

FINAL REPORT TO CONGRESS

**CONDUCT OF THE PERSIAN GULF WAR**

Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25)

APRIL 1992

For Those Who Were There

## **OVERVIEW**

### **THE CONDUCT OF THE PERSIAN GULF WAR**

Saddam Hussein's invasion of Kuwait on August 2, 1990, unleashed an extraordinary series of events that culminated seven months later in the victory of American and Coalition forces over the Iraqi army and the liberation of Kuwait. Pursuant to Title V, Public Law 102-25, this report discusses the conduct of hostilities in the Persian Gulf theater of operations. It builds on the Department's Interim Report of July 1991. A proper understanding of the conduct of these military operations the extraordinary achievements and the needed improvements is an important and continuing task of the Department of Defense as we look to the future.

The Persian Gulf War was the first major conflict following the end of the Cold War. The victory was a triumph of Coalition strategy, of international cooperation, of technology, and of people. It reflected leadership, patience, and courage at the highest levels and in the field. Under adverse and hazardous conditions far from home, our airmen, soldiers, sailors, and marines once again played the leading role in reversing a dangerous threat to a critical region of the world and to our national interests. Their skill and sacrifice lie at the heart of this important triumph over aggression in the early post-Cold War era.

The Coalition victory was impressive militarily and important geopolitically; it will affect the American military and American security interests in the Middle East and beyond for years to come. Some of the lessons we should draw from the war are clear; others are more enigmatic. Some aspects of the war are unlikely to be repeated in future conflicts. But this experience also contains important indications of challenges to come and ways to surmount them.

America, the peaceful states of the Persian Gulf, and law-abiding nations everywhere are safer today because of the President's firm conviction that Iraq's aggression against Kuwait should not stand. Coming together, the nations of the Coalition defied aggression, defended much of the world's supply of oil, liberated Kuwait, stripped Saddam Hussein of his offensive military capability, set back his determined pursuit of nuclear weapons, and laid a foundation for peaceful progress elsewhere in the region that is still unfolding. The efforts and sacrifices of Operations Desert Shield and Desert Storm demand that we build on the lessons we have learned and the good that we have done.

## **THE MILITARY VICTORY OVER IRAQ**

The Coalition victory was impressive militarily. Iraq possessed the fourth largest army in the world, an army hardened in long years of combat against Iran. During that war Iraq killed hundreds of thousands of Iranian soldiers in exactly the type of defensive combat it planned to fight in Kuwait. Saddam Hussein's forces possessed high-quality artillery, frontline T-72 tanks, modern MiG-29 and Mirage F-1 aircraft, ballistic missiles, biological agents and chemical weapons, and a large and sophisticated ground-based air defense system. His combat engineers, rated among the best in the world, had months to construct their defenses. Nonetheless, Iraqi forces were routed in six weeks by U.S. and other Coalition forces with extraordinarily low Coalition losses.

The Coalition dominated every area of warfare. The seas belonged to the Coalition from the start. Naval units were first on the scene and, along with early deploying air assets, contributed much of our military presence in the early days of the defense of Saudi Arabia. Coalition naval units also enforced United Nations economic sanctions against Iraq by inspecting ships and, when necessary, diverting them away from Iraq and Kuwait. This maritime interception effort was the start of the military cooperation among the Coalition members, and helped to deprive Iraq of outside resupply and revenues. The early arrival of the Marine Corps' Maritime Prepositioning Force provided an important addition to our deterrent on the ground. The Coalition controlled the skies virtually from the beginning of the air war, freeing our ground and naval units from air attack and preventing the Iraqis from using aerial reconnaissance to detect the movements of Coalition ground forces. Tactical aircraft were on the ground and the 82nd Airborne Division's Ready Brigade had been airlifted to the theater within hours of the order to deploy. Coalition planes destroyed 41 Iraqi aircraft and helicopters in air-to-air combat without suffering a confirmed loss to Iraqi aircraft. Coalition air power crippled Iraqi command and control and known unconventional weapons production, severely degraded the combat effectiveness of Iraqi forces, and paved the way for the final land assault that swept Iraqi forces from the field in only 100 hours. In the course of flying more than 100,000 sorties the Coