off some crucial targets from air attack, thus limiting these wars. Aside from Swedish iron ore and ball bearings, no vital war matériel reached German or Japanese borders without going through occupied territory or ocean area open to unrestricted bombing. In both the North Korean and North Vietnamese cases, their logistical support ran on rail lines through neutral (technically nonbelligerent) countries (particularly the People's Republic

of China) or on neutral shipping for their entire length. Thus the Chinese end of the bridges over the Yalu River to Korea and the Chinese rail transit points to Vietnam remained officially off-limits for the duration of the respective conflicts. Likewise, Soviet shipping in Haiphong could not be struck. In Korea, the USAF used the radio-controlled Tarzon bomb—a heavier version of the more primitive smart weapons developed for use in World War II—to successfully attack bridges. In spring 1972, the USAF used first-generation laser-guided bombs in Operation Linebacker I. These weapons proved effective against bridges and their defenses that had heretofore repelled air assault. This constriction of their lines of communication played a key part in bringing a large-scale conventional North Vietnamese ground offensive to a halt.

From December 20 to 30, 1972, in Operation Linebacker II, the USAF executed a classic strategic bombing campaign. In many respects, the Christmas bombing was perhaps the most effective strategic bombing campaign ever conducted. Its effectiveness rested on its limited scope and its limited aims. Instead of diffusing force over many targets with a too broad or a too ill-defined objective, Linebacker II focused appropriate force at a few targets in a limited area, Hanoi-Haiphong. And it sought to gain a specific and achievable goal. By December 1972, the North Vietnamese government had already virtually won its war to unify the country in its Paris negotiations with the United States. The United States had offered very favorable terms, including the right to retain 100,000 regular People's Army of Vietnam soldiers on South Vietnamese territory, and it appeared certain that the U.S. Congress would shortly terminate funding for the American war effort.⁷⁴ In spite of this, the North Vietnamese government refused to sign the Paris accords and delayed in hopes of gaining an even more favorable position. U.S. President Richard M. Nixon and Secretary of State Henry Kissinger concluded that only the application of more military force to threaten the North Vietnamese leadership could bring that leadership to sign the offer on the table. President Nixon, therefore, ordered the bombing of key logistics targets in the area around the North Vietnamese capital, Hanoi, and its major seaport, Haiphong. In eleven days the USAF flew 729 B-52 sorties against 34 targets, expended 15,000 tons of ordnance, and claimed destruction of or damage to 372 pieces of rolling stock, 1,600 military structures, 3 million gallons of petroleum products, and 80 percent of the electrical power production system.⁷⁵ Many tactical air sorties added further damage. The North Vietnamese gave in to the pressure and returned to the bargaining table, where they had already gained so much. It made little sense to continue to absorb tremendous and expensive punishment, with still more damage in prospect, when the Americans had already offered to effectively undercut the South Vietnamese regime.⁷⁶

74. Tilford, *Setup*, pp. 240–265.

75. McCarthy and Allison, *Linebacker II*, p. 171.

76. See Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: Free Press, 1989), pp. 177–202; and Wayne Thompson, *To Hanoi and Back*:

On Target

In the instance of North Vietnam, its leadership had something to lose from continued strategic bombing. The German and Japanese regimes, thanks in part to the Allies' unconditional surrender demands and to the Allies' obvious determination to replace the regimes, had no incentive to negotiate to stop the bombing no matter how damaging it became. As Winston S. Churchill, the British Prime Minister, said of Nazi Germany: "They were all more than happy to fight to the last man as long as each of them could guarantee he would be that last man." The direct bombing of leadership targets did not induce the North Vietnamese to negotiate; the threat of further damage brought the response. In Iraq different circumstances applied.

Whether or not a greater effort of several hundred additional sorties would have raised the air accomplishments from significant disruption to complete destruction of this target system cannot be known. But as long as the Iraqis possessed matériel unknown to or dispersed from Coalition air planners, additional sorties against known and empty targets would have had no consequence, which emphasizes once again the critical importance of intelligence and the ability to follow up by other means.

The USAF scored a unique achievement with its air-to-air missiles. Of the 23 kills credited to the F-15Cs/AIM-7 combination during hostilities, sixteen involved missiles fired from BVR. This accomplishment had no precedent and marked Desert Storm as the first conflict with a significant percentage (40 percent overall) of BVR air-to-air kills. It demonstrated a high degree of training, discipline, and situational awareness on the part of USAF pilots and controllers that should give other air forces pause.⁷⁷

Aircraft maintenance rates supply yet another example of excellent results concealing a potential flaw. The initial maintenance estimates had been based on the assumption there would be no cannibalization or use of nondeploying aircrafts' WRSKs. Instead, combat aircraft consistently reported higher wartime than peacetime fully-mission-capable rates, in large part because of cannibalization and use of nondeployed aircraft and nondeployed WRSKs.⁷⁸ A fraction of the USAF aircraft fleet became fully mission-capable at the expense of the rest of the inventory. What is more, given Congressional propensity to underfund WRSK and less glamorous spare parts, the losses may never be made good, to the detriment of the entire USAF inventory. Here again one wonders how many of the cannibalized aircraft could have been made quickly available if another combat contingency had arisen or how the aircraft would have sustained themselves when they arrived.

The shock, damage, confusion, and discouragement heaped on Iraq by the offensive air campaign represents the most significant achievement of air power

The United States Air Force and North Vietnam, 1966–1973 (Washington, D.C.: Air Force History and Museums Program, 2000), pp. 255–280, for in-depth and insightful analyses of this bombing campaign.

77. *GWAPS*, Vol. 2, pt. 2, *Effects and Effectiveness* (2d ed.), p. 113.

78. *GWAPS*, Vol. 3, pt. 1, *Logistics* (2d ed.), pp. 350–351.

in the last half of the twentieth century. Plans begin to crumble long before the first bullet is fired. Offering more than a plan can reasonably expect to deliver runs the danger of discrediting both the plan and the basis of its conception. Given the disparity in arms, manpower, and technology between the Coalition and Iraq, one might well wonder if almost any plan would have worked as well. While one might not have been able to take any three USAF pilots, lock them in a room, instruct them to assemble a strategic bombing plan, and have them produce Instant Thunder in three days, twenty USAF planners, intelligence officers, and operators forced to work closely together for five months with access to all material available to the special campaign planners would probably have developed a plan capable of squashing Iraq and employing PGMs, TLAMs, and stealth. What then was the unique achievement of the strategic air campaign as executed?

The offensive air campaign as planned and executed created a new synthesis of ideas and technology that maximized the destructive force of air power employing nonnuclear weapons. Almost any Coalition air war plan would have loosed on Iraq all of the weapons systems employed in actuality, but most, if not all, of those other plans would have utilized more conventional targeting that did not emphasize the interconnections and leverage of the various Iraqi targets. Some, but not all, of the plans might have made Saddam a target, as with al-Qaddafi in Libya, but it is doubtful that they would have systematically bombed TV and radio stations, internal security agencies, and Tikrit in doing so. Technology without insightful direction does not produce maximum effect. The Warden group conceived and created a specific, systematically thought-out doctrine on the application of conventionally armed strategic air power in the 1990s, something that the USAF as an institution had not yet accomplished. Building on the tenets of the Warden group, Colonel Deptula added simultaneity and pushed the concept of bombing for effect (on morale as well as on physical surroundings) to the furthest limit. As executed, Phase I attacked the twelve target systems developed by the Air Staff in a manner that followed Air Staff concepts (Generals Horner and Glosson approved actual attacks). In its use of PGMs, the strategic campaign also freed numerous aircraft for ground support and for dropping “dumb” bombs on the Iraqi Army. In short, anybody could have done a Phase I strategic air campaign, but the planners in Riyadh and the air and ground crews throughout the Persian Gulf region from August 1990 to March 1991 did it better. They and no one else marched to a new quickstep, first piped by a band of men in the subbasement of the Pentagon.

The bombing/targeting philosophy of bombing for effect, not for destruction, of hitting key centers of gravity, not entire target systems, and of simultaneity, along with the associated concepts, has a specific application to specific circumstances. However, it is difficult to conceive of any bombing plan that will release the grasp of a police state on its populace or that will absolutely destroy a large, dispersed, and concealed target system. Attritional bombing campaigns

On Target

can break up a great power's transportation net or his key industries; a brief, quick-hitting campaign can do the same for a lesser power such as many of the less-ready, less well-trained states that form the bulk of the international community. In a conventional war versus another great power, like Russia or China, an Instant Thunder-style assault at the commencement of hostilities could well disrupt an enemy's offensive and render him more vulnerable to a riposte. However, the sheer geographic extent of those powers, as compared to Iraq, would make it quite difficult to reach meaningful centers of gravity without a correspondingly greater effort involving, perhaps, long-range cruise missiles and penetrating stealthy bombers. Negligible military powers, such as Grenada and Panama, would succumb speedily to any well-planned use of overwhelming military force. It would not appear necessary from either the standpoint of world public opinion or military requirements to bombard such a power for forty-eight to ninety-six hours with an Instant Thunder-style plan to break its will to fight when it probably had little expectation of seriously opposing the United States or the UN in the first place.

Instant Thunder concepts may have their greatest applicability in conflicts against regional and middling powers like Iraq. In such cases, basing, warning time, and target intelligence considerations would be paramount. If no regional ally existed to make friendly land bases freely available, then USN aircraft would have to conduct much of the operation, presumedly to cover for a USMC amphibious landing. The probability of either of those services adopting radical USAF air campaign planning methods seems remote. If land bases make USAF operations possible, the opening situation becomes critical. If the USAF arrives in the midst of an enemy air and land offensive, the political, host-country, and friendly ground-force pressures to provide maximum and immediate CAS and interdiction may prevent the launching of an Instant Thunder or prevent the mounting of strategic strikes with sufficient force. However, if precrisis preparations ensure adequate targeting and intelligence databases, something lacking in the Kuwait crisis, then an Instant Thunder-like plan could help disrupt an enemy attack or assist a friendly ground attack. Finally, exact target information on potential foes or critical points is the sine qua non of an Instant Thunder or any bombing plan. The CINC's contingency plans must consist of more than simple deployment plans and unit schedules. With the approval of the CINC, the USAF component of each unified command should have a detailed 48-hour MAP and ATO, based on Instant Thunder concepts, with comprehensive target folders containing recent imagery and other intelligence data for the most likely or most urgent situations. The ability to execute such a plan immediately would greatly increase the effectiveness of any air response. Just as important, the USAF should train or make its headquarters component belonging to each Unified Command aware of the full capabilities of the weapons systems it will employ. Such action would prevent a repetition of the case of the Ninth Air Force. Circumstances had denied it the opportunity to familiarize itself with the F-117A

and other PGM systems. If in the future the service intends to employ “black world” systems or systems unfamiliar to the deploying headquarters, it should seriously consider assigning to the plans, operations, and intelligence sections of the deploying headquarters additional personnel with in-depth and current knowledge of the new systems. Given the foreseeable strategic future, it seems likely the United States will find itself involved in many situations requiring the use of force or the threatened use of force against powers of middle rank. The concepts of Instant Thunder are well adapted to such contingencies and ought to be employed by service planners. However, the planners and senior military leaders must avoid the temptation to overpromise on the effectiveness of air operations.

Air power broke the back of the Iraqi military and its industrial support infrastructure. This work has dealt with only one prong of that attack, the strategic assault on leadership, national-level C³, NBC capability, the military industrial support structure, Scuds, the IZAF, and Iraqi’s air defenses. Equally important operations against Iraqi LOCs, the Iraqi Army, and Republican Guard units formed the other prong of the air attack. Those operations are covered in another volume in this series, but here, suffice it to say, their impact on the Hussein regime proved as discouraging and deadly as did the bombing deep within the Iraqi state. In fact, the synergy between the two portions of the air assault contributed to making the cumulative effect of the entire air effort greater than the sum of its parts. Of 109,876 total sorties of all types flown during the Persian Gulf War, Coalition aircraft flew approximately 50,000 strike or combat sorties, 5,150 USN fleet defense sorties, and 3,270 USAF defensive counterair sorties. The offensive air campaign consumed at most 18,276 of them—24 to 36 percent of the total combat sorties.⁷⁹ A breakdown of the strategic sorties clearly shows both the disruption and the economy of force an attacker can achieve in directing air attacks at enemy centers of gravity. Fifteen percent of the strategic campaign fell on the Iraqi military support complex, a large, widespread, and relatively vulnerable target system. CENTAF bombing destroyed or damaged 30 percent of Iraq’s conventional weapons manufacturing and repair capability.⁸⁰ Less than one bomb in six of the strategic campaign, and only one of every twenty dropped by the Coalition as a whole, fell on Iraq’s remaining target systems. Twenty-five hundred sorties, the majority employing PGMs directed at NBC capability, railroads and bridges, C³, oil refining and storage, air defenses, leadership, and electrical power delivered a tremendous blow to the Iraqi state.

79. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 159 Chart “Strategic Targets Level of Effort”; Coyne, *Airpower in the Gulf*, p. 89 Table “Shares of US Air Sorties: D-Day to Cease Fire.” I assume that the DoD *Final Report* includes both combat and support sorties in its total (it gives no clue). However, if its data includes just combat sorties, then the offensive campaign absorbed 62 percent of CENTAF’s combat sorties, which seems too large a figure, given the massive air attacks on Iraqi ground forces throughout the campaign. DoD, *Final Report* (2d ed.), p. 159.

80. DoD, *Conduct of the Persian Gulf War* (2d ed.), p. 159.

On Target

The strategic bombing campaign against Iraq was *a* decisive factor in the Coalition's defeat of Iraq. When joined to the tactical air effort against Iraqi forces in Kuwait, which consumed almost three-fourths of the total air effort, air power was *the* decisive factor in the Coalition's quick and almost bloodless victory in the Persian Gulf War.

Glossary

AAA	antiaircraft artillery
AADC	Area Air Defense Commander
AB	Air Base
ABCCC	airborne battlefield command, control, and communications
ACA	Airspace Control Authority
ACE	airborne combat element
AD(P)	Provisional Air Division
ADOC	[Iraqi] air defense operations center
AFB	Air Force Base
AFSOCCENT	Central Command Special Operations Command Air Component Commander
AGL	above ground level
ALARM	air-launched antiradiation missile
ALCM	air-launched cruise missile
AOR	area of responsibility
ARCENT	U.S. Army Component, Central Command
ATO	air tasking order
AWACS	Airborne Warning and Control System
BDA	bomb damage assessment
Black Hole	CENTAF planning group
BVR	beyond visual range
BW	Bombardment Wing; biological weapons; biological warfare
C ²	command and control
C ³	command, control, and communications
C ³ I	command, control, communications, and intelligence
CAFMS	Computer Assisted Force Management System
CAP	combat air patrol
CAS	close air support
CC	Compass Call
C-day	the day deployment commenced
CENTAF	U.S. Air Force Component, Central Command
CENTAF/IN	U.S. Air Force Component, Central Command intelligence
CENTCOM	United States Central Command

On Target

CENTCOM/IN	United States Central Command intelligence
CEP	circular error probable
Checkmate	Air Staff planning group
CIA	Central Intelligence Agency
CINC	Commander in Chief
CINCCENT	Commander in Chief United States Central Command
CINCEUR	Commander in Chief U.S. European Command
CINCSAC	Commander in Chief Strategic Air Command
CINCSOC	Commander in Chief Special Operations Command
CINCTRANSCOM	Commander in Chief U.S. Transportation Command
CJCS	Chairman of the Joint Chiefs of Staff
CNN	Cable News Network
COMALF	Commander, USAF Airlift Forces
COMCENTAF	Commander, U.S. Air Force Component, Central Command
COMCENTCOM	Commander, Central Command
CSAF	Chief of Staff of the Air Force
CSAR	combat search and rescue
CW	chemical weapons; chemical warfare
CW(P)	Provisional Composite Wing
DCS	Deputy Chief of Staff
D-day	the day designated for initiation of military operations
DIA	Defense Intelligence Agency
DoD	Department of Defense
ECW	Electronic Combat Wing
EDT	Eastern Daylight Time
EMCON	emissions control
EST	Eastern Standard Time
EUCOM	U.S. European Command
EW	electronic warfare [Iraqi]
FOL	forward operating location
FW	Tactical Fighter Wing
GAT	Guidance, Apportionment, and Tasking
GBU	glide bomb unit
GCC	Gulf Cooperation Council
GCI	ground controlled interception
G-day	the beginning day of the ground campaign
GO	General Order
GPS	Global Positioning System
GSM	ground-station module
HARM	high-speed antiradiation missile
HAS	hardened aircraft shelter
H-hour	the moment the strategic air campaign began
HQ	Headquarters

HVAA	high-value airborne asset
IADS	[Iraqi] Integrated Air Defense System
IAF	Israeli Air Force
IDF	Israel Defense Forces
IDS	interdictor/strike variant
IFF	identification–friend-or-foe
IIS	Iraqi Intelligence Service
IOC	intercept operations center [Iraqi]
IR	infrared
IZAF	Iraqi Air Force
JCS	Joint Chiefs of Staff
JFACC	Joint Force Air Component Commander
JNFTL	joint no-fire target list [p. 128]
JSTAR	Joint Surveillance Target Attack Radar System
JTF	Joint Task Force
KTO	Kuwaiti Theater of Operations
L	local clock time [24-hour clock]
LANTIRN	Low-altitude navigation and targeting infrared for night
LOC	line of communications
LRB	long-range bomb
MAJCOM	major command [USAF]
MAP	master attack plan
MARCENT	U.S. Marine Corps Component, Central Command
MEB	Marine Expeditionary Brigade
MEL	mobile erector-launcher
MODA	Ministry of Defense and Aviation [Saudi]
NAVCENT	U.S. Navy Component, Central Command
NBC	nuclear, biological, and chemical
NCA	National Command Authorities
nm	nautical mile(s)
NSD	National Security Directive
OPEC	Organization of Petroleum Exporting Countries
OPLAN	operation plan
OPORD	operation order
PC	personal computer
PCS	permanent change of station
PGM	precision guided munition
POL	petroleum, oil, and lubricant
PSYOP	psychological operation
PTT	postal, telegraph, and telephone
R&D	research and development
RAF	[British] Royal Air Force
RCS	radar cross section

On Target

ROE	rules of engagement
RSAF	Royal Saudi Air Force
RTAFB	Royal Thai Air Force Base
SAC	Strategic Air Command
SAM	surface-to-air missile
SAR	synthetic aperture radar
SCI	Sensitive Compartmented Information
SCIF	Sensitive Compartmented Information Facility
Scud	short-range ballistic missile [Iraqi]
SE	southeast
SEAD	suppression of enemy air defenses
SLAM	standoff, land-attack missile
SOC	sector operations center [Iraqi]
SOCCENT	Central Command Special Operations Command
SOF	Special Operations Forces
SPACECOM	United States Space Command
SRBM	short-range ballistic missile
SSM	surface-to-surface missile
STRATFOR	Strategic Forces
TAC	Tactical Air Command
TACC	Tactical Air Control Center
TALD	tactical air-launched decoy
TEL	transporter-erector-launcher
TFS	Tactical Fighter Squadron
TFW(P)	Provisional Tactical Fighter Wing
TFW	Tactical Fighter Wing
TGS	Turkish General Staff
TLAM	Tomahawk land-attack missile
TPFDD	time-phased force and deployment data
UAE	United Arab Emirates
USA	United States Army
USAAF	U.S. Army Air Forces
USAF	United States Air Force
USAFE	U.S. Air Forces Europe
USMC	United States Marine Corps
USN	United States Navy
VCR	videocassette recorder
VS	Volant Solo
VTR	videotape recorder
WRSK	war readiness spares kit
WW	Wild Weasel

Availability of Sources

The Office of the Secretary of Defense's Directorate for Freedom of Information and Security Review (OASD-PA) cleared this monograph for publication. Many of its notes cite classified documents or interviews. That OASD-PA cleared this monograph for publication does not mean that its sources have been declassified or even reviewed. In the cases of a document's publication in both classified and unclassified versions, the designation "2d ed." indicates that the unclassified version is being used. Some source documents remain classified, and in some cases a document's title or the identification of an entire source remains classified.

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Primary Documentation

This study relied almost entirely on security classified USAF documents gathered from the Historian's Office (HO) of the former Tactical Air Command and from the Checkmate Office in the Pentagon. The records of both of these organizations dealing with Desert Shield/Desert Storm were deposited for posterity in the Air Force Historical Research Agency (AFHRA) at Maxwell AFB, Alabama, in 1993.

The TAC/HO Desert Storm collection consisted of three series of records. The most important series comprised the CENTAF Historian's Files. The CENTAF Historian, CMSgt. John Burton, served at CENTAF HQ in Riyadh and supervised the work of USAF field historians with the wings and elsewhere. These CENTAF/HO files fill eighty-one Hollinger boxes and include intelligence reports sent to CENTAF and generated by CENTAF/IN; a complete set of MAPs; CENTAF/DCS daily inputs to CENTAF/CC; JSTARS and Scud hunt material; CINCCENT, CENTAF, ARCENT, MARCENT, and NAVCENT sitreps; and assorted interviews with Generals Olsen and Glosson and with Colonel Deptula. This body of records contains the most thorough collection of CENTAF HQ records and should be a part of any scholar's research. TAC/HO also assembled its own collection of Desert Storm material. This series fills approximately thirty-five Hollinger boxes with documents and messages gathered from the staff sections of the former TAC HQ. It has useful runs of documents that include appropriate CIA and DIA intelligence reports. Unit histories constitute the last of the three TAC/HO record series. These works are of uneven quality, but the 37th Fighter Wing Contingency Historical Reports and the JTF Proven Force material proved of great value. All these records will be available on microfilm at AFHRA, Maxwell AFB, at a future date.

The Checkmate records fell into two series. The first consisted of the historically valuable records collected by Dr. Wayne Thompson, a USAF historian temporarily attached to Checkmate from August 1990 through June 1991. Dr. Thompson filled several file cabinets with Checkmate planning material, intelligence information forwarded to CENTAF, targeting material, and Air Staff cor-

On Target

respondence which he took with him when he transferred to the Gulf War Air Power Survey (GWAPS) Office in Arlington, Virginia. This material represents an unparalleled insight into the planning of Instant Thunder, the Checkmate contribution to the war, and Air Staff activities during the war. When GWAPS closed its doors in 1994, its records went to AFHRA, Maxwell AFB. The second series of Checkmate records consisted of the Lt. Col. David A. Deptula Gulf War Collection. While in Riyadh, Colonel Deptula retained many of his historically valuable records detailing the making of the MAPs, prewar planning, target selection, BDA, intelligence, and correspondence with the Air Staff. No history of the strategic bombing campaign against Iraq could be written without Colonel Deptula's records. The colonel has retained these records, but he allowed the Center for Air Force History, the present-day Air Force History Support Office, to make copies of them.

The author also gained copies of valuable records from members of the Ninth Air Force staff, including General Horner's personal Desert Storm file, and members of the former SAC/HO.

Original sources cited in this work are annotated using the following system:

First letter=repository:

- T=TAC
- CK=Checkmate
- S=SAC
- AF/CAFH=Center for Air Force History, now named the Air Force History Support Office

Second letter=collection:

- CT=CENTAF Collection
- U=Unit History Collection
- DS=Desert Storm
- Deptula=Deptula Collection.

Third letter or digit=box number within the collection.

Fourth letter=folder title.

Therefore, the designation "[File No. T/CT/45/IN]" indicates the material being cited can be retrieved from TAC/HO, CENTAF Collection, Box 45, Folder IN.

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Index

Boldface references indicate photographs and illustrations

- Aardvark. *See* Aircraft, U.S., F-111E
“Aardvark”; Aircraft, U.S., F-111F “Aardvark”
- Abadan, Iran: 17
- Abd al-Aziz al-Saud, Fahd ibn
decision to go to war: 2
intervention to prevent war: 26
meeting with Secretary Baker: 115
meeting with U.S. military delegation:
30–31
- Abd al-Aziz, Allah: 31
- Abd al-Aziz, Bandar bin Sultan
meeting with U.S. military delegation:
31
on President Bush’s peace offer: 148
Saudi Ambassador to the U.S.: 39
told of President Bush’s decision to go
to war: 150, 166
- Abd al-Aziz, Khalid bin Sultan bin
briefed on offensive plan: 159
Commander, Joint Islamic-Arab Forces:
39–40
Commander, Saudi Air Defense System:
39
photo of: **40**
- Abd al-Aziz, Sultan: 39
- Above ground level (AGL) limitations: 134
- Abqaiq oil facilities: 54
- Abu Dhabi, UAE: 20
- Abu Rajesh petroleum facility: 251
- Acheson, Dean: 21
- Ad Dawhah, Qatar. *See* Doha, Qatar
- Ad Diwaniyah, Iraq: 265, 269
- Ad Dujayl, Iraq: 250, 264
- Adams, Jimmie
DCS, Plans and Operations: 59
- Director J-3 (Operations) for Air, inter-
im: 72
in Instant Thunder briefings: 71–72
in OPORD Offensive Campaign—Phase
I briefings: 988
sent Col. Wilson as facilitator: 82
- Aden, Gulf of: 10
- Aeromedical evacuation: 37
- Afghanistan: 10, 153
- Ahmed Al Jaber airfield: 192, 200
- Air base ground defense: 38–39
The Air Campaign: Planning for Combat:
60
- Air Component Commander: 38–39. *See*
also Horner, Charles
- Air defense
AADC responsibility: 37
of Coalition countries: 234, 243
establishment of: 48
of Israel
in air campaign planning: 73
interception of SRBMs: 233–234
in NSD-54 administrative policy: 165
Patriot missiles: 230–234
target of Iraqi SRBMs: 79–80, 154,
176, 184, 228–234
priority of Lt. Gen. Horner: 82–83
ROE: 128
in TAC offensive air campaign plan: 81
- Air defense communications sector head-
quarters: 184
- Air defense operation center (ADOC): 102,
188, 209, 252
- Air Force Intelligence Agency: 87
- Air National Guard: 237
- Air order of battle

On Target

- A-6E "Intruder": 102, 118–119, 171
- A-7E "Corsair II": 102, 118
- A-10 "Thunderbolt II": 42, 79, 103, 114, 118, 171
- ABCCC: 118
- AC-130 "Spectre": 114, 118, 171
- AH-1 "Cobra": 103
- AH-64 "Apache": 103
- AV-8B "Harrier II": 79, 103, 171
- AWACS: 42, 171
- B-52G "Stratofortress": 42, 102, 114, 118, 171
- C-20 "Gulfstream": 42, 114, 171
- C-21: 42, 114, 171
- C-29 "C-Fin": 114
- C-130 "Hercules": 42, 114, 118, 171
- E-2C "Hawkeye": 118
- E-3 "Sentry": 103, 114
- E-3B "Sentry": 118, 212
- E-3C "Sentry": 118
- EA-6B "Prowler": 103, 118–119
- EA-8 (JSTARS): 118, 171
- EC-130E "Volant Solo": 42, 103, 114, 118, 171, 212
- EC-130H "Compass Call": 42, 114, 171
- EF-111A "Raven": 42, 103, 114, 118, 171, 212
- F-4G "Wild Weasel": 42, 103, 114, 118, 171, 212
- F-14 "Tomcat": 102, 118, 171
- F-15C "Eagle": 42, 102, 114, 118, 171, 212
- F-15E "Strike Eagle": 42, 102, 114, 118, 171
- F-16 "Fighting Falcon": 42, 102, 114, 118, 171, 212
- F-16 "Wild Weasel": 212
- F-111E "Aardvark": 212
- F-111F "Aardvark": 42, 102, 114, 118, 171
- F-117A "Nighthawk": 42, 102–103, 114, 118, 171
- F/A -18 "Hornet": 79, 102, 118, 171
- F/A -18M "Hornet": 103
- GR-1 "Tornado": 102
- HC-130 "Hercules": 42, 114, 171, 212
- JSTARS: 118, 171
- KA-6D "Intruder": 118
- KC-10 "Extender": 103, 114, 118, 171
- KC-130 "Hercules": 119
- KC-135 "Stratotanker": 42, 103, 114, 171
- KC-135A "Stratotanker": 212
- KC-135Q "Stratotanker": 118
- MC-130 "Combat Talon": 42, 114, 171, 212
- MH-53 "Pave Low": 42, 114, 171
- MH-53J "Pave Low": 212
- MH-60 "Pave Hawk": 114, 171
- OV-10 "Bronco": 118, 119
- RC-135 "Rivet Joint": 42, 103, 114, 171
- RF-4C "Phantom II": 42, 103, 114, 118, 171
- S-3A "Viking": 118
- S-3B "Viking": 118
- SR-71 "Blackbird": 7n20
- TR-1: 42, 103, 114, 171
- U-2: 42, 114, 171
- U-2R: 103
- Air superiority: 63, 81, 157–158
- Air tasking order (ATO). *See* United States Air Force Component, Central Command (USCENTAF), air tasking order (ATO)
- Air traffic control system: 37
- Air War Plans Division: 62
- Air Weapons Center, Eglin AFB, Florida: 283–284
- Aircraft, Coalition
 - Buccaneer
 - bombing of
 - Al Jarrah airfield: 267
 - Al Kut airfield: 280
 - Al Taqaddum airfield: 281
 - Ar Rumaylah HASSs: 276
 - Habbaniyah airfield: 281
 - Jalibah airfield: 280
 - Jalibah HASSs: 276
 - Shaibah airfield: 267
 - Shayka Mazhar airfield: 281
 - Tallil airfield: 280
 - Tallil HASSs: 276
 - designating targets for Tornados: 255
 - CF-18 "Hornet": 133
 - F-5E "Tiger II": 18
 - F-15C "Eagle": 18
 - GR-1 "Tornado"
 - air order of battle: 102

- bombing of
 - Al Asad airfield: 190, 207
 - Al Hadithah pumping station: 270
 - Al Iskandariyah arms plant: 214
 - Al Jarrah airfield: 204, 215, 267
 - Al Khafi highway strip: 190
 - Al Kut airfield: 280
 - Al Musayyib rocket-motor plant: 214
 - Al Taqaddum airfield: 191, 281
 - An Nasiriyah BW bunkers: 265
 - Ar Rumaylah airfield: 198
 - Ar Rumaylah HASSs: 276
 - Baghdad SAM support facilities: 265
 - Balad Southeast airfield: 215
 - Ghalaysan airfield: 190–191
 - H–2 airfield: 213, 216, 251
 - H–3 airfield: 188, 213
 - H–3 CW storage facility: 216
 - H–3 SRBM launch site: 237
 - Habbaniyah airfield: 281
 - Jalibah airfield: 250, 280
 - Jalibah HASSs: 276
 - Latifiya explosives plant: 214
 - Mudaysis airfield: 190–191, 207
 - Qurna SRBM shelter: 192
 - As Salman airfield: 190–191
 - Shaibah airfield: 205, 267
 - Shaibah SAM support facilities: 265
 - Shayka Mazhar airfield: 281
 - Tallil airfield: 192, 250, 280
 - Tallil HASSs: 276
 - Wadi al Khirr airfield: 190–191, 207
- Buccaneer aircraft designating targets for: 255
- deployment of: 97
- loss to Iraqi air defense: 198
- vs. MiG–29 “Fulcrum”: 173
- number in strike force: 102
- refueling from USAF tankers: 270
- SEAD support for bombing of
 - Al Asad airfield: 190–191
 - H–2 airfield: 213, 216, 251
 - H–2 SRBM launch site: 183
 - H–3 airfield: 213
 - H–3 CW storage facility: 216
 - SRBM launch sites: 183
 - in tests at Ingolstadt Flight Test Center: 173
 - training exercises: 133
 - use of JP–233 airfield-denial munitions
 - H–3 airfield: 188
 - Jalibah airfield: 250
 - Tallil airfield: 250
- GR–1 (IDS) “Tornado”
 - bombing of
 - Al Jarrah airfield: 192
 - Al Khafi highway strip: 216
 - As Salman airfield: 214
 - Ghalaysan airfield: 214
 - H–2 airfield: 207
 - H–3 airfield: 207, 239
 - H–3 petroleum pumping station: 207
 - Habbaniyah airfield: 251
 - Jalibah airfield: 192
 - Kuwait airfield: 192
 - Mudaysis airfield: 215
 - Shaibah airfield: 192
 - Wadi al Khirr airfield: 216
 - use of JP–233 airfield-denial munitions: 192
- GR–1A “Tornado”
 - deployment of: 97
 - reconnaissance missions: 190–192, 215–216
- GR–1B/T2A “Jaguar”
 - bombing of Shaibah airfield: 267
 - vs. MiG–29 “Fulcrum”: 173
 - in tests at Ingolstadt Flight Test Center: 173
 - in USCENTAF campaign planning: 105
- Mirage 2000: 267
- RR299 “Mosquito”: 8
- Aircraft, Iraqi
 - AWACS: 91, 201
 - F–7 Chinese fighter: 172
 - helicopters: 152, 195
 - Il–76 “Candid”: 259
 - L–29 “Maya”: 172
 - L–39 “Albatross”: 172
 - MiG–17 “Fresco”: 172
 - MiG–21 “Fishbed”: 172–173, 261

On Target

- MiG-23E “Flogger”: 172
- MiG-23G “Flogger”: 172, 259
- MiG-25 “Foxbat”: 172, 189, 300, 300*n*33
- MiG-29 “Fulcrum”
 - assessment of: 172–173
 - vs. F-15C “Eagle”
 - Draeger, Rhory R.: 201
 - Kelk, Jon K.: 185
 - Magill, Charles J.: 201
 - vs. F/A-18 “Hornet”: 300*n*33
 - vs. GR-1 “Tornado”: 173
 - retreat to Iran: 259
- Mirage F-1E
 - assessment of: 172–173
 - attack capability: 260
 - vs. F-15C “Eagle”: 185, 187
 - retreat to Iran: 259
- Su-24 “Fencer”: 259
- Su-25 “Grach”: 172
- Tu-16 “Badger”: 172
- Tu-22 “Blinder”: 172
- Aircraft, U.S. *See also* Decoys; Drones
 - A-6E “Intruder”
 - air order of battle: 102, 119, 171
 - bombing of
 - Abu Rajesh petroleum facility: 251
 - Ahmed Al Jaber SRBM shelter: 192
 - Al Faw IADS: 201
 - Al Hadithah power plant: 215
 - Al Hadithah TV station: 215
 - Al Jarrah IOC: 270
 - Al Taqaddum airfield: 191
 - Ali al Saleem SRBM shelter: 192
 - Ar Rumaylah bridge: 266
 - Ash Shuaybah railroad station and airfield: 205
 - Az Zubayr marshaling yard: 205
 - Basra petroleum factory: 205
 - H-2 airfield: 207
 - H-3 airfield: 207, 282
 - Kuwait airfield: 192
 - Mina Al Bakr IADS: 201
 - Qurna SRBM shelter: 192
 - Salah Al Din SAM plant: 269
 - Samarra CW facilities: 251
 - Shaibah airfield: 192, 205
 - SRBM support/storage facilities: 241
 - Taji engine repair facility: 269
 - Tallil airfield: 192
 - Tallil SRBM shelters: 236, 238
 - Tikrit CW facilities: 251
 - Umm Qasr naval base: 195
 - CAP mission: 195
 - PGM capability: 287
 - SEAD support for bombing of
 - Baghdad IADS: 189
 - Failake Island and Kuwait/Iraq coast: 198
 - in USCENTAF campaign planning: 97, 102
- A-6M “Intruder”: 155
- A-7E “Corsair II”
 - air order of battle: 102, 118
 - bombing of
 - Al Iskandariyah arms plant: 249
 - Al Musay rocket test facility: 249
 - Ar Ramadi SRBM support facilities: 237
 - Baghdad IADS: 189
 - H-2 airfield: 199
 - H-3 airfield: 282
 - Latifiya explosives plant: 249
 - Latifiya SRBM support facilities: 237
 - Qasr Amij SRBM launch complex: 238
 - SRBM missile storage bunkers: 239
 - Wadi Amij SRBM launch complex: 238
 - SEAD support for bombing of
 - Abu Rajesh petroleum facility: 251
 - Al Asad airfield: 207
 - Al Hadithah power plant: 215
 - Al Hadithah TV station: 215
 - Al Qaim fertilizer plant: 215
 - H-2 airfield: 207
 - H-3 airfield: 188, 207
 - Samarra CW facilities: 251
 - Tikrit CW facilities: 251
- A-10 “Thunderbolt II”
 - in 23d TFW: 137
 - in 354th TFW: 137
 - after action assessment: 237
 - air order of battle: 42, 103, 114, 118, 171
 - attack on

- Ar Rutbah EW site: 214
- early warning radar sites: 196, 214
- H-3 EW site: 214
- Iraqi Army: 198
- launch baskets: 241
- Nukhayb GCI site: 196
- Nukhayb IOC: 196
- POL equipment and facilities: 198
- As Salman warning site: 196
- attack priority: 197–198
- CSAR support alert: 249
- deployment of: 41, 46
- GBU-delivery capability: 4
- in Instant Thunder plan: 79
- missions: 43
- reconnaissance of Scud launch baskets: 236–237
- on Scud hunt: 238
- training exercises: 133
- in USCENTAF campaign planning: 98–99, 105, 116
- “Wart Weaselng”: 196
- A-10A “Thunderbolt II”: 307
- ABCCC: 77, 118, 132–133
- AC-130 “Spectre”
 - air order of battle: 114, 118, 171
 - mission of: 38–39
 - Scud interdiction missions: 239
 - in SOF units: 38
 - in USCENTAF campaign planning: 116
- AH-1 “Cobra”: 103
- AH-64 “Apache”: 103
- AV-8B “Harrier II”
 - air order of battle: 103, 118–119, 119, 171
 - availability for USCENTAF campaign: 97
 - in Instant Thunder plan: 79
 - in USCENTAF campaign planning: 105
- AWACS
 - ACE division staffing: 138–139
 - air order of battle: 42, 171
 - changes to ATO by: 12
 - an HVAA: 77
 - in Instant Thunder plan: 77
 - operating areas over Turkey: 211
- SRBM launch site detection: 242
- training with Coalition forces: 132
- in USCENTAF campaign planning: 128, 129
- B-1 “Lancer”: 6, 8
- B-2 “Spirit”: 6, 8
- B-17 “Flying Fortress”: 6, 62
- B-24 “Liberator”: 62
- B-29 “Superfortress”: 65, 314
- B-47 “Stratojet”: 65
- B-50 “Superfortress”: 65
- B-52D “Stratofortress”
 - aircraft for support of: 6–7
 - bombing of Haiphong, Vietnam: 6
 - in Operation Linebacker II: 315
- B-52G “Stratofortress”
 - air order of battle: 42, 102, 114, 118, 171
- ALCMs: 72, 104, 196–197
- bombing of
 - Al Hadithah pumping station: 270
 - Al Hadre ammunition dump: 277
 - Al Iskandariyah arms plant: 269, 277
 - Al Qaim phosphate plant: 264
 - Al Sahra airbase: 203–204
 - Ar Rumaylah ammunition dump: 265
 - Balad Southeast airfield: 252
 - Batra missile production factory: 250
 - Battikha railway station: 278
 - H-2 airfield: 257
 - H-2 SRBM launch site: 239, 257
 - H-3 airfield: 239, 257
 - H-3 SRBM launch site: 257
 - Habbaniyah artillery factory: 277
 - Habbaniyah motor-case factory: 250
 - IZAF FOL attack: 190
 - Kirkuk airfield: 267
 - Mosul missile research facility: 216
 - Mosul Republican Guard sites: 252
 - Salah Al Din SAM plant: 269
 - As Samawah petroleum refinery: 215
 - SRBM support/storage facilities: 241

On Target

- Taji fabrication plant: 269
- Taji facilities: 277
- Taji missile support facility: 269
- Tall Al Lahm ammunition dump: 265
- Tawakalna Mechanized Division: 204, 207
- Tikrit ammunition dump: 250
- Umayyah petroleum refinery: 215
- deployed to Diego Garcia: 41, 67
- in Instant Thunder plan: 72, 77, 80
- longest combat mission flown: 166
- mining of SRBM launch areas: 242
- from Moron AB: 216
- number in strike force: 102
- in Operation Linebacker II: 6–7
- photo of: **191**
- strategic vs. tactical missions: 262
- training exercises: 133
- in USAF inventory (FY 1993): 6*n*17
- in USCENTAF campaign planning: 104, 116
- B–52H “Stratofortress”: 6*n*17
- BQM–34 drones: 91
- BQM–74 drones. *See* Drones
- C–5 “Galaxy”: 41–43
- C–17 “Globemaster III”: 8
- C–20 “Gulfstream”: 42, 114, 171
- C–21: 42, 93, 114, 171
- C–29 “C-Fin”: 114
- C–130 “Hercules”
 - air order of battle: 42, 114, 118, 171
 - airlift operations: 43
 - in USCENTAF campaign planning: 116
- C–141 “Starlifter”: 40, 41–43, 283
- E–2C “Hawkeye”
 - air order of battle: 118
 - an HVAA: 77
- E–3 “Sentry”
 - air order of battle: 103, 114
 - first deployed aircraft in Saudi Arabia: 40
 - number in support force: 103
 - surveillance of Iraqi airspace: 183
- E–3A “Sentry”: 116
- E–3B “Sentry”: 118, 212
- E–3C “Sentry”: 118
- EA–6B “Prowler”
 - air order of battle: 103, 118–119
 - availability of: 97
 - number in support force: 103
 - Operation Linebacker II support: 6
 - SEAD support for bombing of
 - Abu Rajesh petroleum facility: 251
 - Ahmed Al Jaber airfield: 200
 - Ahmed Al Jaber SRBM shelter: 192
 - Al Amarah IOC: 200
 - Al Asad airfield: 207
 - Al Faw IADS: 201
 - Al Hadithah power plant: 215
 - Al Hadithah TV station: 215
 - Al Iskandariyah arms plant: 249
 - Al Musay rocket test facility: 249
 - Al Qaim fertilizer plant: 215
 - Ali al Saleem SRBM shelter: 192
 - An Nasiriyah troposcatter station: 198
 - Ar Ramadi SRBM support facilities: 237
 - Ar Rumaylah airfield: 198
 - Ash Shuaybah railroad station and airfield: 205
 - Az Zubayr IOC: 199
 - Az Zubayr railyard: 199
 - Baghdad IADS: 189
 - Failake Island and Kuwait/Iraq coast: 198
 - H–2 airfield: 207
 - H–2 highway strip runways: 250
 - H–3 airfield: 188, 207
 - H–3 highway strip runways: 250
 - Kuwait airfield: 192
 - Latifiya explosives plant: 249
 - Latifiya SRBM support facilities: 237
 - Mina Al Bakr IADS: 201
 - patrol boats: 199
 - Qasr Amij SRBM launch complex: 238
 - Qurna SRBM shelter: 192
 - Samarra CW facilities: 251
 - Shahiyat rocket facility: 236
 - Shaibah airfield: 192, 205
 - Tallil airfield: 192
 - Tallil IOC: 198
 - Tikrit CW facilities: 251

- Umm Qasr naval base: 195
- Wadi Amij SRBM launch complex: 238
- in USCENTAF campaign planning: 158
- EA-8 (JSTARS)
 - air order of battle: 118, 171
 - data from, joint use of: 143–144
 - deployment of: 141
 - description of: 141
 - detection of SRBM launch sites: 238, 241
 - vs. F-117A: 8
 - first operational mission: 143
 - OPCON of: 144
 - photo of: **169**
 - procurement of: 141–142
 - surveillance of Iraqi ground forces: 237–238
 - TACON of: 144
 - target information from: 144
 - use of in desert conditions: 169
- EB-66 “Destroyer”: 6
- EC-130 “Commando Solo”: 41–42
- EC-130E “Volant Solo”
 - ABCCC aircraft: 118
 - air order of battle: 42, 103, 114, 118, 171
 - in Instant Thunder plan: 77, 79
 - in JTF Proven Force: 212
 - number in support force: 103
 - in Operation Just Cause: 98n96
- EC-130H “Compass Call”
 - air order of battle: 42, 114, 171
 - in Instant Thunder plan: 77
 - in JTF Proven Force: 212
 - SEAD support for bombing of
 - Basiqah Northeast: 209
 - Machurah Dawg North: 209
 - Sununi: 209
- EF-111A “Raven”
 - in 366th TFW: 137
 - air order of battle: 42, 103, 114, 118, 171
 - deployment to theater: 42, 47
 - deployment to Turkey: 211
 - in JTF Proven Force: 212
 - number in support force: 103
 - SEAD support for bombing of
 - Ahmed Al Jaber SRBM shelter: 197
 - Al Fallujah BW bunkers: 214
 - Al Fallujah SRBM plant: 214
 - Al Iskandariyah arms plant: 214
 - Al Jarrah airfield: 192, 204
 - Al Kifl highway bridge: 216
 - Al Musayyib rocket-motor plant: 214
 - Al Sahara airbase: 202
 - Al Taqaddum airfield: 200, 248
 - Al Taqaddum CW bunker: 213
 - Ali al Saleem SRBM shelter: 197
 - An Nasiriyah bridges: 215–216
 - Ar Rutbah IOC: 248
 - Baghdad: 182–183, 186–187
 - Baghdad IADS: 189
 - Balad Southeast airfield: 191, 213, 215, 252
 - Batra missile production factory: 250
 - H-2 airfield: 213
 - H-2 SRBM launch site: 183, 237
 - H-3 airfield: 213
 - H-3 SRBM launch site: 237
 - Habbaniyah airfield: 251
 - Habbaniyah BW bunkers: 214
 - Habbaniyah CW production facilities: 248
 - Habbaniyah military/artillery production facilities: 214
 - Habbaniyah motor-case factory: 250
 - Habbaniyah petroleum storage facility: 200
 - Jalibah airfield: 192
 - Karbala IOC: 248
 - Latifiya explosives plant: 214
 - Muful Waddam bridge: 216
 - An Najaf IOC: 248
 - An Nasiriyah troposcatter station: 248
 - Qalat Salih SRBM shelters: 207
 - Qubaysah storage, ammunition, and Scud depot: 248
 - Rufah SRBM facility: 248
 - Salman Pak BW bunkers: 194
 - Saqash railroad bridge: 215–216
 - SRBM launch sites: 241

On Target

- SRBM launch sites in northwest Iraq: 183
- Tikrit ammunition dump: 250
- Tikrit C² leadership bunker: 202
- Tikrit South airfield: 248
- Tuwaitha nuclear facility: 249
- in USCENTAF campaign planning: 158
- F-4 “Phantom”: 7, 172
- F-4C “Phantom II”: 4
- F-4E “Phantom II”
 - bombing of Taji military complex: 282
 - PGM capability: 4–5
 - replacement of: 5, 13
- F-4G “Wild Weasel”
 - in 35th TFW: 137
 - air order of battle: 42, 103, 114, 118, 171
 - bombing of Baghdad IADS: 189–190
 - deployment to theater: 41, 46–47
 - deployment to Turkey: 211
 - for destruction of surface-to-air threats: 158
 - in “HARM Heaven”: 190
 - in JTF Proven Force: 212
 - number in support force: 103
 - SEAD support for bombing of
 - Ahmed Al Jaber airfield: 200
 - Ahmed Al Jaber SRBM shelter: 192, 197
 - Al Fallujah SRBM plant: 214
 - Al Iskandariyah arms plant: 214
 - Al Jaber SRBM launch sites: 238
 - Al Jarrah airfield: 192, 204, 215
 - Al Musayyib rocket-motor plant: 214
 - Al Taqaddum airfield: 200, 248
 - Al Taqaddum CW bunker: 213
 - Ali al Saleem SRBM shelter: 192, 197
 - Baghdad: 248–249
 - Basiqah Northeast: 209
 - Batra missile production factory: 250
 - H-2 SRBM launch site: 237
 - H-3 airfield: 239
 - H-3 SRBM launch site: 237
 - Habbaniyah airfield: 251
 - Habbaniyah CW production facilities: 248
 - Habbaniyah military/artillery production facilities: 214
 - Habbaniyah motor-case factory: 250
 - Habbaniyah petroleum storage facility: 200
 - Jalibah airfield: 192
 - Karbala IOC: 248
 - Kuwait airfield: 192
 - Latifiya explosives plant: 214
 - Machurah Dawg North: 209
 - An Najaf IOC: 248
 - An Nasiriyah troposcatter station: 248
 - Rufah SRBM facility: 248
 - Salman Pak BW bunkers: 194
 - Shaibah airfield: 192
 - SRBM launch sites: 241
 - Sununi: 209
 - Tallil CW bunkers: 200
 - Tawakalna Mechanized Division: 204, 207
 - Tikrit ammunition dump: 250
 - Tuwaitha nuclear facility: 249
 - Umayjah petroleum refinery: 215
 - training exercises: 133
 - in USCENTAF campaign planning: 116
 - “Wart Weasel”: 196
 - F-14 “Tomcat”
 - air order of battle: 102, 118, 171
 - on aircraft carriers: 41
 - barrier CAP for IZAF aircraft: 260–261
 - bombing of
 - Al Faw IADS: 201
 - Ar Ramadi SRBM support facilities: 237
 - Latifiya SRBM support facilities: 237
 - Mina Al Bakr IADS: 201
 - CAP for bombing of
 - Abu Rajesh petroleum facility: 251
 - Ahmed Al Jaber SRBM shelter: 192
 - Al Asad airfield: 207
 - Al Hadithah power plant: 215

- Al Hadithah TV station: 215
- Al Iskandariyah arms plant: 249
- Al Musay rocket test facility: 249
- Al Qaim fertilizer plant: 215
- Ali al Saleem SRBM shelter: 192
- Baghdad IADS: 189
- H-2 airfield: 207
- H-2 highway strip runways: 250
- H-2 SRBM launch site: 185
- H-3 airfield: 188, 207
- H-3 highway strip runways: 250
- H-3 IOC: 199
- H-3 petroleum pumping station: 199
- H-3 SOC: 199
- H-3 troposcatter site: 199
- Latifiya explosives plant: 249
- northwest Iraq SRBM sites: 185
- Qasr Amij SRBM launch complex: 238
- Samarra CW facilities: 251
- Tikrit CW facilities: 251
- Umm Qasr naval base: 195
- Wadi Amij SRBM launch complex: 238
- IFF on: 41
 - number in strike force: 102
 - sweep of H-3 area: 195, 198
- F-15C "Eagle"
 - in 1st TFW: 137
 - in 4th TFW: 137
 - in 33d TFW: 137
 - air order of battle: 42, 102, 114, 118, 171
 - barrier CAP for IZAF aircraft: 260-261
 - for CAP: 40
 - CAP for bombing of
 - Al Fallujah SRBM plant: 214
 - Al Iskandariyah arms plant: 214
 - Al Jarrah airfield: 204
 - Al Musayyib rocket-motor plant: 214
 - Al Taqaddum airfield: 200, 248
 - An Nasiriyah bridges: 215-216
 - An Nasiriyah troposcatter station: 198
 - Ar Rumaylah airfield: 249
 - Baghdad: 187, 248-249
 - Balad Southeast airfield: 213, 252
 - Balad Southeast airfield HASS: 256
 - Basiqah Northeast: 209
 - H-2 airfield: 213, 216
 - H-2 SRBM launch site: 185, 237
 - H-3 airfield: 213, 239
 - H-3 CW storage facility: 216
 - H-3 SRBM launch site: 237
 - Habbaniyah CW production facilities: 248
 - Habbaniyah military/artillery production facilities: 214
 - Habbaniyah petroleum storage facility: 200
 - Jalibah airfield: 250
 - Latifiya explosives plant: 214
 - Machurah Dawg North: 209
 - northwest Iraq SRBM sites: 185
 - As Samawah oil refinery: 196
 - Saqash railroad bridge: 215-216
 - Sununi: 209
 - Tallil airfield: 250
 - Tallil CW bunkers: 200
 - Tallil IOC: 198
 - Tawakalna Mechanized Division: 204, 207
 - Tikrit C² leadership bunker: 202
 - Tuwaitha nuclear facility: 249
 - deployment to Dhahran AB, Saudi Arabia: 40, 47
 - deployment to Turkey: 210-211
 - for destruction of Iraqi AWACS: 91
 - first fighter aircraft in AOR: 40
 - GBU-delivery capability: 4
 - in JTF Proven Force: 212
 - kill rate of, with AIM-7: 316
 - MiG-29 kill: 185
 - number in strike force: 102
 - photo of: **116**
 - training exercises: 133
 - in USCENTAF campaign planning: 116
- F-15E "Strike Eagle"
 - in 4th TFW: 137
 - air order of battle: 42, 102, 114, 118, 171
 - bombing of
 - Al Basrah Hartha turbine power plant: 205, 206-207

On Target

- Al Khafi highway strip: 190
- Al Kut bridge: 215
- Al Kut TV station: 215
- Al Qurnah highway bridge: 205
- An Nasiriyah bridge: 214
- Ar Rumaylah bridge: 214
- Balad Southeast airfield: 213
- Basra petroleum factory: 205
- Ghalaysan airfield: 190–191
- H–2 airfield: 184
- H–2 SRBM launch site: 183
- Jalibah fiber-optic stations: 239
- Jalibal fiber-optic link: 266
- Kahn Al Mahawal barracks: 238
- Karbala IOC: 248
- Mudaysis airfield: 190–191
 - An Najaf IOC: 190, 248
 - An Nasiriyah troposcatter station: 248
- Qasr Amij SRBM launch complex: 236, 237
- Ramadi fiber-optic stations: 239
- Republican Guard sites: 248
- Rufah SRBM facility: 248
- As Salman airfield: 190–191
- As Samawah airfield: 192
- As Samawah bridges: 214
- As Samawah fiber-optic stations: 266
- SRBM launch sites: 183, 241–242
- Tallil fiber-optic link: 266
- Tallil fiber-optic repeater station: 192
- Wadi al Jabariyah SRBM launch complex: 236, 237
- Wadi al Khirr airfield: 190–191
- Wadi Amij SRBM launch complex: 236, 237
- Wadi Ar Ratqa SRBM launch complex: 236, 237
- “buddy-lasing”: 183*n*9
- deployment to theater: 41, 46, 103
- destruction of Iraqi SRBMs: 91, 155
- in Instant Thunder plan: 77
- interdiction of SRBMs: 233
- LANTIRN
 - deployment of: 5*n*10, 13, 43, 183*n*9
 - photo of: **155**
 - for Scudbusting: 240
 - mining of SRBM launch areas: 242
 - missions: 43
 - number in strike force: 102
 - PGM capability: 5, 5*n*10, 13, 43, 183*n*9
 - photo of: **13**
 - as “Scudbuster”: 237, 240, 252
 - strategic vs. tactical missions: 262
 - in USCENTAF campaign planning: 116, 156, 158
- F–16 “Fighting Falcon”
 - in 4th TFW: 137
 - aerial refueling requirements: 47
 - air order of battle: 42, 102, 114, 118, 171
 - bombing of
 - Ahmed Al Jaber airfield: 200
 - Ahmed Al Jaber SRBM site: 197
 - Al Asad, Iraq: 282
 - Al Fallujah SRBM engine plant: 236
 - Al Fallujah SRBM plant: 214
 - Al Hadre CW bunkers: 277
 - Al Iskandariyah arms plant: 214
 - Al Jaber SRBM launch sites: 238
 - Al Musayyib rocket-motor plant: 214
 - Al Rafirinah Command and Control Center: 198
 - Al Taqaddum airfield: 200, 248, 252
 - Ali al Saleem airfield: 200
 - Ali al Saleem SRBM site: 197
 - Ar Rumaylah airfield: 249
 - Ash Sharqat missile facility: 271
 - Baghdad: 248–249
 - Basra missile plant: 265
 - H–2 airfield: 252
 - H–2 SRBM launch site: 237, 238
 - H–3 airfield: 252
 - H–3 SAM and SRBM sites: 238
 - H–3 SRBM launch site: 237, 238
 - Habbaniyah chemical facility No. 1: 252
 - Habbaniyah CW production facilities: 248
 - Habbaniyah military/artillery production facilities: 214
 - Habbaniyah petroleum storage

- facility: 200
- K-2 missile storage: 277
- Kirkuk airfield: 267, 282
- Kirkuk AM transmitter: 277
- Kuwait IAP SAM site: 197
- Latifiya explosives plant: 214
- Latifiya SRBM production facilities: 236
- microwave communication facilities: 196
- Mosul direction-finding stations: 277
- Mosul military R&D facility: 277, 282
- Mosul nuclear production facility: 267
- Qayyarah airfield: 267
- Republican Guard General HQ: 198
- Republican Guard LOCs: 252
- As Samawah oil refinery: 196
- Shahiyat rocket facility: 236
- Shaibah ground forces command facility: 198
- Taji military complex: 282
- Tallil CW bunkers: 200
- Tar Miya nuclear facility: 282
- Tuwaitha nuclear facility: 249
- CAS missions: 97
- deployment for Turkey for NATO support: 210
- deployment to Turkey: 211
- deployment to UAE: 41
- vs. F-4G “Wild Weasel”: 158
- GBU-delivery capability: 4
- in JTF Proven Force: 212
- missions: 43
- number in strike force: 102
- parts from, used in F-117A: 8
- as “Scudbuster”: 237, 252
- strategic vs. tactical missions: 262
- targets: 156
- training exercises: 132–133
- in USCENTAF campaign planning: 116, 155
- F-16 “Wild Weasel”: 212
- F-16C “Fighting Falcon”
 - in 363d TFW: 137
 - in 388th TFW: 137
 - in 401st TFW: 137
- bombing of Tuwaitha nuclear facility: 249–250
- shot down over Tuwaitha nuclear facility: 249–250
- F-16L “Fighting Falcon”
 - bombing of
 - Ahmed Al Jaber SRBM shelter: 192
 - Ali al Saleem SRBM shelter: 192
 - Republican Guard sites: 248
- LANTIRN
 - capability of: 183*n*9
 - for Scudbusting: 192
 - munitions, CBU-89 “Gator”: 192
 - as “Scudbuster”: 239, 241
 - for SEAD missions: 155, 183*n*9
- F-105 “Thunderchief”: 6–7
- F-111E “Aardvark”
 - basing of aircraft: 156
 - bombing of
 - Ash Sharqat missile facility: 271
 - Basiqah Northeast: 209
 - Irbil ammunition dump: 277
 - Kirkuk airfield: 267, 282
 - Machurah Dawg North: 209
 - Mosul military R&D facility: 282
 - Mosul nuclear production facility: 267
 - Qayyarah airfield: 267
 - Qayyarah BW bunkers: 267
 - Sununi: 209
 - Taji airfield: 276
 - Taji military complex: 282
 - Tar Miya nuclear facility: 282
 - decision to send to AOR: 66–67
 - deployment to Turkey: 210, 211
 - vs. F-111F: 66–67
 - in JTF Proven Force: 212
 - PGM capability: 66–67
 - targets: 156
- F-111F “Aardvark”
 - in 48th TFW: 137
 - air order of battle: 42, 102, 114, 118, 171
 - bombing of
 - Abu Ghurayb BW facility: 264
 - Ad Dujayl communications satellite terminal: 264

On Target

- Ahmed Al Jaber SRBM shelter: 192
- Al Amarah highway bridge: 270
- Al Amarah IOC: 251
- Al Asad airfield: 257, 264
- Al Fallujah BW bunkers: 214
- Al Jaber airfield: 264
- Al Jarrah airfield: 192, 204, 263
- Al Kifl highway bridge: 216
- Al Musayyib rocket-motor plant: 265
- Al Qaim mines: 278
- Al Taqaddum airfield: 263
- Al Taqaddum CW bunker: 213
- Al Taqaddum HASs: 258
- Ali al Saleem airfield: 264
- Ali al Saleem SRBM shelter: 192
- An Nasiriyah bridges: 215–216
- An Nasiriyah BW bunkers: 265
- An Nasiriyah pontoon bridge: 270, 281
- An Nasiriyah radio relay station: 216
- Ar Ramadi Scud storage center: 237
- Ar Rumaylah bridge: 266
- Ar Rutbah IOC: 248
- As Salman North FOL: 201
- As Salman SRBM shelter: 192
- Balad Southeast airfield: 191, 213, 252
- Basra bridges: 270
- BW bunkers south of Baghdad: 252
- H-2 airfield: 213, 216, 263
- H-2 HASs: 257–258
- H-2 SRBM launch site: 237
- H-3 airfield: 213, 252, 263
- H-3 CW bunkers: 264
- H-3 CW storage facility: 188, 216, 252
- H-3 HASs: 257–258
- H-3 SRBM launch site: 237
- Habbaniyah airfield: 251
- Habbaniyah BW bunkers: 214
- Jalibah airfield: 192, 263
- Jalibah Southeast HASs: 258
- Kahn Al Mahawil barracks: 238
- Latifiya ammunition plant: 265
- Latifiya explosives plant: 269
- Latifiya Scud plant: 265
- Latifiya solid propellant plant: 264
- Mudaysis FOL airfield: 201
- Muful Waddam bridge: 216
- North Taji facility (No. 2): 283–284
- Qabatiya BW bunker: 213–214
- Qalat Salih airfield: 264
- Qalat Salih SRBM shelters: 192, 207
- Qubaysah SRBM support facilities: 237
- Qubaysah storage, ammunition, and Scud depot: 248
- Rasheed aircraft repair depot: 265
- Salman Pak BW bunkers: 194, 251
- Salman Pak CW facility: 251
- Saqash railroad bridge: 215–216
- Shaibah HASs: 258
- Shayka Mazhar airfield: 264
- SRBM launch sites: 241
- SRBM shelters: 240
- Taji BW facility: 251
- Tallil airfield: 263
- Tallil HASs: 258
- Tikrit C² leadership bunker: 202
- Tikrit South airfield: 248
- Tuwaita nuclear facility: 264
- Wadi al Khirr FOL airfield: 201
- Wadi al Khirr HASs: 258
- bombing of Iraqi runways: 102
- Class A accidents: 134
- collateral damage estimations: 131
- cost of: 8
- deployment of to theater: 42
- deployment to Taif AB, Saudi Arabia: 47
- vs. F-111E: 66–67
- vs. F-117A: 257
- formation of ground attack alert force: 139
- hard-target penetration bombing: 5–6, 43–44
- in Instant Thunder plan: 77
- kill rate of, with GBU-12 munition: 306
- missions: 43–44
- munitions: 192
- number in strike force: 102
- PGM capability: 4–5, 66–67, 287

- photo of, with CBU-87s: **195**
- photos of: **5, 116, 205**
- planning for combat use of: 12–13
- refueling over Iraq: 202
- training exercises: 133
- in USCENTAF campaign planning:
 - 116, 155, 158
- F-117A “Nighthawk”
 - in 37th TFW: 137
 - air order of battle: 42, 102–103, 114, 118, 171
 - bombing of
 - V sector (Kuwait) SOC: 193
 - Abu Ghurayb C³ bunker: 202, 251, 274
 - Abu Ghurayb “Infant Formula” plant: 253
 - Abu Ghurayb presidential complex: 281
 - Abu Ghurayb Presidential Palace: 186
 - Ad Diwaniyah BW bunkers: 265, 269
 - Ad Duyayl relay terminal: 250
 - ADOC: 252, 270
 - Air defense communications sector headquarters: 184
 - Al Amarah IOC: 270
 - Al Asad HASs: 258–259
 - Al Fallujah BW bunkers: 209, 214
 - Al Fallujah telecommunications center: 250
 - Al Firdos bunker: 271
 - Al Iskandariyah ammunition plant: 281
 - Al Jarrah airfield: 267
 - Al Jarrah CW bunkers: 264
 - Al Karakh PTT building: 251
 - Al Kifl highway bridge: 250
 - Al Kut airfield: 267
 - Al Kut IOC: 270
 - Al Kut telephone exchange: 265
 - Al Musayyib missile R&D facilities: 283
 - Al Musayyib rocket-motor plant: 281
 - Al Narawan: 281
 - Al Qaim mines: 278
 - Al Sahra HASs: 259
 - Al Taqaddum CW bunker: 264, 277
 - Al Taqaddum IOC: 186, 193, 202
 - An Nasiriyah BW bunkers: 265
 - An Nasiriyah telephone exchange: 265
 - Ar Ramadi ammunition dump: 277
 - Ar Ramadi Radio Relay (No. 2): 186
 - Ar Rumaylah bridge: 266
 - Ar Rutbah IOC: 193, 250
 - As Samawah fiber-optic stations: 266, 278
 - Ash Shuaybah telephone exchange: 265
 - Az Zubayr cable drop: 281
 - Az Zubayr IOC: 193
 - Az Zubayr pumping station: 280
 - Baath Party Headquarters: 274–275, 282
 - Baghdad: 216
 - Baghdad AT&T Building: 186
 - Baghdad bomb assembly plant: 281
 - Baghdad intelligence station: 251
 - Baghdad jammer and transmitter: 277
 - Baghdad Ministry of Defense: 252
 - Baghdad nuclear facilities: 277
 - Baghdad Republican Guard barracks: 265
 - Baghdad SAM support facilities: 265, 277
 - Baghdad Security Forces HQ: 253
 - Baghdad signals station: 252
 - Baghdad SOC: 193
 - Baghdad SRBM assembly plant: 267
 - Baghdad telecommunications center: 186, 253
 - Baghdad TV transmitter: 252
 - Balad SE ADOC: 270
 - Balad SE airfield: 267
 - Balad SE airfield HASs: 256, 263–264
 - Basra radio transmitter-receiver: 264
 - Bir Akirshah air warning site: 252
 - C² bunker (No. 2): 186
 - Camp Taji: 253, 275
 - Diwaniyah BW bunkers: 194

On Target

- H-1 airfield: 267
- H-2 airfield: 263
- H-2 HASs: 258–259
- H-2 IOC: 252
- H-3 airfield: 263
- H-3 CW bunkers: 264
- H-3 HASs: 258–259
- H-3 IOC: 193, 209
- H-3 SOC: 184, 201, 250
- Habbaniyah artillery factory: 277, 282
- Habbaniyah BW bunkers: 209, 214, 277
- Habbaniyah CW production facilities: 264
- Habbaniyah motor-case factory: 277
- Habbaniyah troposcatter station: 193
- HAS: 241
- I-Hawk battery: 209, 253
- IIS HQ: 201, 265, 274, 281
- incendiary defense system: 280
- Iraqi Army III/IV Corps HQs: 268
- Iraqi AWACS at Saddam IAP: 201
- Iraqi CIA building: 253, 275
- Iraqi intelligence/special ops HQ: 280
- IZAF Headquarters (New): 193, 201, 274–275
- IZAF HQ bunkers: 265
- Jalibah HASs: 276
- Jalibal fiber-optic link: 266
- Jenoub PTT building: 251–252, 277
- Jumhuriya bridge: 266
- Karbala BW bunkers: 265
- Karbala fiber-optic stations: 278
- Karbala IOC: 270
- Khan Al Mahiwil AM transmitter: 201
- Kirkuk airfield: 267
- Kirkuk ammunition depot: 281
- Kirkuk CW bunkers: 267
- Kirkuk HASs: 258–259
- Latifiya liquid propellant plant: 269
- Latifiya solid propellant plant: 277
- Latifiya SRBM facilities: 277
- Latifiya SSM facility: 269
- Maiden Square telecommunications center: 193
- Military Intelligence HQ: 274–275
- Ministry of Defense National Computer Center: 201
- Ministry of Defense offices: 214–215, 215*n*111, 265, 275
- Ministry of Information offices: 214–215, 215*n*111, 274
- Ministry of Internal Security offices: 214–215, 215*n*111
- Ministry of Military Industry: 265
- Mosul CW bunkers: 277
- Mosul HASs: 259
- Mufrash radio relay: 281
- Muhammad airfield: 259
- Muthenna airfield: 282
- North Taji facility (No. 2): 251, 253, 275
- Nukhayb IOC: 184, 209
- Presidential bunker: 193
- Presidential Palace: 253, 265
- Qabatiya BW bunker: 209, 213–214
- Qayyarah HASs: 258–259
- Qayyarah West CW bunkers: 267, 277
- Rasheed HASs: 267
- SA-2 sites: 269
- SA-3 sites: 269
- Salman Pak: 264
- Salman Pak AM transmitter: 201
- Salman Pak BW/CW facilities: 194, 282
- Salman Pak IOC: 193, 270
- Samarra CW facilities: 281
- Security Forces HQ: 275
- Shahiyat liquid-fuel plant: 277, 282
- Shahiyat rocket facility: 282
- Shaibah SAM support facilities: 265
- Special Security Services: 281
- Taji armored vehicle repair depot: 269
- Taji BW facility: 252, 253, 277
- Taji C² bunker (No. 2): 193
- Taji engine repair facility: 269
- Taji SOC: 186
- Taji SSM equipment plant: 277

- Tall Afar airfield: 266
- Tallil CW bunkers: 264
- Tallil fiber-optic link: 266
- Tallil fiber-optic stations: 278
- Tallil IOC: 209
- Tallil SOC: 186, 209
- Tar Miya rocket facility: 269
- Tikrit: 277
- Tikrit BW bunkers: 269
- Tikrit radio communications facility: 278
- Tikrit railyard and bridge: 278
- Tuwaitha nuclear facility: 252–253, 264
- TV and radio transmitters: 264, 268
- VIP bunker (No. 25): 252, 265
- choice of weapons: 257
- collateral damage estimations: 131
- combat performance
 - bombing accuracy: 263, 282
 - against difficult targets: 202
 - impact of weather on: 194–195, 216–217
- cost of: 8
- deployment of: 41, 46
- development of: 7–9
- vs. F–111F: 257
- first mission in Desert Storm: 178–179
- hard-target penetration bombing: 5–6, 43–44, 91
- impact of last minute changes on: 252
- in Instant Thunder plan: 77
- Iraqi tracking and targeting of: 186
- loss record: 186
- missions: 43–44
- number in strike force: 102
- PGM capability: 4–5, 287
- photo of: **263**
- planning for combat use of: 12, 105, 318
- receipt of mission orders: 274
- targets: 156
- training exercises: 133
- in USCENTAF campaign planning: 116
- F/A–18 “Hornet”
 - air order of battle: 102, 118, 171
 - availability for USCENTAF
 - campaign: 97
- bombing of
 - Al Amarah IOC: 200
 - Al Asad airfield: 282
 - Al Iskandariyah arms plant: 249
 - Al Jarrah IOC: 270
 - Al Musay rocket test facility: 249
 - Al Qaim air warning site: 277
 - Al Qaim fertilizer plant: 215
 - An Nasiriyah pontoon bridge: 281
 - An Nasiriyah troposcatter station: 198
 - Ar Ramadi SRBM support facilities: 237
 - Ar Rumaylah bridge: 281
 - Az Zubayr IOC: 199
 - Az Zubayr marshaling yard: 205
 - Az Zubayr railyard: 199, 278
 - Baghdad IADS: 189
 - Basra bridges: 265–266
 - Basra petroleum factory: 205
 - Failake Island and Kuwait/Iraq coast: 198
 - H–3 IOC: 199
 - H–3 petroleum pumping station: 199
 - H–3 SOC: 199
 - H–3 troposcatter site: 199
 - Kari system: 207
 - Kuwait airfield: 192
 - Latifiya explosives plant: 249
 - Latifiya solid propellant plant: 270
 - Latifiya SRBM support facilities: 237
 - Nasiriyah power plant: 192
 - patrol boats: 199
 - Qurna SRBM shelter: 192
 - Shaibah airfield: 192, 205
 - Tallil airfield: 192
 - Tallil IOC: 198
 - Tallil SRBM shelters: 236, 238
 - Wadi al Jabariyah, Iraq: 238
 - Wadi Ar Ratqa SRBM launch complex: 238
- CAP for bombing of
 - Ahmed Al Jaber airfield: 200
 - Al Amarah IOC: 200
 - An Nasiriyah troposcatter station: 198

On Target

- Ar Rumaylah airfield: 198
- Ash Shuaybah railroad station and airfield: 205
- Az Zubayr IOC: 199
- Az Zubayr railyard: 199
- Failake Island and Kuwait/Iraq coast: 198
- Kuwait airfield: 192
- patrol boats: 199
- Shaibah airfield: 192
- Tallil airfield: 192
- Tallil IOC: 198
- vs. F-4G "Wild Weasel": 158
- in Instant Thunder plan: 79
- loss of during bombing of Baghdad: 189, 300, 300*n*33
- number in strike force: 102
- parts from, used in F-117A: 8
- as "Scudbuster": 266
- SEAD support for bombing of
 - Abu Rajesh petroleum facility: 251
 - Al Asad airfield: 207
 - An Nasiriyah troposcatter station: 198
 - Ar Rumaylah airfield: 198
 - Ash Shuaybah railroad station and airfield: 205
 - Az Zubayr IOC: 199
 - Az Zubayr railyard: 199
 - Failake Island and Kuwait/Iraq coast: 198
 - H-2 airfield: 207
 - H-3 airfield: 207
 - patrol boats: 199
 - Samarra CW facilities: 251
 - Shaibah airfield: 205
 - Tallil IOC: 198
 - Tikrit CW facilities: 251
- sweep of H-3 area: 198
- in USCENTAF campaign planning: 155, 158
- F/A -18M "Hornet": 103
- FB-111 "Switchblade": 6
- HC-130 "Hercules"
 - air order of battle: 42, 114, 171
 - in JTF Proven Force: 212
- KA-6D "Intruder"
 - air order of battle: 118
 - tanker support for bombing of
 - Az Zubayr IOC: 199
 - Az Zubayr railyard: 199
 - Baghdad IADS: 189
 - H-3 IOC: 199
 - H-3 petroleum pumping station: 199
 - H-3 SOC: 199
 - H-3 troposcatter site: 199
 - patrol boats: 199
- KC-10 "Extender"
 - air order of battle: 103, 114, 118, 171
 - photo of: **43, 257**
- KC-130 "Hercules": 119
- KC-135 "Stratotanker"
 - air order of battle: 42, 103, 114, 171
 - deployment for Turkey for training: 210
 - operating areas over Turkey: 211
 - tanker support for bombing missions: 202
 - in USCENTAF campaign planning: 116
- KC-135A "Stratotanker": 212
- KC-135Q "Stratotanker": 118
- MC-130 "Combat Talon"
 - air order of battle: 42, 114, 171
 - in JTF Proven Force: 212
- MH-53 "Pave Low"
 - air order of battle: 42, 114, 171
 - for SOF missions in AOR: 38
- MH-53J "Pave Low"
 - in JTF Proven Force: 212
 - in Task Force Normandy: 182
- MH-60 "Pave Hawk"
 - air order of battle: 114, 171
 - for SOF missions in AOR: 38
- MH-64 "Apache": 182
- OA-10 "Thunderbolt II": 171, 238
- OV-10 "Bronco": 119
- RC-135 "Rivet Joint"
 - air order of battle: 42, 103, 114, 171
 - operating areas over Turkey: 211
- RF-4C "Phantom II"
 - air order of battle: 42, 103, 114, 118, 171
- Class A accidents: 134
- reconnaissance of bombing of
 - Al Rafirinah C² center: 198
 - Republican Guard General HQ,

- Forward, Basra: 198
- Shaibah ground forces command facility: 198
- SRBM sites: 195
- in USCENTAF campaign planning: 116
- use of in desert conditions: 169
- S-3A “Viking”: 118
- S-3B “Viking”: 118
- SR-71 “Blackbird”: 7*n*20
- TR-1
 - air order of battle: 42, 103, 114, 171
 - photo of: **43**
 - use of in desert conditions: 169
- U-2: 42, 114, 171
- U-2R: 103
- Airspace Control Authority (ACA) duties: 37
- Ajaji Bayji power plant: 15, 199
- Al Amarah, Iraq
 - highway bridge: 270
 - IOC: 200, 251, 270
 - oil storage facilities: 269
 - TV transmitters: 264
- Al Asad airfield
 - facilities: 214, 267, 276, 282
 - HASs: 257-258
 - MiG-29 “Fulcrum” base: 200
 - runway: 190, 207
- Al Basrah, Iraq. *See* Basra, Iraq
- Al Dhafra airfield: 137
- Al Fallujah, Iraq
 - bridges: 270
 - BW bunkers: 209, 214
 - SAM support facilities: 269
 - Scud plant: 214
 - SRBM engine plant: 236
 - telecommunications center: 250
- Al Faw, Iraq: 17, 201
- Al Firdos bunker: 271, 273-275
- Al Hadithah, Iraq: 215, 270
- Al Hadre: 277
- Al Hijarah SRBM: 153
- Al Husayn SRBM: 153, 236*n*39
- Al Iskandariyah arms plant: 214, 249, 269, 277, 281
- Al Jaber airfield: 238
 - bombing of: 264
- Al Jarrah airfield
 - bombing of: 267
 - CW bunkers: 264
 - CW storage facility: 192
 - facilities: 204
 - HASs: 263
 - IOC: 270
 - Mirage F-1E base: 187
 - runways: 192, 204, 215
 - SAM support facilities: 269
 - SRBM shelters: 192
 - TV transmitters: 264
- Al Jouf airfield: 236-237
- Al Karakh PTT building: 251, 288
- Al Khafi highway strip: 190, 216
- Al Kharj AB, Saudi Arabia
 - 4th TFW base: 137
 - 335th TFS base: 183*n*9
 - 336th TFS base: 183
 - deployment of F-15Es to: 46
 - site planning of: 17
- Al Kifl highway bridge: 216, 250, 270
- Al Kufa, archaeological site: 131
- Al Kut, Iraq
 - in air campaign plan: 97
 - airfield: 267, 280
 - bridge: 215
 - IOC: 270
 - oil storage facilities: 269
 - telephone exchange: 265
 - TV station: 215
 - TV transmitters: 264
- Al Mawsil, Iraq. *See* Mosul, Iraq
- Al Minhad airfield, Oman: 47, 137
- Al Musayyib, Iraq
 - missile R&D facilities: 283
 - power plant: 196-197
 - rocket-motor plant: 214, 265, 281
 - rocket test facility: 249
- Al Narawan complex: 281
- Al Qa Qaa: 249, 265
- Al Qaim, Iraq
 - fertilizer plant: 215
 - phosphate plant: 264
 - propellant storage: 278
 - SRBMs hidden in mines: 278
 - uranium mine: 293
- Al Qurnah, Iraq: 192, 235-236
- Al Rafirinah C² center: 198
- Al Sahra airfield: 203, 259

On Target

- Al Taqaddum airfield
 - bombing of: 267, 281
 - CW bunkers: 213, 264, 277
 - facilities: 200, 248
 - HASs: 258, 263
 - IOC: 186, 193, 202
 - MiG-29s based at: 185
 - runways: 200
 - target of air campaign: 201
 - in USCENTAF campaign planning: 104
- Al Walid airbase: **295**
- Albatross: 172
- Alexander, R. Minter: 59, 68
- Ali al Saleem airfield: 192, 200, 264
- Ali, Muhammad: 148
- An Najaf, Iraq
 - archaeological site near: 131
 - IOC: 190, 248
 - oil storage facilities: 269
- An Nasiriyah, Iraq
 - archaeological site near: 130–131
 - in Army campaign planning: 158–159
 - bridge: 214–216, 250, 281
 - BW bunkers: 265
 - oil storage facilities: 269
 - pontoon bridge: 270
 - telephone exchange: 265
 - troposcatter station: 198, 248
- Andersen AFB, Guam: 6
- Andrews AFB, Maryland: 31
- Anthrax: 109n118, 253
- Antiaircraft artillery (AAA)
 - altitude coverage of: 174
 - GC-45 (155-mm): 167
 - Iraqi response to SEAD: 190
 - quantity of: 152, 174
 - radar: 174
 - S-60 (57-mm): 174
 - suppression of: 7. *See also* Suppression of enemy air defenses (SEAD)
 - ZSU-23-4 antiaircraft vehicle: 174, 197
- Apache helicopter: 103, 182
- Ar Ramadi, Iraq
 - ammunition dump: 277
 - bridges: 270
 - oil storage facilities: 269
 - Radio Relay No. 2: 186
 - SRBM support facilities: 237
- Ar Rawdatyn TV transmitter: 264
- Ar Rumaylah airfield
 - ammunition dump: 265
 - bombing of: 198
 - bridge: 214, 266, 281
 - HASs: 276
- Ar Rutbah, Iraq
 - EW site: 214
 - IOC: 193, 248, 250
- Arab League: 19–20, 49
- Archer missile: 172–173
- Area Air Defense Commander (AADC)
 - duties: 36–37
- Area of responsibility (AOR) of USCENTCOM: 10
- Arens, Moshe: 166, 230
- Armstrong, Malcolm: 234
- As Salman airfield: 190–192, 196, 201
- As Samawah, Iraq
 - airfield: 192
 - bridges: 214
 - fiber-optic stations: 266, 278
 - refinery: 196, 215, 270
 - TV transmitters: 264
- Ash Sharqat missile facility: 271
- Ash Shuaybah railroad station and airfield: 205
- Ash Shuaybah telephone exchange: 265
- Ash Shuyukh bridge: 281
- al-Assad, Bashar: 119, 163
- Austro-Prussian War of 1866: 117
- Aviation Week & Space Technology*: 99
- “Awareness of Host-Nation Sensitivities”:
 - 119–120
- Az Zubayr, Iraq
 - Al Rafirinah C² center: 198
 - cable drop: 281
 - IOC: 193, 199, 214
 - petroleum pumping/storage facility: 199, 270, 280
 - railyard: 170, 199, 205–206, 278
 - supply center: 303
 - TV transmitters: 264
- Aziz, Tariq
 - on attacking Israel: 162
 - invited to meet with President Bush: 147–148, 150
 - meeting with Ambassador Glaspie: 21, 22
 - meeting with Secretary Baker: 162

- visit to Iran: 52
- visit to Moscow: 279
- Bab al Mandab: 17
- Babylon: 131
- Badger: 172
- Baghdad, Iraq
 - Abu Ghurayb
 - BW bunkers: 264
 - C³ bunker: 202, 251
 - “Infant Formula” plant: 253
 - presidential complex: 186, 214, 265, 281
 - in USCENTAF campaign planning: 104
 - ADOC: 102, 188, 209, 252
 - Al Karakh PTT building: 251, 288
 - AT&T Building: 186
 - Baath Party Headquarters
 - bombing of: 187, 274–275, 282
 - in Instant Thunder plan: 78
 - in USCENTAF campaign planning: 104
 - bomb assembly plant: 281
 - bombing of: 216, 248–249
 - BW bunkers south of: 252
 - CNN coverage of: 186, 187, 249
 - conference center: 275
 - East-Southeast transformer station: 199
 - governmental control centers: 207
 - I-Hawk battery: 209
 - IADS: 175, 189–190
 - IIS HQ: 201–202, 265, 274, 281
 - in Instant Thunder plan: 78
 - intelligence station: 251
 - Iraqi CIA building: 253
 - jammer and transmitter: 277
 - Jenoub PTT building: 251–252, 277
 - loss of F/A–18 over: 189, 300, 300n33
 - Ministry of Defense: 252
 - Ministry of Defense/Army HQ: 199
 - Ministry of Defense computer center: 214
 - Muthenna airfield: 282
 - nuclear facilities: 277
 - in OPLAN 1002–90: 15
 - power plants: 187–188
 - Presidential Palace: 187, 253
 - Radio Baghdad: 217, 241
 - Republican Guard barracks: 265
 - SAM support facilities: 265, 277
 - SAMs in: 102
 - Security Forces HQ: 253
 - signals station: 252
 - SOC: 193
 - Special Security Services: 281
 - SRBM assembly plant: 267
 - in strike packages: 104
 - telecommunications center: 186, 253
 - transformer station: 199
 - TV and radio transmitters: 264
 - TV transmitter: 252
 - United States Embassy: 20–25, 163
 - in USCENTAF campaign planning: 104
 - VIP bunker (No. 25): 202, 252
- Bahrain
 - Coalition member: 49
 - deployment of F–4Gs to: 41, 46–47
 - restrictions on U.S. military personnel in: 125
 - in USCENTCOM’s AOR: 10
- Baker, James
 - in Camp David briefing on Kuwait invasion: 29
 - on Coalition force diversity: 108
 - on F–117A stealth capabilities: 105
 - on Israeli retaliation for SRBM attacks: 230
 - meeting with King Fahd: 115
 - meeting with President al-Assad: 163
 - meeting with President Gorbachev: 118
 - meeting with Secretary Aziz: 162
 - on possibility of war: 112
 - on projected Coalition air loss rates: 106
 - proposed meeting with Saddam Hussein: 147–148, 150
 - on request for KC–135 aerial refueling by UAE: 20
 - Saudi agreement to offensive operations: 163
 - on tanker requirements: 103
 - on Vietnam vs. Iraq: 106
 - visit to world leaders: 112, 117
- Balad Southeast airfield
 - ADOC: 270
 - bombing of: 213, 215, 267
 - HASSs: 258
 - in USCENTAF campaign planning: 104
- Barksdale AFB, Louisiana: 72, 104, 166

On Target

- Basiqah Northeast EW facilities: 209
- Basra, Iraq
 - bridges: 205, 265–266, 281
 - factor in site of RSAF bases: 17
 - IADS of: 175
 - Instant Thunder target: 78
 - missile plant: 265
 - oil storage facilities: 269
 - petroleum factory: 205
 - radio transmitter-receiver: 264
 - refinery: 214, 270
 - Republican Guard General HQ, Forward, Basra: 198
- Bateen AB, UAE: 125
- Batra missile production factory: 250
- Battikha railway station: 278
- Battle of Khafji: 265
- Bayji refinery: 270
- Behavior, in host nation: 119–124
- Ben-Nun, Hvihu: 232
- Beyond visual range (BVR) zones: 129–130, 316
- Billeting of military personnel: 120–121
- Biological weapons (BW). *See also* Nuclear, biological, and chemical (NBC) weapons
 - anthrax in: 109n118
 - authorization to destroy: 156
 - destruction of: 294
- Bir Akirshah air warning site: 252
- Black Hole
 - authorization to destroy BW facilities: 156
 - creation of: 86
 - in Directorate of Campaign Plans: 138–140
 - dissolution of: 310
 - intelligence personnel in: 224n10, **229**
 - reliance on Checkmate for intelligence data: 225
 - use of videotapes for BDA: 226
- Blackburn, James: 76, 86–87
- Blinder: 172
- Bolling AFB, Washington, District of Columbia: 68
- Bomb damage assessment (BDA)
 - assessment of by targeteer: 63–64, 89–90, 286
 - of bridges: 302–303
 - concept of bombing for effect: 317–318
 - conventional weapons production: 296–299
 - data, for planners: 223–225, 285–286
 - in desert environment: 306, 306 *n*54
 - of HASSs: 259
 - of IADS: 217–218, 299–300
 - in Instant Thunder plan: 77
 - of Iraqi Army: 305–306
 - of Iraqi Navy: 299, 301–302
 - of IZAF: 299, 300–301
 - to Kari system: 217, 299–300
 - of leadership and C² targets: 217–218, 288–289, 291, 298
 - level of effort: 301
 - limitations of: 309
 - live via commercial television: 179
 - of LOCs: 302–303
 - of MELs: 217, 297–298
 - of NBC facilities and weapons: 217, 293–296
 - photo for: **215**
 - of POL: 292–293, 298
 - of power plants: 217, 291–293, 298
 - of Republican Guard facilities, units, and weapons: 217, 304–309
 - of SRBMs: 217–219, 296–299
 - of supply distribution system: 302–303, 303n43
 - of transportation systems: 302–303
 - in USCENTAF campaign planning: 104, 286–287
 - use of videotapes for: 226
 - weather impact on: 223
- Bombs
 - BLU–91/B: 156n21
 - BLU–92/B: 156n21
 - BLU–97/B: 194
 - BLU–109/B (I–2000): 5–6, 79, 283
 - CBU–58: 209
 - CBU–71: 158
 - CBU–87: 194, 240
 - CBU–89 “Gator”
 - for attack on
 - Ahmed Al Jaber SRBM site: 192, 197
 - Al Khafi highway strip: 190–191
 - Ali al Saleem SRBM shelter: 192, 197

- As Salman airfield: 190–191
- BW bunkers south of Baghdad: 252
- Ghalaysan airfield: 190–191
- H–3 CW storage facility: 188
- Jalibah airfield: 192
- Mudaysis airfield: 190–191
- Qabatiya BW bunker: 213–214
- Salman Pak BW bunker: 194
- Wadi al Khirr airfield: 190–191
 - description of: 156, 156*n*21
- electro-optically guided bombs: 4
- fuses
 - FMU–113 nose: 197
 - Thorne: 191
- GBU–10
 - for attack on
 - Abu Ghurayb “Infant Formula” plant: 253
 - Ad Duyayl relay terminal: 250
 - Al Fallujah telecommunications center: 250
 - Al Karakh PTT building: 251
 - Baghdad intelligence station: 251
 - Baghdad Security Forces HQ: 253
 - Baghdad signals station: 252
 - Baghdad telecommunications center: 253
 - Balad Southeast airfield HAS: 256
 - Camp Taji: 253
 - I-Hawk battery: 253
 - Iraqi CIA building: 253
 - Jenoub PTT building: 251–252
 - North Taji facility (No. 2): 253
 - Presidential Palace: 253
 - SRBM launch site: 240
 - Taji BW facility: 253
 - Tuwaitha nuclear facility: 252–253
 - VIP bunker (No. 25): 252
 - delivery systems: 4
 - for HAS bombing: 257
 - for nonhardened targets: 186
 - photo of: 67
- GBU–12
 - for antiarmor missions: 262
 - for attack on
 - H–1 EW site: 242
 - SRBM launch site: 242
 - Wadi al Jabariyah SRBM launch complex: 242
 - Wadi Amij SRBM launch complex: 242
 - delivery systems: 4
 - kill rate of: 306
- GBU–16: 4
- GBU–22: 4
- GBU–24
 - for attack on
 - Ahmed Al Jaber SRBM shelter: 192
 - Ali al Saleem SRBM shelter: 192
 - Jalibah airfield: 192
 - SRBM shelter: 240
 - collateral damage estimations: 131
 - delivery system: 4
 - for hard-target penetration: 5–6
- GBU–27
 - for attack on
 - ADOC: 252
 - Al Fallujah BW bunker: 209
 - Balad SE airfield HAS: 264
 - Habbaniyah BW bunker: 209
 - North Taji facility (No. 2): 251, 275
 - Salman Pak BW bunker: 194
 - Taji SOC: 209
 - VIP bunker (No. 25): 252
 - collateral damage estimations: 131
 - delivery system: 4
 - for hard-target penetration: 5–6, 186
 - for HAS bombing: 257
 - in Instant Thunder plan: 79
- GBU–28: 283–284
 - Paveway delivery system for GBUs: 4–6
- JP–233 airfield-denial munition
 - H–3 airfield: 188
 - for hard-target penetration: 5*n*11
 - Jalibah airfield: 192, 250
 - Tallil airfield: 250
 - in USCENAF campaign planning: 102
- laser-guided bombs (LGBs)
 - “buddy-lasing”: 183*n*9
 - use of in Vietnam: 4, 315
- long-range bombs (LRBs): 77
- Mk–20 “Rockeyes”: 183
- Mk–82: 197, 241
- Mk–84
 - for attack on

On Target

- Ahmed Al Jaber airfield: 200
- Ahmed Al Jaber SRBM site: 197
- Ali al Saleem airfield: 200
- Ali al Saleem SRBM shelter: 197
- Kuwait IAP SRBM site: 197
- SAM sites: 197
- Tuwaitha nuclear facility: 249
- Wadi al Jabariyah SRBM launch complex: 242
 - vs. BLU-109/B: 5
 - Mk-117R: 250
 - Mk-118: 183
 - Tarzon: 315
 - UK 1000: 191
- Boyd, Charles: 60
- Bradley armored personnel carriers: 112
- British. *See* Great Britain
- Bronco: 119
- Bruner, William: 185
- Bull, Gerald: 19
- Bush, George H. W.
 - activation of National Guard: 115
 - approval of request for KC-135 aerial refueling by UAE: 20
 - briefed on force readiness: 161
 - briefings on offensive air campaign: 74, 99
 - briefings on USCENTCOM war plan: 102-109
 - check on CINCCENT war preparations: 150-151
 - as Commander in Chief: 108-109
 - consulted on Gen. Dugan's firing: 100
 - decision to go to war: 2, 147, 164-166
 - foreign policy, towards Iraq: 18-19, 53, 115
 - go ahead for ground attack: 268, 278
 - on human rights abuses in Kuwait: 150
 - implementation of offensive option decision: 112
 - on Israeli retaliation for Scud attacks: 230
 - letter to Congress: 162
 - meeting with President al-Assad: 119
 - meeting with President Gorbachev: 117-118
 - objectives in the Persian Gulf: 53, 108
 - opposition to economic sanctions on Iraq: 25
 - peace offer: 148
 - reference to, in Iraqi editorial: 1
 - on rejection of diplomatic solution: 162
 - rejection of Gorbachev peace plan: 279
 - response to invasion: 29-30, 108
 - on Saddam Hussein's response to peace offer: 148
 - signing of Public Law 102-1: 163
 - statement on Kuwait invasion: 30
 - support of Gen. Schwarzkopf: 108-109
 - on targets: 165
 - on time available for peaceful solution: 117
- Butler, George L.: 72
- Cable News Network (CNN)
 - coverage of Desert Storm: 179
 - live BDA: 186
 - loss of power in Baghdad: 187
 - video of AAA defenses in Baghdad: 249
- Canada
 - Canadian aircraft in strike package: 133
 - Canadian hostages in Iraq: 148
- Candid: 259
- Cantonment, in host nations: 120-121
- Carns, Michael: 72
- Caruana, Patrick: 88, 204-205
- Casualties
 - after action assessment: 310-312
 - estimation of: 131-132
 - first Coalition pilot killed in action: 189, 300
 - first USAF airmen killed in action: 207
 - minimization of, NSD-54 goal: 165
 - from SRBM: 243
 - during training and maneuvers: 134
- C-day: 32, 40, 94
- Central Intelligence Agency (CIA): 25, 29, 87
- Chaff and flares: 7
- Chain, John: **136**
- Chairman of the Joint Chiefs of Staff (CJCS). *See also* Powell, Colin
- Crowe, William: 148
- Jones, David: 148
- on offensive air campaign plan, request for: 58
- on request for KC-135 aerial refueling by UAE: 20

- Chaplains: 125–127
- Charleston AFB, South Carolina: 40
- Checkmate Division, Warfighting Concepts Directorate
- on bridge bombing: 266, 266*n*66
 - collateral damage estimations: 131–132
 - concentrated bombing plan: 280
 - establishment of: 60
 - HAS attack plan: 256
 - intelligence gathering of: 87, 225
 - a joint organization: 71–72
 - SRBM quantity estimate: 153
 - strategic bombing goals: 312
 - on targets: 272
- Chemical weapons (CW): 154, 294. *See also* Nuclear, biological, and chemical (NBC) weapons
- Cheney, Richard
- activation of National Guard: 115
 - anticipation of TGS support: 211
 - approval of deployment order: 115
 - approval of ground attack plan: 268, 278
 - approval of USCENTCOM war plan: 161
 - authorization to deploy U.S. forces to Saudi Arabia: 32
 - briefing on Instant Thunder: 71
 - briefings on USCENTCOM war plan: 102–109, 151–152
 - in Camp David briefing on Kuwait invasion: 29–30
 - check on CINCCENT war preparations: 150–151
 - firing of Gen. Dugan: 100–101
 - on force readiness: 161
 - on goals of air campaign: 30
 - on Israeli retaliation for Scud attacks: 230
 - in meeting King Fahd: 30
 - on need of military force: 161
 - notification of Secretary Arens: 166
 - offensive air campaign plan, request for: 58
 - on request for KC–135 aerial refueling by UAE: 20
 - reserve call up: 50–51, 115
 - rotation of forces in Persian Gulf: 115
 - Saddam Hussein on: 22
 - on size of USCENTCOM force: 112
 - strategic air war briefing: 267–268
 - on targets: 289*n*10
- USCENTCOM briefing of prior to Kuwait invasion: 26
- vigil during Desert Storm: 230
- Chief of Staff of the Air Force (CSAF).
- See also* Dugan, Michael
 - briefings on Instant Thunder: 70, 72–73
 - Gabriel, Charles: 61
 - legal authority of: 100
 - McPeak, Merrill, “Tony”: 101, **101**
 - request for assistance from Gen Schwarzkopf: 57–59
 - support of Joint AirLand Battle: 61
 - targeting data from: 98
 - Welch, Larry: 100
- Chief of Staff of the Army (CSA): 72
- Chief of Staff of the Navy (CSN): 72
- Chief of Staff, Ninth Air Force: 120
- China
- F–7 fighter from: 172
 - Instant Thunder-style assault on: 318
 - in UN Security Council: 117
 - vote on UN Resolution 678: 119
- Christon, Christopher: 223
- Churchill, Winston: 316
- Circular error of probability (CEP): 153
- Civil Reserve Air Fleet: 30, 42
- Clausewitz, Carl von: 195, 299
- Close air support (CAS)
- CAFMS for: 92
 - COMUSCENTAF duty: 37
 - ground-force familiarization flights: 133
 - in Imminent Thunder: 134
 - impact of on strategic air campaign: 318
 - JSTARS impact on: 142
 - low-level tactics during: 222
 - in OPORDs for Desert Shield: 54
 - in Phase II of USCENTCOM war plan: 95
 - in Phases III/IV of air campaign: 2, 247–248
 - in prioritization of A–10 missions: 198
 - vs. strategic attack: 160
 - in TAC offensive air campaign plan: 81
- Cobra helicopter: 103
- Cold War: 13–14
- Combat air patrol (CAP)
- barrier, for IZAF aircraft: 260–261

On Target

- in Instant Thunder plan: 77
- of offshore oil facilities, by UAE: 20
- in Operation Linebacker II: 7
- by RSAF: 214
- SRBM interdiction missions: 239–240
- Combat search and rescue (CSAR)
 - COMUSCENTAF duty: 37
 - inclusion of JTF Proven Force: 212–213
 - in Instant Thunder plan: 79
 - services, from Turkey: 211
 - use of SOF for: 38–39
- Combat Talon. *See* Aircraft, U.S., MC–130 “Combat Talon”
- Command and control (C²) operations: 115
- Command, control, and communications (C³) systems. *See also* Aircraft, U.S., ABCCC; Aircraft, U.S., AWACS
 - destruction of Iraqi, NSD–54 goal: 165
 - initial deployment to Saudi Arabia: 45–46
 - targeting of Iraqi LOCs: 69, 73–75
- Command, control, communications, and intelligence (C³I) systems: 105
- Commander, 4th FW(P): **137**
- Commander, 14th AD(P): 137
- Commander, 15th AD(P): 137
- Commander, 16th AD(P): 136
- Commander, Airlift Forces (COMALF): 136
- Commander, Area Air Defense: 36–37
- Commander in Chief, European Command (CINCEUR): 210, 212
- Commander in Chief, Special Operations Command (CINCSOC): 38, 212
- Commander in Chief, Specified Commands: 51, 71
- Commander in Chief, Strategic Command (CINCSAC): **136**, 212
- Commander in Chief, Unified Commands air campaign planning: 81
 - Goldwater-Nichols DoD Reform Act of 1986: 66
 - JCS staff contact with: 71
 - in USCENTCOM briefing on Desert Shield deployments: 51
- Commander in Chief, United States Central Command (CINCCENT). *See also* Schwarzkopf, H. Norman
 - JFACC direction from: 10, 35
 - JSTARS management: 144
 - mission statement: 34
- Commander in Chief, United States Transportation Command (CINC-TRANSCOM): 42, 212
- Commander, Electronic Systems Division: 143
- Commander, Joint Force Air Component. *See* Horner, Charles
- Commander, Joint Islamic-Arab Forces: 39–40
- Commander, Joint Task Force Proven Force: 212
- Commander, Pacific Air Forces: 101
- Commander, Saudi Air Defense System: 39
- Commander, VII Corps, USA, Germany: 142
- Commander, Special Operations Command, Central Command (COMSOCCENT): 35, 38
- Commander, Tactical Air Command: 81
- Commander, Theater Air Component: 36–37. *See also* Horner, Charles
- Commander, United States Air Forces Europe (COMUSAFE): 210
- Commander, United States Army Component, Central Command (COMUSARCENT): 35. *See also* Yeosock, John
- Commander, United States Central Command (COMUSCENTCOM). *See* Horner, Charles; Schwarzkopf, H. Norman
- Commander, United States Central Command Air Forces (COMUSCENTAF): 35–38. *See also* Horner, Charles; Olsen, Thomas
- Commander, United States Marine Forces, Central Command (COMUSMARCENT): 35–37
- Commander, United States Naval Component, Central Command (COMUSNAVCENT): 35–37
- Commanders in Chief, United States Combined Theater: 9–10, 212. *See also* Schwarzkopf, H. Norman

- Commanders, Joint Task Force Middle East (COMJTFME). *See also* Schwarzkopf, H. Norman
 Abd al-Aziz, Khalid bin Sultan bin: 39–40
 Glosson, Buster: 82
 OPCON of USMC aircraft: 36
 resource integration: 36
 Commando Solo: 41–42
 Committee for Enforcing the Right and Forbidding the Wrong: 123
 Compass Call. *See* Aircraft, U.S., EC–130H “Compass Call”
 Computer Assisted Force Management System (CAFMS): 92
 Computers: 45, 85, 85*n*66
 Congress: 162–163
 Corder, John A.: 228, 228
 Corsair. *See* Aircraft, U.S., A–7E “Corsair II”
 Counterair operations: 37, 54, 92
 Crigger, James R.: 85, 88, 144
 Crowe, William: 148
 Ctesiphon: 131
 Cuba
 on resolution for Persian Gulf War: 117
 on UN Resolution 660 (1990): 29
 on UN Resolution 661 (1990): 31
 on UN Resolution 665 (1990): 51
 on UN Resolution 670 (1990): 99
 on UN Resolution 678 (1990): 119
 Dawrah power plant: 187
 D-day Plan: 16, 99
 Decoys. *See also* Drones
 tactical air-launched (TALDs): 189, 192, 198
 used by Iraq: 297
 Defense Communications Satellite System: 9
 Defense Intelligence Agency (DIA): 25, 87, 225, 266*n*64
 Defense Mapping Agency: 86–87
 Defense Meteorological Satellite Program: 9
 Defense Support System: 9
 Deptula, David
 assigned to USCENTAF campaign planning directorate: 85
 concept of bombing for effect: 317
 criticism of defensive air campaign plans: 66
 development of air-to-air ROE: 128
 on final strategic air targets: 280
 first day’s air operation briefing to Gen. Schwarzkopf: 204–205
 on GAT division: 139
 on Gen. Schwarzkopf’s war plan request (November 1, 1990): 114
 influence of on air campaign plan developer of MAP: 87–88
 on Directorate of Campaign Plans: 140
 on Phase I of Desert Storm: 110, 207–208
 as “prophet of air power”: 178
 initial offensive air campaign planning: 67
 on intelligence/planning relationship: 224*n*10, 225
 MAP preparation: 87, 90–92, 138–140
 on Phase III of Desert Storm: 247
 photo of: 227
 on POL targets: 198
 refinement of target list: 271–272
 reliance on Checkmate for intelligence data: 225
 request to stay in Saudi Arabia by Lt. Gen. Horner: 83
 in Secretary of the Air Force’s Staff Group: 66
 on simultaneity: 90–91, 317
 on strike packages: 89–91
 on targets containing hostages: 149
 weaponizing for F–117A missions: 257
 Deputy Assistant Secretary of Defense for Legislative Affairs: 84
 Deputy Chief of Staff for Plans, HQ TAC: 81
 Deputy Chief of Staff, Plans and Operations: 59. *See also* Adams, Jimmie, Michael
 Deputy Director for National Military Command Systems (J–36): 74
 Deputy Directorate for Warfighting Concepts
 approach vs. TAC staff planners: 81
 briefings on Instant Thunder: 68–71
 divisions: 60
 elimination of: 310

On Target

- intelligence personnel in: 61
- as JCS J-3 planning extension: 71
- offensive air campaign planning: 61–66
- support of Joint AirLand Battle: 61
- Deputy Secretary of Defense: 100
- Desert Rats: 168
- Designated mean points of impact (DMPIs): 225
- Destroyer: 6
- Dhahran AB, Saudi Arabia: 17, 40, 46, 137
- Diego Garcia: 16, 41, 190
- Dimona nuclear facility: 155, 241
- Director, J-5 (Strategic Plans and Policy): 72
- Director, Joint Staff, JCS: 72
- Director, Operational Plans and Interoperability: 234
- Director of Plans, Office of the DCS, Plans and Operations: 59, 60, 68
- Director of Tactical Programs, Office of the Assistant Secretary of the Air Force for Acquisitions: 283
- Director of Targets for the Assistant Chief of Staff, Intelligence: 76, 86–87
- Diwaniyah BW bunkers: 194
- Djibouti: 10
- Doctrine Division, Warfighting Concepts Directorate: 60
- Doha, Qatar: 47, 137
- Draeger, Rhory: 201
- Drones. *See also* Decoys
 - BQM-34 drones: 91
 - BQM-74 drones
 - after action assessment: 188*n*28
 - SEAD support for bombing of Ahmed Al Jaber SRBM shelter: 192
 - Al Rafirinah Command and Control Center: 198
 - Al Taqaddum airfield: 200
 - Ali al Saleem SRBM shelter: 192
 - Baghdad IADS: 189
 - Basra petroleum factory: 205
 - H-3 airfield: 188
 - Habbaniyah petroleum storage facility: 200
 - Kuwait airfield: 192
 - Republican Guard General HQ: 198
 - Shaibah airfield: 192
 - Shaibah ground forces command facility: 198
 - in USCENTAF campaign planning: 91
- Dugan, Michael
 - briefings on Instant Thunder: 70, 72–73
 - briefings on OPOD Offensive Campaign—Phase I: 988
 - Chief of Staff of the Air Force (CSAF): 58
 - Deputy Chief of Staff (DCS), Plans and Operations: 60
 - on development of strike packages: 73
 - execution date for Instant Thunder: 80
 - firing of: 100
 - on Instant Thunder targets: 73
 - photo of: **59**
 - request for TAC participation in Instant Thunder planning: 68
 - on USCENTAF offensive air campaign plan: 99–100
- Eagle. *See* Aircraft, U.S., F-15C “Eagle”
- Eagleburger, Lawrence: 229, 233
- Eglin AFB, Florida: 283
- Egypt
 - Coalition member: 49
 - debts forgiven: 49
 - intervention to prevent war: 23, 25
 - in Joint Islamic-Arab Forces: 39
 - role in Desert Storm: 163–164
 - Secretary Baker’s November 1990 trip to: 112
 - in USCENTCOM’s AOR: 10
- Eisenhower, Dwight: 70–71
- El Alamein: 168
- Electro-optically guided bombs: 4
- Elwell, James: 125–126
- Equipment tables: 135
- Ethiopia: 10, 17
- Exercises/Plans
 - ATO use in: 11, 132–133
 - Blue Flag: 11
 - Constant Demo: 59–60
 - Desert Force: 134
 - Have Blue: 7*n*20
 - Imminent Thunder: 134
 - Instant Thunder
 - after action assessment: 287
 - aircraft for: 77

- basis of USCENTAF campaign: 85, 88
- on China: 318
- debate over: 101
- evolution of plan: 67–75
- execution plan: 77–78
- goals of: 75, 78–79
- impact on USCENTCOM war plan: 94, 177
- initial planning of: 67
- Lt. Gen. Horner on: 80–84
- operations order: 74–75
- predictions of impact on Iraq: 76–77
- strengths of: 79
- strike packages
 - adjustments to, from SEAD: 77–78
 - mission objectives of: 63–65
 - requirement for detailed: 73
 - vs. USCENTAF campaign plan: 103
- vs. TAC offensive air campaign plan: 81
- targets: 75–76, 86–87, 103–104
- targets of: 75–76, 103
- timetable of: 77
- type air campaign, against USSR: 318
- weaknesses of: 79–80
- Internal Look: 11, 29, 176
- Ivory Justice: 25, 84
- IZAF Christmas 1990: 135
- Salty Demo: 59–60
- training: 132–133
- Extender. *See* Aircraft, U.S., KC–10 “Extender”
- “Face the Nation”: 100
- Failake Island: 198
- Fairford RAF base: 277
- Falcon. *See* Aircraft, U.S., F–16 “Fighting Falcon”
- Fallujah. *See* Al Fallujah, Iraq
- Fencer: 259
- Field Manual 100–20: 35
- Fighting Falcon. *See* Aircraft, U.S., F–16 “Fighting Falcon”
- Fishbed. *See* Aircraft, Iraqi, MiG–21 “Fishbed”
- Fitzwater, Marlin: 29
- Flogger: 172, 259
- Flying Fortress: 6, 62
- Foreign Military Sales: 18n39
- Fornell, Gorden: 143
- Forward air controller missions: 238
- Forward-looking infrared (FLIR) sensor: 183n9
- Forward operating locations (FOLs): 190–191, 214
- Foxbat. *See* Aircraft, Iraqi, MiG–25 “Foxbat”
- France
 - Coalition member: 49
 - intervention to prevent war: 163
 - in Joint Islamic-Arab Forces: 39
 - Parliament’s approval to use military force: 164
 - Secretary Baker’s November 1990 trip to: 112
 - in UN Security Council: 117
- Franks, Frederick: 142
- Freeman, Charles: 30–31
- Fresco: 172
- Friendly fire incidents: 130
- Frost, David: 150
- Fuel, aircraft: 41, 79, 103
- Fulcrum. *See* Aircraft, Iraqi, MiG–29 “Fulcrum”
- Gabriel, Charles: 61
- Gainful. *See* Missiles, surface-to-air (SAMs), SA–6 “Gainful”
- Galaxy: 41–43
- Galvin, John: 210
- Gaskin. *See* Missiles, surface-to-air (SAMs), SA–9 “Gaskin”
- Gates, Robert: 30
- Gator. *See* Bombs, CBU–89 “Gator”
- G-day: 247, 268
- Gecko: 174–175
- Genda, Minoru: 178
- General Order 1 (GO–1): 121–125
- Geneva Convention Articles: 157
- Georgia National Guard: 115
- Germany: 173
- Getchell, George: 120
- Ghalaysan airfield: 190–191, 214
- Glaspie, April: 20–25, 28
- Global Positioning System (GPS): 9, 182
- Globemaster III: 8
- Glosson, Buster
 - air war plan briefings: 88–89, 96–98,

On Target

- 102–106, 151, 158
 - appointment as Director, USCENTAF
 - Campaign Plans: 138–139
 - assignments with Lt. Gen. Horner: 82
 - bypassing of ATO division: 140
 - on Checkmate: 87
 - Commander, 14th AD(P): 137, 140
 - control of plans and operations: 140
 - Deputy Assistant Secretary of Defense
 - for Legislative Affairs: 84
 - Deputy Commander, Joint Task Force
 - Middle East (JTFME): 82, 84
 - development of air-to-air ROE: 128
 - Director, USCENTAF Campaign Plans:
 - 84, 226
 - on final strategic air targets: 280
 - first day's air operation briefing to Gen. Schwarzkopf: 204–205
 - on Gen. Schwarzkopf's war plan request (November 1, 1990): 114
 - on hostages: 149
 - influence of, on air campaign plan: 84–88, 110
 - intelligence gathering: 224–226
 - in Ivory Justice: 84
 - on IZAF pilots: 173–174
 - on Phase III of Desert Storm: 247
 - photo of: **227**
 - on Republican Guard as target: 96
 - on simultaneity: 90
 - on starting date of Desert Storm: 161
 - on targeting: 228
 - theater wing commanders, interaction with: 93, 140
 - trust of Gen. Schwarzkopf: 84
 - videotape request: 225–226
- Goa. *See* Missiles, surface-to-air (SAMs), SA-3 "Goa"
- Goldwater-Nichols DoD Reform Act of 1986: 66
- Gopher. *See* Missiles, surface-to-air (SAMs), SA-13 "Gopher"
- Gorbachev, Mikhail
 - on Iraqi invasion of Kuwait: 117–118
 - peace plan for Iraq: 279
- Grach: 172
- Grail: 174*n*64
- Great Britain
 - British hostages in Iraq: 148, 149
 - Coalition member: 49
 - Parliament's approval to use military force: 164
- Royal Air Force (RAF)
 - JP-233 airfield-denial munition: 5*n*11
 - PGM use: 259
 - tests at Ingolstadt Flight Test Center: 173
 - training exercises: 133
 - in USCENTAF campaign planning: 93–94, 102
- Royal Army: 168
- Royal Navy: 9
- von Schlieffen Plan impact on: 69–70
- Secretary Baker's November 1990 trip to: 112
- in UN Security Council: 117
- Greater, Robert: 185
- Gremlin: 174*n*64
- Grenada: 318
- Griffith, Thomas: 81
- Ground-controlled interception (GCI): 172–174
- Ground-station modules (GSMs): 141–142
- Guidance, Apportionment, and Tasking (GAT) division. *See* United States Air Force Component, Central Command (USCENTAF), Guidance, Apportionment, and Tasking (GAT) division
- Guideline. *See* Missiles, surface-to-air (SAMs), SA-2 "Guideline"
- Gulf Cooperation Council (GCC): 41, 49
- Gulfstream: 42, 114, 171
- H-1 area: 242, 267
- H-2 area
 - airfield: 207, 213, 251–252, 257, 263
 - airfield facilities: 199
 - HASs: 257–259
 - highway strip runways: 250
 - IOC: 252
 - in offensive battle plan: 102
 - permanent air presence over: 184
 - runways: 207, 216
 - SRBM launch site: 183–185, 237–240, 257
- H-3 area
 - airfield: 207, 239, 252, 267, 282
 - bombing of: 263
 - CW bunkers: 264

- CW storage facility: 188, 216, 252
- EW site: 214
- facilities: 213
- HASs: 257–259
- highway strip runways: 250
- IOC: 193, 199, 209
- in offensive battle plan: 102
- permanent air presence over: 184
- petroleum pumping station: 199, 207
- runways: 188, 207, 213
- SAM sites: 238–240
- SOC: 102, 184, 199, 201, 250
- SRBM launch sites: 237–240, 257
- sweep of: 195, 198
- troposcatter site: 199
- Habbaniyah, Iraq
 - airfield: 251, 281
 - artillery production plant: 277, 282
 - BW bunkers: 209, 214, 277
 - chemical facility No. 1: 252
 - CW production facilities: 248, 264
 - military/artillery production: 214
 - motor-case factory: 250
 - oil storage facilities: 269
 - petroleum storage facility: 200
 - targeting of: 156, 250
 - troposcatter station: 193
- Haifa, Israel: 155
- Hamilton, Lee: 23
- Al-Hammad, Muhammad al Saleh: 124
- Hammadi, Sadun: 26
- Hardened aircraft shelters (HASs)
 - attack plan: 256
 - construction of: 255*n*32
 - design of: 17
 - MELs in: 241
 - models of: 254–255
 - PGMs for destruction of: 255
 - photo of: **255, 258**
 - prioritization of attacks upon: 256
 - on RSAF bases: 17
 - SRBMs hidden in: 241
 - targeting of: 248
- Hartha power plant: 206
- Harvard Public Health Team study
 - Ajaji Bayji power plant: 199
 - Al Basrah Hartha turbine power plant: 206–207
 - Al Musayyib power plant: 197
 - Dawrah power plant: 187–188*n*26
 - Taji power plant: 187–188*n*26
- Harvey, Bernard
 - assigned to USCENTAF campaign planning directorate: 85
 - briefings on Instant Thunder: 69*n*22
 - Chief, Checkmate DIA BDA Support Section: 225
 - in initial offensive air campaign planning: 67
 - on intelligence data: 225*n*13
 - planned Operation Just Cause: 67
 - requested to stay in Saudi Arabia by Lt. Gen. Horner: 83
 - return to Pentagon: 87
 - review of Instant Thunder plan: 68
- Heidenrich, John: 311–312
- Heintzelman, Larry: 128–129
- Hellfire missile: 182
- Henry, Lawrence: 88
- Hercules. *See* Aircraft, U.S., C–130 “Hercules”; Aircraft, U.S., HC–130 “Hercules”; Aircraft, U.S., KC–130 “Hercules”
- High-value airborne assets (HVAAs): 77
- Holland, Donnie: 207
- Holloman AFB, New Mexico: 16, 283
- Hope, Bob: 126
- Hornburg, Hal: **137**
- Horner, Charles
 - AGL limitations for USCENTAF aircraft: 134
 - on “Awareness of Host-Nation Sensitivities”: 119–120
 - briefings on USCENTAF air campaign plan: 151–152
 - on bypassing of ATO division: 140
 - in Camp David briefing on Kuwait invasion: 29–30
 - on casualties: 311
 - on Checkmate: 87
 - Commander, Central Command Air Forces (COMCENTAF): 10, 135–136, 213
 - Commander, Central Command (COMUSCENTCOM) Forward: 33–34, 83
 - Commander, Ninth Air Force: 10, 135–136
 - Commander, Theater Air Component: 10, 30–31*n*69, 35–38, 136

On Target

- concealment of attack plan: 86
- on Desert Shield's first weeks: 51
- establishment of headquarters in Riyadh, Saudi Arabia: 34
- on final strategic air targets: 280
- first day's air operation briefing to Gen. Schwarzkopf: 204–205
- on goals of air campaign: 30, 86
- on Harvest Falcon program: 47
- influence of, on air campaign plan: 110
- initial deployment response to hostilities plan: 32
- on initial USCENTAF campaign plan briefing: 88
- on Instant Thunder: 72, 81–84
- on intelligence/planning relationship: 226, 309–310
- interservice cooperation: 97–98
- Joint Force Air Component Commander (JFACC): 10, 135
 - ATO planning, preparation, and execution: 37, 48
 - interservice cooperation: 97–98
 - response to Instant Thunder plan: 83
 - tasks, duties, and responsibilities: 30–31*n*69, 34–38
- on JSTARS: 142
- on JTF Proven Force missions in air planning: 213
- in meeting King Fahd (August 6): 30
- on participation of all pilots: 196
- photo of: **10**, **59**, **137**
- on Prince Khalid: 47
- on prioritization of air attacks: 198
- reorganization of USCENTAF: 137–138
- reply to Gen. Schwarzkopf's manning level request (November 1, 1990): 114
- on Saudi border protection: 44, 82–83
- on Scuds on target list: 236
- on SEAD efforts: 251–252
- on TAC offensive air campaign plan: 81–82
- on targets: 289*n*10
- transfer of AFSOCENT to USCENTAF: 38–39
- trust of Gen. Schwarzkopf: 39
- USCENTAF/IAF liaison, assignment of: 232
- Hornet. *See* Aircraft, Coalition, CF–18
 - “Hornet”; Aircraft, U.S., F/A–18 “Hornet”
- Hughes, Harley: 59
- Husayn's Tomb: 131
- Hussein, Saddam
 - ability to assess risks: 3, 28
 - on CW: 154
 - decision to invade Kuwait: 27–29, 147
 - giving U.S. satellite imagery to Soviets: 154
 - handling of hostages: 148–149
 - on Israel: 148, 278
 - on Kuwait government: 278
 - meeting with Ambassador Glaspie: 20–25
 - “the mother of all battles” speech: 162
 - in offensive air campaign plan: 106
 - peace offer to Iran: 52
 - on President Bush's peace offer: 148
 - proclaimed President for Life: 20
 - response to Coalition buildup: 118
 - response to financial crisis: 19–20, 27
 - on Soviet cease-fire efforts: 275–276
 - tactics of, similarity to Hitler: 168
 - target of air campaign: 202–203
 - on upcoming war: 162, 163
 - withdrawal from Kuwait, conditions for: 148, 278–279
- Ibrahim, Izzat: 26
- Identification–friend-or-foe (IFF): 37, 41
- Incirlik AB, Turkey: 210
- Indian Ocean
 - Diego Garcia: 16, 41, 190
 - factor in site of RSAF bases: 17
- Infrared (IR) detection: 7
- Integrated Air Defense System (IADS): 152, 174–175. *See also* Intercept operations centers (IOCs); Sector operations centers (SOCs); Suppression of enemy air defenses (SEAD)
- configuration of: 175–176
- doctrine of: 174
- drawing of: **177**
- Kari system
 - after action assessment: 217, 299–300
 - Al Amarah IOC in: 200
 - configuration of: 176

- damage to: 270
 - impact on USCENTAF tactics: 221–222
 - use of commercial power by: 187
- Intelligence. *See also* Bomb damage assessment (BDA)
 - after action assessment: 309–310
 - compartmentalization of: 285
- Intercept operations centers (IOCs)
 - Al Amarah: 200, 251, 270
 - Al Jarrah: 270
 - Al Kut: 270
 - Al Taqaddum: 186, 193, 202
 - Ar Rutbah: 193, 248, 250
 - Az Zubayr: 193, 199, 214
 - H–2 area: 252
 - H–3 area: 193, 199, 209
 - Karbala: 248, 270
 - in Kari system: 200
 - An Najaf: 190, 248
 - Nukhayb: 91, 184, 196, 209
 - in offensive battle plan: 102
 - Salman Pak: 193, 270
 - Taji: 202
 - Tallil: 198, 209
- Interdiction missions
 - CAFMS for: 92
 - COMUSCENTAF duty: 37
 - in OPORDs for Desert Shield: 54
 - in Phase II of USCENTCOM war plan: 95
 - in TAC offensive air campaign plan: 81
- Intruder. *See* Aircraft, U.S., A–6E “Intruder”; Aircraft, U.S., KA–6D “Intruder”
- Iran, Islamic Republic of
 - border with Iraq: 307
 - CW attacks on: 154
 - factor in site of RSAF bases: 17
 - IZAF aircraft sheltered in: 130, 259–261, 300
 - Kari system configured for attack by: 176
 - neutrality of: 94, 130
 - peace offer from Iraq: 52
 - threat to Persian Gulf stability: 14
 - in USCENTCOM’s AOR: 10
 - War of the Cities: 153
- Iraq, Republic of
 - archaeological sites in: 130–131
 - C² centers: 15–16
 - crude oil production: 2
 - demands on Kuwait: 1, 19, 26
 - factor in site of RSAF bases: 17
 - financial instability: 1, 19–20
 - Iraq-Soviet peace talks: 279
 - loss of communications in: 289–291
 - National Assembly: 163
 - petroleum reserves: 2, 28
 - preparation for Kuwait attack: 2*n*4, 20, 25–26
 - response to Desert Shield: 51–52
 - Special Forces: 307–308
 - targets in OPLAN 1002–90: 15
 - threat to Persian Gulf stability: 14, 19–20
 - unity of: 165–166
 - in USCENTCOM’s AOR: 10
 - war with Iran
 - debt from: 1, 19–20, 24
 - defensive operations: 170
 - vs. Kuwait invasion: 27–28
 - lack of United States involvement in: 20–21
 - militarization after: 52
 - peace offer to end: 52
 - use of CW: 154
 - War of the Cities: 153
- Iraqi Air Force (IZAF)
 - after action assessment: 300–301
 - Air Academy: 203
 - aircraft: 152, 171–172
 - in archaeological sites: 261
 - bombing of IZAF HQ: 193, 201
 - in charge of IADS: 174
 - in civilian residential neighborhoods: 261
 - dispersal of aircraft: 259–261
 - exercises: 135
 - helicopters with antiship missiles: 195
 - in Instant Thunder plan: 76
 - in OPLAN 1002–90: 15
 - reconnaissance missions: 170
 - response to Imminent Thunder: 134
 - response to offensive air campaign: 254
 - retreat to Iran: 248, 259–260
 - target of air campaign: 2–3
 - training, assessment of: 172

On Target

- in USCENTAF campaign planning: 103, 152
- violation of Saudi airspace (August 22, 1990): 52
- Iraqi Army. *See also* Republican Guard
 - in civilian residential neighborhoods: 307
 - equipment: 167
 - incendiary defense system: 280
 - in Instant Thunder plan: 71, 76
 - personnel: 167
 - preparation for offensive campaign: 169–170
 - target of air campaign: 2
- Iraqi Intelligence Service (IIS) HQ: 201–202, 265, 274, 281
- Iraqi Navy
 - after action assessment: 301–302
 - patrol boats: 199
 - Umm Qasr naval base: 76, 78, 103
- Iraqi Tactics Analysis Team: 172–173
- Irbil ammunition dump: 277
- Isis nuclear reactor: 202, 249, 252–253
- Israel
 - attack on Osirak nuclear reactor: 154
 - consideration of, in offensive air campaign planning: 73
 - factor in site of RSAF bases: 17
 - first SRBM strikes in: 229
 - Iraqi threat of NBC weapons attack on: 154
 - Kari system configured for attack by: 176
 - neutrality of: 94
 - in NSD–54 administrative policy: 165
 - response to terrorism: 153–154
 - retaliation for SRBM attacks: 232–233
 - right to self-defense: 115
 - target of Iraqi SRBMs: 79–80, 184, 229–234
 - as topic of discussion: 122–123
 - use of drones by: 91
- Italian Tenth Army: 168
- Jaffar, Jarrar Dhia: 295
- Jalibah, Iraq
 - airfield: 250, 263, 280
 - CW storage facility: 192
 - fiber-optic link: 266
 - fiber-optic stations: 239
 - HASs: 258, 276
 - runways: 192
 - SRBM shelters: 192
- Jamerson, James: 212
- Jedi Knights: 106
- Jenoub PTT building: 251–252, 277
- J-hooking effect: 5
- Jirishan fiber-optic repeaters: 268
- Johnson, Hansford: 42
- Johnson, Lyndon B.: 84
- Johnston, Robert: 102
- Joint AirLand Battle: 54–55, 60–61
- Joint Chiefs of Staff (JCS)
 - briefing on General Order 1 (GO–1): 122
 - definition of JFACC duties: 35
 - Director J–3 (Operations): 71. *See also* Adams, Jimmie
 - Director, J–5 (Strategic Plans and Policy): 72
 - Director, Joint Staff: 72
 - formula for CINC support of CINC-CENT: 212
 - Mobility Study on Desert Shield: 51
 - on offensive air campaign plan, request for: 58
 - on OPCON of USMC aircraft: 36
 - USCENTCOM briefing of prior to Kuwait invasion: 26
- Joint Force Air Component Commander (JFACC). *See also* Horner, Charles
 - ATO planning, preparation, and execution: 37, 48
 - authority of: 144–145
 - control of Navy strike packages: 129
 - interservice cooperation: 97
 - JTF Proven Force targets: 213
 - OPCON of aircraft: 136
 - in TAC offensive air campaign plan: 81
 - TACON of JSTARS: 144
 - tasks, duties, and responsibilities: 30–31n69, 34–38
- Joint Munitions Effects Manual: 89
- Joint no-fire target list (JNFTL): 128, 130–131
- Joint Reconnaissance Center: 144
- Joint Rescue Coordination Center, Scott AFB, Illinois: 79

- Joint Task Force Middle East (JTFME): 36
See also Glosson, Buster;
 Schwarzkopf, H. Norman
- Joint Task Force Proven Force
 air order of battle: 212
 ATO and strike planning: 213
 bombing of
 Al Hadre CW bunkers: 277
 Basiqah Northeast: 209
 Dibs power plants: 265
 Irbil ammunition dump: 277
 K-2 missile storage: 277
 Kirkuk airfield: 282
 Kirkuk AM transmitter: 277
 Kirkuk CW bunkers: 267
 Machurah Dawg North: 209
 Mosul direction-finding stations: 277
 Mosul military R&D facility: 277,
 282
 Mosul missile research facility: 269
 Mosul power plants: 265
 Qayyarah airfield: 267
 Qayyarah BW bunkers: 267
 Sununi: 209
 Taji airfield: 277
 Taji military complex: 280–282
 Tar Miya nuclear facility: 282
 history of: 209–210
 OPCON of aircraft: 212
 PGM capability: 262, 282
- Jones, David: 148
- Jordan
 defense of airspace: 154, 230
 factor in site of RSAF bases: 17
 neutrality of: 94, 130, 167
 in NSD-54 administrative policy: 165
 in USCENTCOM's AOR: 10
- Josephus: 132
- Jumhuriya bridge: 266
- Karbala, Iraq
 ammunition facility in: 156
 archaeological site near: 131
 BW bunkers: 265
 fiber-optic stations: 278
 IOC: 248, 270
- Kari system. *See* Integrated air defense system (IADS), Kari system
- Kaufman, Donald: 30–31
- Kelk, Jon: 185
- Kelly, John: 28
- Kenya: 10
- Khamis Mushait AB, Saudi Arabia: 17, 46,
 137
- Khomeini, Ali: 52, 260
- King Fahd International Airport (IAP),
 Saudi Arabia
 A-10 CSAR support alert at: 249
 deployment of aircraft to: 46, 141
 deployment of U.S. forces through: 17
- King Khalid International Airport (IAP),
 Saudi Arabia: 17
- King Khalid Military City, Saudi Arabia:
 17, 249
- Kirkuk, Iraq
 airfield: 267, 282
 AM transmitter: 277
 ammunition depot: 281
 ammunition facility: 156
 HASSs: 258–259
 refinery: 270
 SOC: 102
- Kissinger, Henry: 315
- Konya weapons ranges: 210
- Korean War
 4th Infantry Division, North Korean
 People's Army: 49
 24th Infantry Division (Mechanized): 49
 China's logistical support of North Ko-
 rea: 314–315
 vs. Desert Shield/Storm: 54
 enemy sanctuaries: 130
 Inchon battle: 69–70
 MacArthur, Douglas: 69
 operation plans for battles over: 47
 Secretary of States remarks on: 21
 strategic bombing of North Korea: 314–
 315
 Tarzon bomb: 315
 Task Force Smith: 49–50
- Koritz, Thomas: 207
- Kuehl, Daniel: 72*n*35
- Kurds: 290–291, 308, 308*n*66
- Kuwait, Emirate of
 accused of oil price setting: 19
 air force: 27
 causes of invasion: 2, 19–20, 27–28
 defense treaty with United States: 21
 Egyptian debts forgiven: 49

On Target

- factor in site of RSAF bases: 17
- human rights abuses in: 150
- Iraqi demands on: 1, 19–20, 26
- Iraqi SOCs in: 102, 193
- response to Iraqi troop movements: 20
- Saddam Hussein's view of: 21–24
- sharing of intelligence data with: 25
- in USCENTCOM's AOR: 10
- Kuwait International Airport (IAP): 192
- Lancer: 6, 8
- Landsat communications system: 9
- Langley AFB, Virginia: 40
- Latifiya facilities
 - ammunition plant: 265
 - explosives plant: 214, 249, 269
 - liquid propellant plant: 269
 - satellite communications station: 196
 - solid propellant plant: 199, 264, 277
 - SRBM facilities: 236–237, 265, 277
 - SSM facility: 214, 269
 - target of air campaign: 249
- Leno, Jay: 126
- Letters of Agreement: 18*n*39
- Liberator: 62
- Libya: 110, 163, 317
- Lines of communications (LOCs)
 - after action assessment: 302–303
 - definition of: 302*n*38
 - targeting of Iraqi: 69, 73–74
- Lockheed Aircraft Corporation: 7–8, 7*n*20
- Loh, John: 58, 68, 73
- Long-Range Planning Division, Warfighting Concepts Directorate: 60
- Los Angeles Times*: 99
- Los Angeles World Affairs Council: 112
- Louisiana National Guard: 115
- Low-altitude navigation and targeting infrared for night (LANTIRN) system
 - deployment of
 - on F–15E: 5*n*10, 13, 43, 183*n*9
 - on F–16L: 183*n*9
 - description of: 183*n*9
 - PGM control: 183*n*9
 - photo of on F–15E: **155**
 - for Scudbusting: 192, 240
- MacArthur, Douglas: 69
- Machurah Dawg North EW facilities: 209
- Magill, Charles: 201
- Al-Majid, Ali Hasan: 26
- Major, John: 279
- Martin, Steve: 126
- Masqatt, Oman: 34
- Master attack plan (MAP). *See* Deptula, David; Strategic Air Command (SAC); United States Air Force Component, Central Command (USCENTAF)
- Maverick: 4*n*8, 196
- Maw, Scott G.: 185
- Maya: 172
- McClellan, George: 108
- McConnell, Mike: 224–225
- McNamara, Robert: 84
- McPeak, Merrill, “Tony”: 101, **101**
- Mecca, Saudi Arabia: 17
- Meier, James: 74
- Mina Al Bakr air defense posts: 201
- Mining operations: 129–130, 242
- Ministry of Defense National Computer Center: 201, 202
- Missiles. *See also* Precision guided munitions (PGMs)
 - air-to-air
 - AA–11 “Archer”: 172–173
 - AIM–7 “Sparrow”
 - kill rate of, with F–15C: 316
 - MiG–29 kills: 185, 201
 - Mirage F–1E kill: 187
 - use of, ROE for: 129
 - AIM–7M “Sparrow”: 185
 - AIM–9 “Sidewinder”: 129
 - AIM–54 “Phoenix”: 129–130
 - in dogfights: 316
 - air-to-ground
 - AGM–65 “Maverick”: 4*n*8, 196
 - AGM–88 high-speed antiradiation missiles “HARMs”
 - Al Asad airfield attack: 207
 - An Nasiriyah troposcatter station attack: 198
 - Ar Rumaylah airfield attack: 198
 - Ash Shuaybah railroad station and airfield attack: 205
 - availability of: 79
 - Az Zubayr IOC attack: 199
 - Az Zubayr railyard attack: 199
 - Baghdad IADS attack: 189–190

- deconfliction: 133
- destruction of surface-to-air threats: 158
- Failake Island attack: 198
- firing doctrine of F-4G “Wild Weasels”>: 133
- H-2 airfield attack: 207
- H-3 airfield attack: 207
- in “HARM Heaven”>: 190
- in Instant Thunder plan: 77–78
- Kuwait airfield attack: 192
- Qurna SRBM shelter attack: 192
- Shaibah airfield attack: 192, 205
- Tallil airfield attack: 192
- Tallil IOC attack: 198
- Tuwaitha nuclear facility attack: 249
- in USCENTAF campaign planning: 91
- AGM-114 “Hellfire”>: 182
- air-launched antiradiation (ALARMs) for SEAD at
 - Al Asad airfield: 190
 - H-2 airfield: 207, 213, 216, 251
 - H-3 airfield: 207, 213
 - H-3 CW storage facility: 216
 - H-3 petroleum pumping station: 207
 - SRBM launch sites: 183
- air-launched cruise (ALCMs)
 - Al Musayyib power plant attack: 196
 - in Instant Thunder plan: 72, 80
 - Iraqi communication systems attack: 196
 - Latifiya satellite communications station attack: 196
 - Mosul power plant attack: 196
 - in USCENTAF campaign planning: 104
 - Hydra 70 rockets: 182
- antiship
 - CSSC-2 “Silkworm”>: 201, 214
 - Exocet: 260
 - K-2 storage: 277
- standoff, land-attack (SLAMs): 207, 215
- surface-to-air (SAMs)
 - altitude coverage of: 174
 - Hawk anti-aircraft: 175, 209, 253
 - minimal radar guidance strategy: 197
 - Patriot antiballistic
 - delivered to Israel: 231
 - design of: 231
 - interception of SRBMs: 233–234, 243
 - promised Israel by President Bush: 230
 - quantity of: 152, 174*n*64
 - radar: 152
 - in Republican Guard units: 175, 197, 306–307*n*57
 - Roland: 174
 - SA-2 “Guideline”
 - countermeasures for: 175–176
 - in Iraqi IADS: 174
 - in Iraqi Regular Army units: 306*n*57
 - operational capabilities of: 174
 - range of: 306*n*57
 - SA-3 “Goa”
 - countermeasures for: 175–176
 - in Iraqi IADS: 174
 - in Iraqi Regular Army units: 306*n*57
 - operational capabilities of: 174
 - range of: 306*n*57
 - SA-6 “Gainful”
 - operational capabilities of: 174–175
 - range of: 306–307*n*57
 - in Republican Guard units: 175, 306–307*n*57
 - in Tuwaitha nuclear facility IADS: 249
 - SA-7 “Grail”>: 174*n*64
 - SA-8 “Gecko”>: 174–175
 - SA-9 “Gaskin”
 - in Iraqi IADS: 174*n*64
 - in Iraqi Regular Army units: 197, 306*n*57
 - quantity of: 174*n*64
 - range of: 306*n*57
 - SA-13 “Gopher”
 - in Iraqi IADS: 174*n*64
 - quantity of: 174*n*64
 - range of: 306–307*n*57
 - in Republican Guard units: 197, 306–307*n*57
 - SA-14 “Gremlin”>: 174*n*64

On Target

- suppression. *See also* Suppression of enemy air defenses (SEAD)
 - in Instant Thunder plan: 77–78
 - in Operation Linebacker II: 6–7
- surface-to-surface (SSMs)
 - medium-range ballistic missiles: 19, 81
- short-range ballistic missiles (SRBMs) “Scuds”
 - after action assessment: 232–233, 236–237, 240–241, 243–245, 248
 - Bahrain attack: 234, 243
 - CEP of: 153
 - vs. German V rockets: 235
 - in HAS: 241
 - in Instant Thunder plan: 79–80
 - Iraq’s capacity to build and maintain: 244
 - Israel attack: 228–234
 - launch detection by Defense Support System: 9
 - launch sites targeting Israel: 184–185
 - MAZ–543: 153
 - mobile erector-launchers (MELs)
 - for: 153, 217, 236, 237, 241, 243–245, 297–298
 - political value of: 153–154
 - production facilities: 214
 - protection of: 175, 235–236
 - R–300E: 152–153
 - R&D programs: 19
 - range of: 153, 235
 - research, production, and assembly facility: 250
 - Saudi Arabia attack: 234, 243
 - speed of: 236, 236*n*39
 - suppression of: 237, 239–241, 252, 266. *See also* Suppression of enemy air defenses (SEAD)
 - in TAC offensive air campaign plan: 81
 - target of air campaign: 2–3
 - technical description of: 152–153
 - transporter-erector-launchers (TELEs) for: 153, 236, 237
 - in USCENTAF campaign plan: 15, 155
 - in USCENTAF campaign planning: 91, 152–155
- Tomahawk land-attack (TLAMs)
 - Abu Ghurayb Presidential Palace attack: 214
 - accuracy of: 105
 - Ajaji Bayji power plant attack: 199
 - Al Basrah refinery attack: 214
 - Al Mawsil power plant attack: 214
 - Az Zubayr IOC attack: 214
 - Az Zubayr petroleum pumping/storage facility attack: 199
 - Baath Party Headquarters attack: 187
 - Baghdad governmental control centers attack: 207
 - Baghdad Ministry of Defense/Army HQ attack: 199
 - Baghdad Ministry of Defense computer center attack: 214
 - Baghdad transformer station attack: 199
 - firing rate of: 214
 - first shots of Desert Storm: 166
 - in initial Kuwaiti invasion response plan: 29
 - in Instant Thunder plan: 72, 77
 - Latifiya solid propellant plant attack: 199
 - in OPOD 3 for Desert Shield: 54
 - Presidential Palace attack: 187
 - Samarra CW facilities attack: 199
 - Shaibah helicopter ramps attack: 195
 - special warhead on: 187–188
 - Taji missile support facility attack: 199
 - Taji SRBM support facility attack: 187
 - in USCENTAF campaign planning: 91, 105, 131, 156
- Mississippi National Guard: 115
- Moltke, Helmuth von: 69
- Moore, Royal: 97
- Morale, Welfare, and Recreation (MWR): 126–127
- Morocco: 39, 49
- Moron AB, Spain: 216

- Mosquito: 8
- Mosul, Iraq
 archaeological site near: 131
 CW bunkers: 277
 direction-finding stations: 277
 HASs: 259
 military R&D facility: 277, 282
 missile research facility: 216
 nuclear production facility: 267
 power plants: 196, 214
 Republican Guard sites: 252
- Mudaysis airfield
 bombing of: 190–191, 201, 207, 215
 Mirage F–1Es based at: 185
- Mufrash radio relay: 281
- Muftul Waddam bridge: 216
- Muhammad airfield: 259
- Muhammadiyah storage site: **295**
- Muir, Dan: 224*n*10
- Murbarak, Hosni: 23, 25, 163–164
- Muscat, Oman: 34
- Muttawwa: 123
- Nasiriyah power plant: 192
- National Command Authorities (NCA)
 approval of USCENTAF campaign: 109
 authorization of operations: 94
 Persian Gulf War attack order: 102
 presentation of offensive air campaign
 plan to: 80
 ROE tweaking: 130
- National Disclosure Policy: 25
- National Guard
 call-up of, in OPLAN 1002–90: 14
 Georgia: 115
 Louisiana: 115
 Mississippi: 115
 New York: 237
- National Security Advisor: 30. *See also*
 Scowcroft, Brent
 Gates, Robert: 30
- National Security Council: 29
- National Security Directive 26 (NSD–26):
 18, 22, 25
- National Security Directive 45 (NSD–45):
 53–54, 164
- National Security Directive 54 (NSD–54):
 164–166
- Nellis AFB, Nevada: 82, 283
- New York Air National Guard: 237
- Nighthawk. *See* Aircraft, U.S., F–117A
 “Nighthawk”
- Nimrud: 131
- Nineveh: 131
- Nippur: 131
- Nixon, Richard M.: 315
- Nuclear, biological, and chemical (NBC)
 weapons. *See also* Biological
 weapons (BW); Chemical
 weapons (CW)
 after action assessment: 208
 bombing of: 277
 destruction of, NSD–54 goal: 165
 development of: 154
 Geneva Convention Articles on: 157
 HAS designed to mitigate: 17
 in Instant Thunder plan: 76, 287
 Iraqi use of in battle: 94, 112, 154
 in OPLAN 1002–90: 15
 in Phase I of offensive air attack: 2
 photo of destroyed bunker: **156**
 planned response to use of: 32
 protective gear, donning of: 235
 R&D programs, in Iran: 14
 R&D programs, in Iraq: 14, 19
 storage facilities: **295**
 in TAC offensive air campaign plan: 81
 in USCENTAF campaign planning:
 103–104, 109–110, 154–156
 USCINCCENT on: 70
- Nukhayb: 91, 196, 209
- Oaks, Robert: 210
- O’Connor, Richard: 168
- Oil. *See also* Petroleum, oil, and lubricant
 (POL) facilities
 in Instant Thunder plan: 75, 78–79
 in OPLAN 1002–90: 15
 price of, after Kuwait invasion: 52–53
 rationing of: 53
 sales quotas: 1, 27, 52
 setting of oil prices: 19–20, 25, 27
 in TAC offensive air campaign: 81
 target of air campaign: 201
 in USCENTAF campaign planning: 103,
 157
- Olsen, Thomas
 briefing on Instant Thunder: 82
 Commander, Central Command Air For-
 ces (COMUSCENTAF): 34

On Target

- on Harvest Falcon program: 47
- responsibility for USCENTAF telephone bills: 46
- USCENTAF/IAF liaison, assignment as: 232–234
- visitation of carrier battle groups: 48
- Oman
 - Coalition member: 49
 - deployment of aircraft to: 41, 46–47
 - Gulf of: 10
 - on Kuwaiti greed: 28
 - plans for establishment of headquarters in: 34
 - restrictions on U.S. military personnel in: 125
 - in USCENTCOM's AOR: 10
- Operation Orders (OPORDs)
 - 1 (OPORD 1): 34, 54
 - 3 (OPORD 3): 54
 - Instant Thunder as: 79–80
 - Offensive Campaign—Phase I: 98, 2877
 - phases of: 54
- Operation Plan (OPLAN)
 - 1002–90
 - adherence to: 29–30
 - briefing on: 31
 - development of: 14–16
 - implementation of: 44
 - vs. OPORDs: 54
 - for Desert Storm: 159
- Operational Control (OPCON)
 - of JSTARS: 144
 - of JTF Proven Force: 212
 - of MARCENT aircraft: 36–37
 - of SAC aircraft: 35, 136
 - of SOF aircraft: 35
 - of USARCENT aircraft: 35, 37
 - of USMC aircraft: 36
 - of USNAVCENT aircraft: 35–37
- Operations
 - Desert Shield
 - after action assessment: 54–55
 - ATO planning, preparation, and execution: 48
 - basing of aircraft: 46–47
 - Coalition formation: 49
 - command authority, air operations: 33–39
 - communication systems for: 45–46
 - computers: 45
 - defensive operations planning for: 47, 48–49
 - designation of Southwest Asia Operations as: 34
 - effect on oil prices: 52–53
 - first deployed aircraft: 40
 - Harvest Falcon, role in: 47
 - preparation for offensive campaign: 145
 - prioritization of asset transportation: 45–46, 50–51
 - SAC ATO planning during: 11
 - Saudi ground troops, deployment of: 44
 - sea blockade of Iraq: 53–54
 - strategic airlift operations: 40–43
 - USCENTAF assets: 42
 - USCENTAF ATO planning during: 11
 - USCENTAF personnel, deployment of: 44
 - USCENTAF training exercises: 132–133
 - Desert Storm
 - after action assessment: 208
 - air order of battle: 171
 - execution order for: 166
 - SAC ATO planning during: 11
 - USCENTAF ATO planning during: 11
 - vs. Vietnam: 169
 - vs. WWII African campaign: 168
 - El Dorado Canyon: 67
 - Just Cause: 67, 98*m*95–96
 - Linebacker I: 4, 303, 315
 - Linebacker II: 4, 6–7, 315
 - Rolling Thunder: 67
- Organization of Petroleum Exporting Countries (OPEC)
 - sales quotas: 1, 27, 52
 - setting of oil prices: 19–20, 25, 27
- Osirak nuclear reactor
 - bombing of: 202, 252–253
 - Israeli attack on: 154, 202, 293
- Pakistan: 10
- Panama: 318
- Pave Hawk: 38, 114, 171
- Pave Low
 - air order of battle: 114, 171
 - in JTF Proven Force: 212

- for SOF missions in AOR: 38
 - in Task Force Normandy: 182
- Paveway I: 4
- Paveway II: 4
- Paveway III: 4–6
- Perez de Cuellar, Javier: 163
- Persian Gulf: 10
- Petroleum, oil, and lubricant (POL) facilities. *See also* Oil
 - Abu Rajesh facility: 251
 - loss of, impact on Iraq: 270
 - in prioritization of A–10 missions: 198
 - storage facilities: 269–270
 - target of air campaign: 206
- Phantom: 7, 172
- Phantom II
 - bombing of Taji military complex: 282
 - PGM capability: 4–5
 - replacement of: 5, 13
 - in Vietnam: 4
- Phoenix: 129–130
- Plans. *See* Exercises/Plans
- Poland: 290
- Powell, Colin
 - on aircraft basing in theater: 103
 - approval of ground attack plan: 268, 278
 - approval of Instant Thunder plan: 68
 - approval of USCENTAF campaign: 98–99
 - approval of USCENTCOM war plan: 161
 - briefing from CINCCENT (August 14): 73
 - briefings on USCENTCOM war plan: 102–109, 151–152
 - in Camp David briefing on Kuwait invasion: 29–30
 - Chairman of the Joint Chiefs of Staff (CJCS): 58
 - check on CINCCENT war preparations: 150–151
 - Civil Reserve Air Fleet activation: 30
 - consulted on Gen. Dugan’s firing: 100
 - deployment order for Persian Gulf: 115–116
 - Desert Storm warning order: 161
 - faith in ground forces: 99
 - on force readiness: 161
 - on Instant Thunder objectives: 71, 96
 - on Iraqi Army response to ground attack: 268
 - Joint Task Force Proven Force plan, briefed on: 210
 - on one- vs. two-corps offensive: 112
 - photo of: **151**
 - ready reserve call up: 30
 - on request for KC–135 aerial refueling by UAE: 20
 - request for offensive battle plan: 74, 101–102
 - on starting date of Desert Storm: 161
 - strategic air war briefing: 267–268
 - on targets: 272, 276, 281, 289*n*10
 - on U.S. Embassy staff in Kuwait City: 106
 - in USCENTCOM briefing on Desert Shield deployments: 51
- Power plants. *See also* Harvard Public Health Team study
 - BDA of: 217, 291–293, 298
 - bombing of, by TLAMs: 199
 - in Instant Thunder plan: 73, 75
 - in USCENTAF campaign plan: 105
 - in USCENTAF campaign planning: 103, 157
- Precision guided munitions (PGMs). *See also* Bombs; Missiles
 - “buddy-lasing”: 183*n*9
 - on F–15E: 5, 5*n*10, 13, 43, 183*n*9
 - first use of in combat: 4
 - for hard-target penetration: 5
 - for HAS destruction: 255
 - in Instant Thunder plan: 83
 - LANTIRN control of: 183*n*9
 - vs. precision-delivered weapons: 83
 - in USCENTAF campaign planning: 116–117
- Prepositioned assets: 50–51
 - Advantage*: 42
 - Afloat Positioning Force: 16
 - Harvest Falcon: 16, 47
- Primakov, Yevgeny
 - on Iraqi invasion of Kuwait: 117
 - provided satellite imagery to Iraq: 275, 289
 - on Saddam Hussein’s response to peace offer: 148
- Prisoners of war: 250

On Target

- Profitt, Glenn: 137
“Prohibited Activities for U.S. Personnel Serving in the USCENTCOM AOR”: 121–122
- Prowler. *See* Aircraft, U.S., EA–6B “Prowler”
- Psychological operations (PSYOPs)
bombing of Tikrit: 202–203
in COMUSCENTAF OPOD: 57
in Instant Thunder plan: 64, 76, 78, 289–290
in USCENTAF campaign planning: 98, 98*nn*95–96
- Public Morality Committees: 123
- Purvis, Joseph: 106
- Qabatiya BW bunker: 209, 213–214
- al-Qaddafi, Muammar: 317
- Qalat Salih
airfield: 264, 267
SRBM shelters: 192, 207
- Qasr Amij SRBM launch complex: 236–238
- Qatar
deployment of F–16s to: 47
Egyptian debts forgiven: 49
factor in site of RSAF bases: 17
in USCENTCOM’s AOR: 10
- Qayyarah
airfield: 267
BW bunkers: 267
CW bunkers: 264, 277
HASS: 258–259
- Quayle, J. Danforth: 29
- Qubaysah: 237, 248
- Rabin, Yitzhak: 229
- Radar: 8, 152, 174
- Radar cross section (RCS): 7–8
- Radio Baghdad: 217, 241
- Rafsanjani, Hashemi: 260
- Railroads
after action assessment: 302–303, 302–303*n*40
in Instant Thunder plan: 76
from Kuwait City to Az Zubayr: 170
target of air campaign: 206, 216
in USCENTAF campaign planning: 103, 152
- Ralston, Joseph: 283
- Ramadi fiber-optic stations: 239
- Rasheed airfield: 201, 265, 267
- Raven. *See* Aircraft, U.S., EF–111A “Raven”
- Red Sea: 10, 17, 41
- Republican Guard, Iraq
after action assessment: 304–309
battle with VII U.S. Army Corps: 307
destruction of, NSD–54 goal: 165
equipment: 167
escape routes: 214
General HQ, Forward, Basra: 198
in Instant Thunder plan: 96–97
LOCs: 252
in OPOD for Desert Shield: 304
personnel: 167
positioning of: 167, 169
preparation for Kuwait attack: 20
response to Desert Shield: 51–52
SAMs: 175, 197, 306–307*n*57
shelters for: 170
sites in Kuwait: 248
survival of: 304*n*46
target of air campaign: 2–3
transportation system, destruction of: 205–206, 303–304
- units
Hammurabi Armored Division: 305
Madinah Armored Division: 305
Tawakalna Mechanized Division: 204, 207, 305–306, 306*n*56
in USCENTAF campaign planning: 96–97, 157
in USCENTCOM war plan: 94, 96
- Reserve forces, U.S.: 14, 30, 115
- Rice, Donald: 73, 80
- Rivet Joint. *See* Aircraft, U.S., RC–135 “Rivet Joint”
- Riyadh AB, Saudi Arabia: 17, 59
- Roberts, Harry: 250
- Rommel, Erwin: 168
- Royal Air Force. *See* Great Britain, Royal Air Force (RAF); Saudi Arabia, Kingdom of, Royal Saudi Air Force
- Rufah SRBM facility: 248
- Rumaila oil field: 1, 19–20
- Russ, Robert: 81
- Russia. *See* Union of Soviet Socialist Republics (USSR)

- Ryan, Michael: 283
- Al-Sabah, Mohammed Sabah al-Salam: 27, 278
- Sadat, Anwar: 1
- Saddam International Airport (IAP): 201
- Safwan airfield: 290
- Salah Al Din SAM plant: 269
- Salman Pak
 - AM transmitter: 201
 - bombing of: 264
 - BW bunkers: 194, 251
 - CW facilities: 251
 - IOC: 193, 270
 - in USCENTAF campaign plan: 104, 156
- Samarra, Iraq
 - CW bunkers: 281
 - CW facilities: 199, 250–251
 - in USCENTAF campaign plan: 156
- Saqash railroad bridge: 215–216
- Saudi Arabia, Kingdom of
 - agreement to host Coalition forces: 2, 15, 31–32
 - agreement to offensive operations: 163
 - aid to USSR: 119
 - air base infrastructure: 16–18
 - Coalition member: 49
 - Egyptian debts forgiven: 49
 - Iraqi debt forgiven: 27
 - military headquarters in: 34
 - Ministry of Defense and Aviation (MODA) headquarters: 34, 39
 - petroleum reserves: 28–29
 - Royal Saudi Air Force (RSAF)
 - air base infrastructure: 16–18
 - ATO planning, preparation, and execution: 48
 - CAP for bombing of
 - Al Iskandariyah arms plant: 214
 - Al Musayyib rocket-motor plant: 214
 - Latifiya explosives plant: 214
 - headquarters, use of by USCENTAF: 34
 - initial deployment assessment: 55
 - OPORD missions: 54
 - training exercises: 133
 - in USCENTAF campaign planning: 102
 - use of ATO: 48
 - use of drones: 91
- Secretary Baker's November 1990 trip to: 112
- setting of oil prices: 25
- sharing of intelligence data with: 25
- in USCENTCOM's AOR: 10
- von Schlieffen Plan: 69, 73
- School of Advanced Military Studies, Leavenworth, Kansas: 106
- Schwarzkopf, H. Norman
 - additional aircraft needed for offensive war: 116
 - approval of USCENTAF campaign: 98–99
 - assessment of war plan (October 11): 107–108
 - authorization to deploy U.S. forces to Saudi Arabia: 32
 - briefings on USCENTAF air campaign plan: 151–152
 - in Camp David briefing on Kuwait invasion: 29–30
 - Commander, Central Command (COM-USCENTCOM): 14
 - Commander in Chief, Central Command (CINCCENT): 33
 - Commander, Joint Task Force Middle East (COMJTFME): 36
 - comparison to Gen. McClellan: 108
 - concealment of attack plan: 86
 - concern for U.S. Embassy personnel: 30
 - on deployment orders: 44
 - deployment to Saudi Arabia: 94
 - desire for low casualties: 70
 - faith in ground forces: 99
 - on final strategic air targets: 280
 - force needs for Desert Storm: 108, 112
 - on Gen. Powell's request for offensive battle plan: 74, 101–102
 - Ground Component Commander: 30–31/69
 - incorporation of Instant Thunder ideas: 287
 - on Iraqi Republican Guard: 96
 - JCS briefing prior to Kuwait invasion: 26
 - JFACC direction from: 34–36
 - on JSTARS: 142–143
 - on JTF Proven Force missions in air

On Target

- planning: 212–213
- on Lt. Gen. Horner's response to Instant Thunder: 82
- in meeting King Fahd (August 6): 30
- on military behavior in AOR: 121–122
- National Security Council briefing on Kuwait invasion: 29
- on NBC targets: 70
- on offensive mission objectives: 73, 96, 112–113
- photo of: **40**
- placing Iran/Iraq border off-limits: 307
- preparation for expeditionary force deployment: 33
- preparation for ground offensive: 112–114
- on prioritization of shipments: 45
- request for a retaliation air plan: 57–59
- on request for KC–135 aerial refueling by UAE: 20
- request for School of Advanced Military Studies input: 106
- request for USCENTAF/IAF liaison: 232
- review of Instant Thunder plan: 68–69
- setting of theater priorities: 239–240
- on starting date of Desert Storm: 161
- TACON of JTF Proven Force: 212
- on targets: 204–205, 272–276, 281, 289*n*10
- on timing of NCA attack order: 102
- trust in Lt. Gen. Horner: 39
- on USCENTAF Phase III assertions: 158
- Scowcroft, Brent
 - briefed on force readiness: 161
 - briefings on USCENTCOM war plan: 102–109
 - in Camp David briefing on Kuwait invasion: 29
 - on Gen. Dugan's USCENTAF campaign remarks: 100
 - on President Bush's decision to go to war: 150
 - on President Bush's peace offer: 148
- Scud. *See* Missiles, surface-to-surface (SSMs), short-range ballistic missiles (SRBMs) "Scuds"
- Secretary of Defense: 84. *See also* Cheney, Richard
 - Secretary General of the United Nations: 163
 - Secretary of State: 21. *See also* Baker, James
 - Sector operations centers (SOCs)
 - H–3 area: 102, 184, 199, 201, 250
 - Kirkuk: 102
 - South: 102
 - Taji: 102, 186, 193, 209
 - Tallil: 186, 209
 - V (in Kuwait): 102, 193
 - Security police: 44, 44–45*n*17
 - Seeb, Oman: 46
 - Senate Armed Services Committee: 148
 - Sensitive Compartmented Information Facility (SCIF): 86
 - Sentry. *See* Aircraft, U.S., E–3 "Sentry"
 - Shahiyat rocket facility: 214, 236, 282
 - Shaibah
 - airfield: 192, 205
 - ground forces command facility: 198
 - HASs: 258
 - helicopter ramps: 195
 - SAM support facilities: 265, 269
 - Shaikh Isa airfield, Bahrain: 46–47
 - Shamir, Yitzhak: 230
 - Shatt-al-Arab, Iran: 52
 - Shayka Mazhar airfield: 264, 267, 276, 281
 - Shevardnadze, Eduard: 118
 - Shia Muslim: 131, 290–291, 308, 308*n*66
 - Shomron, Dan: 233
 - Sicily: 304
 - Sidewinder: 129
 - Simultaneity: 90, 129, 216–217
 - Somalia: 10
 - South SOC: 102
 - Soviet Union. *See* Union of Soviet Socialist Republics (USSR)
 - Sparrow. *See* Missiles, air-to-air, AIM–7 "Sparrow"
 - Special Operations Command, Central Command (SOCCENT): 35, 38–39
 - Special Operations Forces (SOF)
 - 20th Special Operations Squadron: 182
 - for air base ground defense: 38–39
 - aircraft: 103
 - for CSAR: 38–39

- from Egypt: 49
 - SRBM launch site missions: 233, 236
 - from Syria: 49
 - in USCENTAF campaign planning: 91, 103
- Spectre. *See* Aircraft, U.S., AC-130 “Spectre”
- Spirit: 6, 8
- Stanfill, Ronald: 67, 83, 85, 87
- Starlifter: 40, 41–43, 283
- Stealth technology: 7–8
- Strategic Air Command (SAC)
 - air component commander coordination with: 37
 - air refueling plan: 92, 103
 - ATO input from: 11, 92
 - bomber inventory (FY 1993): 6n17
 - CINCSAC visit to AOR: **136**
 - combat aerial refueling: 183, 202, 227, 256, 256n39
 - deployment support: 42–43, 47
 - in exercises: 135
 - fuel carried by tankers: 41, 103
 - longest combat mission flown: 166
 - MAP use by: 65, 92
 - offensive air campaign planning by: 65, 68
 - OPCON of aircraft: 35, 136
 - OPLAN adherence by: 92
 - TACON of aircraft: 35, 136
 - USN support: 41, 103
- Strategic Forces (STRATFOR), Director: 136
- Strategic Reconnaissance Center, Offutt AFB, Nebraska: 136
- Strategic Reserve Program: 18
- Stratofortress. *See* Aircraft, U.S., B-52D “Stratofortress”; Aircraft, U.S., B-52G “Stratofortress”
- Stratojet: 65
- Stratotanker. *See* Aircraft, U.S., KC-135 “Stratotanker”
- Strike Eagle. *See* Aircraft, U.S., F-15E “Strike Eagle”
- Sudan: 10, 17
- Sununi EW facilities: 209
- Sununu, John: 29, 102–109
- Superfortress: 65
- Suppression of enemy air defenses (SEAD)
 - aircraft for: 155
 - CAFMS for: 92
 - GCI destruction: 176
 - in Instant Thunder plan: 77–78
 - Iraqi response to: 190
 - missiles vs. guns: 249
 - objective of first air attacks: 176
 - ratio of SEAD/escort-to-strike aircraft: 192, 199–200
 - in USCENTAF campaign planning: 91, 105, 158
 - use of drones for: 91
- Surgeon General of the USAF: 131
- Switchblade: 6
- Synthetic aperture radar (SAR): 141, 240
- Syria
 - 9th Syrian Armored Division: 49
 - Coalition member: 49
 - defense of airspace: 154, 230
 - in Joint Islamic-Arab Forces: 39
 - Kari system configured for attack by: 176
 - in NSD-54 administrative policy: 165
 - role in Desert Storm: 163
- Tables of organization: 135
- Tabuk AB, Saudi Arabia: 17, 137
- Tactical Air Command (TAC)
 - CAFMS use: 92
 - Lt. Gen Horner’s span of control in: 135–136
 - offensive air campaign planning by adherence to Joint AirLand Battle: 54–55, 61
 - in response to Instant Thunder plan: 68, 81
 - weakness of: 65, 92
- Tactical Air Control Center (TACC), Riyadh, Saudi Arabia
 - changes to ATO, handling of: 228
 - collocation with JRCC: 79
 - establishment of: 34
 - JSTARS mission management: 144
- Tactical control (TACON)
 - by air component commander: 36–38
 - by JFACC: 35–36
 - of JSTARS: 144
 - of JTF Proven Force: 212

On Target

- of MARCENT aircraft: 35–37
- of SAC aircraft: 35, 136
- of SOF aircraft: 38
- of USARCENT aircraft: 35, 37
- of USNAVCENT aircraft: 35–37
- Tactical Fighter Weapons Center: 72
- Taft, William: 100
- Taif AB, Saudi Arabia: 17, 47, 137, 216
- Taji
 - airfield: 276
 - bombing of: 280–281
 - BW bunkers: 277
 - BW facility: 156, 251–253
 - C² bunker (No. 2): 186, 193
 - CW facility: 156
 - IIS HQ: 201–202
 - IOC: 202
 - missile support facility: 199
 - North Taji facility (No. 2): 251, 253, 283–284
 - repair facilities: 269
 - Saddam Hussein's recreational camp: 253
 - SOC: 102, 186, 209
 - SRBM support facility: 187
 - SSM equipment plant: 277
 - target of air campaign: 269
 - in USCENTAF campaign plan: 104
- Tall Afar airfield: 266
- Tall Al Lahm ammunition dump: 265
- Tallil
 - airfield: 250, 263, 267, 280
 - archaeological sites near: 130–131, 192
 - bombed aircraft bunker: **276**
 - CW bunkers: 200, 264
 - fiber-optic stations: 266, 278
 - HASs: 258, 276
 - IOC: 198, 209
 - runways: 192
 - SOC: 186, 209
 - SRBM shelters: 192, 236
- Tanks
 - M1A1 Abrams tank: 50, 112, 168
 - T-72M: 167
- Tar Miya nuclear facility: 282
- Tar Miya rocket facility: 269
- Targets. *See also* Bomb damage assessment (BDA)
 - centers of gravity as: 62–63, 177, 216
 - Col. Warden's choice of: 64–65, 89, 177, 288*n*4
 - level of effort: 301
 - list given reporters by Gen. Dugan: 99
 - political value of: 268
 - strategic sets: 287–288
 - system list
 - August list: 96
 - September list: 98
 - October list: 103
 - December–January list: 152
 - January 19, 1991, list: 221
 - Instant Thunder: 76, 103
 - weather impact on choice of: 223
- Task Force Normandy: 182
- Tate, Steven: 187
- Tel Aviv, Israel: 155
- Threat Related Attrition: 131–132
- Thumrait, Oman: 46
- Thunderbolt II. *See* Aircraft, U.S., A-10 “Thunderbolt II”
- Thunderchief: 6–7
- Tice, Jeffery: 250
- Tiger II: 18
- Tikrit, Iraq
 - ammunition dump: 250
 - ammunition facility: 156
 - bombing of: 277
 - BW bunkers: 269
 - C² leadership bunker: 202–203
 - CW facilities: 250–251
 - East airfield: 267
 - radio communications facility: 278
 - railyard and bridge: 278
 - South airfield: 248
- Time-phased force and deployment data (TPFDD): 15
- Tinker AFB, Oklahoma: 40
- Tomcat. *See* Aircraft, U.S., F-14 “Tomcat”
- Tornado. *See* Aircraft, Coalition, GR-1 “Tornado”
- Tretler, David: 60*n*9
- Tritonal explosives: 5
- Turk, John: 128
- Turkey
 - basing of aircraft: 47, 70, 156
 - in CINCEUR AOR: 212
 - extensions from U.S. State Department for aircraft basing: 210

- Iraqi oil pipeline shut down: 211
- JTF Proven Force bases in: 209–210
- in NSD–54 administrative policy: 165
- Secretary Baker’s November 1990 trip to: 112
- U.S. negotiations with: 210–211
- Turner, Steven
 - on H–2 airfield bombing: 184
 - on IZAF pilots: 185
 - on Scudbuster routine: 241
- Tutwiler, Margaret: 21
- Tuwaitha nuclear facility
 - BDA: 293–294
 - bombing of: 202, 249, 252–253, 264
 - description of: 249
 - IADS: 249
 - in USCENTAF campaign plan: 109
- Ulama: 31–32
- Umayjah petroleum refinery: 215
- Umm Qasr naval base: 78, 103, 195, 264
- Uniform Code of Military Justice (UCMJ): 125
- Union of Soviet Socialist Republics (USSR)
 - aid from Arab states to: 119
 - air defense doctrine: 174
 - Coalition member: 54
 - as enemy in exercises: 66
 - impact of stealth technology on: 9
 - influence of, on USCENTCOM planning: 13–14
 - Instant Thunder-style assault on: 318
 - intelligence data deception training: 154
 - Iraq-Soviet peace talks: 279
 - on Iraqi invasion of Kuwait: 118
 - missile attacks in Afghanistan: 153
 - nuclear reactor in Iraq: 249, 253
 - R–300E SRBM: 152–153
 - Secretary Baker’s November 1990 trip to: 112
 - Soviet hostages in Iraq: 148
 - support of Desert Shield: 54
 - in UN Security Council: 117
- United Arab Emirates (UAE)
 - accused of oil price setting: 19
 - air bases in: 17
 - Coalition member: 49
 - Egyptian debts forgiven: 49
 - F–16s deployed to: 41
 - factor in site of RSAF bases: 17
 - request for KC–135 aerial refueling: 20.
 - See also* Exercises/Plans, Ivory Justice
 - response to Iraqi troop movements: 20
 - Saddam Hussein’s view of: 21–24
 - sharing of intelligence data with: 25
 - in USCENTCOM’s AOR: 10
- United Kingdom (UK). *See* Great Britain
- United Nations (UN) Security Council
 - blockade of air travel to Iraq: 99
 - call for Iraq to withdraw from Kuwait: 29
 - procedural rules of: 117
 - Resolution 660 (1990): 29
 - Resolution 661 (1990): 31
 - Resolution 662 (1990): 40
 - Resolution 665 (1990): 51
 - Resolution 670 (1990): 99
 - Resolution 678 (1990): 119, 147, 162, 163
 - resolution for Persian Gulf War: 117, 119
 - sanctions on Iraq and Kuwait: 31
 - shipping inspections: 51
 - support of, NSD 45: 53–54
 - UN maritime force in Persian Gulf, establishment of: 51
 - voided Iraqi annexation of Kuwait: 40
- United States Air Force (USAF)
 - 1st Tactical Fighter Wing: 40, 46, 126, 137
 - 2d Bombardment Wing: 166
 - Third Air Force: 12–13
 - 4th Tactical Fighter Wing: 5n10, 13, 46, 137, 137, 222, 241
 - 7th Airborne Command and Control Squadron: 137
 - Eighth Air Force: 6, 7, 136, 166, 313
 - 8th Tactical Fighter Wing: 4
 - Ninth Air Force: 5n10, 10–13, 16, 47, 318. *See also* United States Air Force Component, Central Command (USCENTAF)
 - Twelfth Air Force: 12
 - 14th Provisional Air Division [AD(P)]: 137
 - Fifteenth Air Force: 136
 - 15th Provisional Air Division [AD(P)]: 137

On Target

- 16th Provisional Air Division [AD(P)]: 136
- 17th Provisional Air Division [AD(P)]: 136
- Seventeenth Air Force: 60
- Twentieth Air Force: 314
- 20th Special Operations Squadron: 182
- 20th Tactical Fighter Wing: 209
- 23d Tactical Fighter Wing: 46, 137–138
- 33d Tactical Fighter Wing: 47, 137, 185
- 35th Tactical Fighter Wing: 46–47, 133, 137, 189–190
- 36th Tactical Fighter Wing: 209–210
- 37th Tactical Fighter Wing: 46, 137, 227
- 41st Electronic Combat Squadron: 137
- 48th Tactical Fighter Wing: 12–13, 137, 222, 262
- 52d Tactical Fighter Wing: 209
- 66th Electronic Combat Wing: 209
- 117th Tactical Reconnaissance Wing: 137
- 138th Tactical Fighter Squadron: 237
- 335th Tactical Fighter Squadron: 183*n*9
- 354th Tactical Fighter Wing: 46–47, 126, 137, 161
- 363d Tactical Fighter Wing: 137
- 366th Tactical Fighter Wing: 137
- 388th Tactical Fighter Wing: 137–138
- 390th Electronic Combat Squadron: 137
- 401st Tactical Fighter Wing: 137–138, 210
- 415th Tactical Fighter Squadron: 178, 201
- 416th Tactical Fighter Squadron: 258–259
- 507th Tactical Air Control Wing: 137
- 552d Provisional Airborne Warning Wing: 137
- 561st Tactical Fighter Squadron: 189–190
- 641st Tactical Fighter Squadron: 249–250
- 4300th Provisional Bombardment Wing [BW(P)]: 190
- 4409th Provisional Operational Support Wing: 137
- 4411th Provisional Joint Surveillance Target Radar System Squadron: 143
- 7440th Provisional Composite Wing [CW(P)]: 213
- after action assessment: 318–319, 319*n*79
- airlift: 136
- Fighter Weapons School: 87–88
- fuels used by: 41
- maintenance rates: 316
- MiG–29 loaned to: 173
- PGM use: 5–6
- request for KC–135 aerial refueling by UAE: 20
- SOF support: 38
- stealth technology development: 7–9
- use of RSAF bases: 18*n*39
- United States Air Force Component, Central Command (USCENTAF)
- ACE division: 138–139
- air tasking order (ATO)
 - vs. actual missions flown: 140–141, 252
 - CAFMS for development of: 92–93
 - for D-day Plan: 16, 93
 - delivery system for: 93
 - for Desert Shield: 48
 - for expeditionary force deployment: 34
 - in Joint AirLand Battle concepts: 61
 - JTF Proven Force missions in: 212–213
 - lessons learned: 318
 - vs. MAP: 92–93
 - for Navy strike packages: 129
 - preparation of in war: 224
 - SOCCENT missions in: 38–39
 - Warden group view of: 65, 65–66*n*16
 - weaknesses of: 11–12
- airlift: 41–42
- ATO division: 138–140, 226–228
- campaign planning
 - adherence to Joint AirLand Battle concepts: 54–55
 - after action assessment: 11–13, 110, 177–179, 309–310, 317–318
 - attack sequence: 103–104
 - changes to, after exercises: 134
 - for defensive operations: 47, 54
 - estimated air loss rates: 106
 - goals of: 104, 157–159, 285

- Instant Thunder basis of: 88–89, 98
- intelligence
 - access to: 86–87
 - alternative sources for: 226–228
 - canceling missions due to lack of: 253
 - from Checkmate Division: 68, 225, 225*n*13
 - from Directorate of Intelligence: 86–87, 223–225, 273
 - from JSTARS: 143–144
 - from videotapes: 225–226
- for rescue of hostages: 106
- ROE: 37, 128–130
- strike packages
 - assembly of: 63–64, 89–90
 - mission objectives of: 89, 105
 - naval support of: 103, 129
 - for training exercises: 132–133
- tactics: 254
- targets
 - archaeological sites near: 130–131
 - collateral damage potential: 131–132, 165
 - containing hostages: 148–149
 - first day's air operations: 152
 - of historic or religious significance: 105, 130–131
 - intelligence data on: 86–87
 - joint no-fire target list: 128, 130–131
 - list from CSAF: 98
 - selection of: 89
 - simultaneity vs. attack-sequencing: 90–91
- team formation: 84–85
- telecommunications for: 85–86
- USCENTCOM war plan impact on: 94–96
- Class A accidents: 134
- Combat Operations Planning Staff: 138
- communication systems for: 45–46
- computers for: 45, 85, 85*n*66
- court-martial rates: 125
- D-day Plan: 16
- defensive counterair sorties: 319
- deployment of staff officers to: 44–45
- Directorate of Campaign Plans
 - vs. Directorate of Intelligence: 223–226, 224*n*10
 - establishment of: 138–140
 - internal working relationships: 226–228
- Directorate of Intelligence
 - after action assessment: 223–225
 - communication systems for: 46
 - data for campaign planning: 86–87
 - vs. Directorate of Campaign Plans: 223–226, 224*n*10
 - exercises vs. real war experience: 12
 - IZAF assessment: 173
 - material handling by: 12
 - personnel: 223–224
 - processing of data: 224–225
 - targeting information from: 86–87, 273
 - weaponing by: 257
- Guidance, Apportionment, and Tasking (GAT) division: 138–140, 226–227
- initial deployment of: 55
- JTF Proven Force liaison: 213
- master attack plan (MAP)
 - vs. actual missions flown: 252*n*22
 - for all air operations: 97
 - assembly of: 138–140
 - vs. ATO: 92–93
 - change sheet: 138–139
 - cycle time: 248
 - distribution of: 179
 - lessons learned: 318
- from Ninth Air Force: 10
- personnel: 42, 112, 125–127, 171
- security police: 44, 44–45*n*17
- staff chaplain: 125–126
- training exercises: 132–133
- UCMJ Article 15 punishments: 125
- United States Army (USA)
 - 1st Armored Division: 112
 - 1st Infantry Division (Mechanized): 112, 168
 - 2d Armored Division: 112
 - 2d Brigade: 161
 - 3d Armored Division: 112
 - Third Army: 30–31*n*69
 - VII Corps
 - battle with Republican Guard: 307
 - combat readiness of: 151

On Target

- Commander, on JSTARS: 142
- impact of Desert Shield deployment: 147
 - request for by Gen. Schwarzkopf: 112
- XVIII Corps: 50, 111, 158–159
- 24th Infantry Division (Mechanized): 33, 50, 95
- 42d Field Artillery Brigade: 112
- 82d Airborne Division: 43, 47, 50, 168
- 101st Air Assault Division: 50, 161, 182
- adherence to Joint AirLand Battle: 54–55
- aircraft: 38, 182
- assumptions for two-corps offensive campaign: 112
- ATO planning, preparation, and execution: 37
- in Checkmate Division, Warfighting Concepts Directorate: 71
- in Instant Thunder plan: 79
- interest in JSTARS: 141–142
- Joint AirLand Battle: 54–55, 60
- offensive land campaign planning: 106–107
- Special Operations Forces in: 38
- transportation of personnel to AOR: 43
- United States Army Component, Central Command (USARCENT)
 - in Army campaign planning: 159
 - OPCON of aircraft: 35, 37
 - OPORD 1: 50
 - TACON of aircraft: 35, 37
 - tasking: 50
 - use of JSTARS: 144
- United States Army Corps of Engineers: 18
- United States Central Command (USCENTCOM)
 - air order of battle: 118–119
 - area of responsibility: 10
 - Chief of Staff: 102
 - communication systems in Saudi Arabia: 45–46
 - community relations action councils: 122
 - court-martial rates: 125
 - Directorate of Intelligence (J-2): 12, 25, 87, 144. *See also* Intelligence establishment of forward headquarters: 39
 - initial deployment assessment: 55
 - Operation Order 1 (OPORD 1): 34, 54
 - Operation Order 3 (OPORD 3): 54
 - personnel: 42, 112, 124–127
 - Soviet influence on planning: 13–14
 - TPFDD: 15
 - training exercises: 132–133
 - UCMJ Article 15 punishments: 125
 - war plan: 73, 94–97, 101–108
- United States Combined Theater Commanders in Chief (CINC): 9–10. *See also* Schwarzkopf, H. Norman
- United States Embassy, Abu Dhabi, UAE: 20
- United States Embassy, Baghdad, Iraq: 20–25, 163
- United States Embassy, Kuwait City, Kuwait: 29–30, 106, 150
- United States Embassy, Riyadh, Saudi Arabia: 30–31
- United States Embassy, Tehran, Iran: 30
- United States House of Representatives debate over Persian Gulf War: 163
- House Concurrent Resolution 32: 163
- House Joint Resolution 77: 163, 166
- letter from President Bush: 162
- United States Marine Component, Central Command (MARCENT)
 - Air Commander: 97
 - Ground Component Commander: 30–31n69
 - MAGTF aircraft: 36
 - OPCON of aircraft: 36–37
 - TACON of aircraft: 35–37
 - training exercises: 133
 - use of JSTARS: 144
- United States Marine Corps (USMC)
 - 3d Marine Air Wing: 198
 - air doctrine: 97
 - amphibious assault on Kuwait: 168
 - ATO planning, preparation, and execution: 37, 48
 - in Checkmate Division, Warfighting Concepts Directorate: 71
 - Marine Air-Ground Task Force (MAGTF): 36
 - Marine Expeditionary Brigade (MEB): 47, 50, 159, 168

- reserve call up: 115
 - in USCENTAF campaign planning: 97
- United States Naval Component, Central Command (USNAVCENT)
 - OPCON of aircraft: 35–37
 - TACON of aircraft: 35–37
- United States Navy (USN)
 - aerial refueling requirements: 41, 103
 - ATO planning, preparation, and execution: 37, 48
 - BQM–34 drone use: 91
 - carriers, location in theater: 104–105
 - in Checkmate Division, Warfighting Concepts Directorate: 71
 - execution of preplanned TLAM strikes on Iraq: 54
 - first shots of Desert Storm: 166
 - fleet defense sorties: 319
 - hard-target penetration capability: 44
 - JP–5 fuel: 41, 103
 - loss of F/A–18: 189, 300
 - maritime strategy: 60
 - in Operation Linebacker II: 6
 - Phoenix (AIM–54) missile: 129–130
 - ROE: 128–130
 - shipping inspections: 51
 - UN Resolution 665 (1990) impact on: 51
 - USS *America*: 262
 - USS *Bunker Hill*: 166
 - USS *Eisenhower*: 41, 78
 - USS *Independence*: 41, 78
 - USS *John F. Kennedy*: 195
 - USS *Midway*: 200, 250
 - USS *Ranger*: 195, 201
 - USS *Saratoga*: 78, 104
 - USS *Wisconsin*: 104–105, 166
- United States Senate: 163
- United States Space Command (SPACECOM): 235–236
- United States State Department
 - Ambassador Glaspie’s meeting with Saddam Hussein: 20–25
 - approval of request for KC–135 aerial refueling by UAE: 20
 - assignment of female ambassador to Iraq: 24–25
 - extensions from Turkey for aircraft: 210
 - on Israeli retaliation for Scud attacks: 229–230
- United States of America
 - accused of oil price setting: 19
 - chairmanship of UN Security Council (December 1990): 117
 - defense commitments to Kuwait: 21
 - economic sanctions on Iraq: 25
 - foreign policy in Persian Gulf: 18–19, 25
 - lack of involvement in Iran-Iraq war: 22
 - response to hostage taking: 148
- Ur: 130–131, 192
- Uwaysha refinery: 270
- Venezuela: 25
- Vice Chief of Staff of the Air Force: 58, 68, 73
- Videotape: 201, 225–226, 253
- Vietnam War
 - bombing of Haiphong: 6–7, 315
 - bombing of Hanoi: 6, 315
 - bombing of Paul Doumer Bridge: 4
 - bombing of Thanh Hoa bridge: 4
 - China’s support of North Vietnam: 106, 314–315
 - enemy sanctuaries: 130
 - vs. Gulf War: 106, 169
 - Iron Hand flights: 6–7
 - Johnson, Lyndon: 84
 - MiG combat air patrol (MiGCAP): 7
 - Operation Linebacker I: 4, 303, 315
 - Operation Linebacker II: 4, 6–7, 315
 - Operation Rolling Thunder: 67
 - strategic bombing in: 314–316
 - U-Tapao RTAFB, Thailand: 6
 - USSR’s support of North Vietnam: 315
- Volant Solo. *See* Aircraft, U.S., EC–130E “Volant Solo”
- Wadi al Batin: 52, 305
- Wadi al Jabariyah SRBM launch complex: 184, 236–238, 242, 278
- Wadi al Khirr airfield
 - bombing of: 201, 207, 216
 - HASSs: 258
 - an Iraqi FOL: 190–191
- Wadi Amij SRBM launch complex: 184, 236–238, 242
- Wadi Ar Ratqa SRBM launch complex: 184, 236–238
- Wahhabi-Muslim religious hierarchy: 31–32
- Waller, Calvin: 151, 161

On Target

- Walton, George: 189–190
- War readiness spares kits (WRSKs): 210, 316
- War trophies: 121–122
- Warden, John
- 36th TFW: 59
 - The Air Campaign: Planning for Combat*: 60
 - appointment as Deputy Director for Warfighting Concepts: 59–60
 - briefing style: 68–69
 - briefings on Instant Thunder: 68–71, 73, 75, 80–83
 - criticism of defensive air campaign plans: 66
 - definition of air campaign: 75
 - influence of, on air campaign plan
 - choice of targets: 177
 - on Directorate of Campaign Plans: 140
 - first day's air operations: 207–208
 - on Phase I of Desert Storm: 110
 - on Instant Thunder targets: 78
 - on Iraqi Republican Guard: 96–97
 - on mission objectives: 63–64
 - on operational art of war: 60
 - on planning an air war campaign: 63
 - preparation for offensive air campaign planning: 66
 - on psychological operations: 64
 - request to leave Saudi Arabia by Lt. Gen. Horner: 83
 - targeting and strategic ideas: 64–65, 89, 288ⁿ⁴
 - use of historical analogies: 69–71
- Wart Weaseling: 217
- Warthog. *See* Aircraft, U.S., A-10 “Thunderbolt II”
- Washington Post*
- Gen. Dugan's remarks to: 99
 - Gen. Schwarzkopf's remarks to: 51
 - poll on President Bush's peace offer (November 30, 1990): 148
- Washington Times*: 112
- Weather
- effect of, in air campaign plan: 159, 216–217
 - on first night of Desert Storm: 181–182
 - fog: 194
 - impact on air operations: 223–224, 238, 243
 - operational thresholds: 222–223
 - satellite monitoring of: 9
 - satellite photo of SWA: **222**
- Webster, William: 29
- Welch, Larry: 100
- Wild Weasel. *See* Aircraft, U.S., F-4G “Wild Weasel”; Aircraft, U.S., F-16 “Wild Weasel”
- Williams, Pete: 151
- Wilson, Steven: 82, 85, 87
- Wolfowitz, Paul: 29–30, 151–152, 229, 233
- Women, military: 42, 114, 124
- World War I: 69–70
- World War II
- Desert Storm vs. African campaign: 168
 - German V rockets: 235
 - Japanese Imperial Navy: 134
 - lessons learned: 295
 - Maginot Line: 254
 - night bombing during: 313–314
 - pre-Normandy invasion air campaign: 70–71
 - stealth technology development: 8, 8ⁿ²⁴
 - United States Army Air Force (USAAF)
 - Air War Plans Division Plan 1: 62
 - B-17 “Flying Fortress”: 6–7, 62
 - B-24 “Liberator”: 62
 - bombing of Japan: 314
 - Combined Bomber Offensive: 313–314
 - offensive air campaign in Europe: 70–71
 - strike packages, development of: 63
 - tactical vs. strategic air warfare: 160
 - USSR's abandonment of Polish Army: 290
- Yemen Arab Republic
- chairmanship of UN Security Council (December 1990): 117
 - factor in site of RSAF bases: 17
 - intervention to prevent war: 163
 - support of Iraq: 29
 - UN Resolution 660: 29
 - UN Resolution 661: 31
 - in USCENCOM's AOR: 10
- Yemen, Democratic Republic of

chairmanship of UN Security Council
 (December 1990): 117
factor in site of RSAF bases: 17
intervention to prevent war: 163
support of Iraq: 29
UN Resolution 660: 29
UN Resolution 661: 31
 in USCENTCOM's AOR: 10
Yeosock, John: 30, 30–31*n*69, 34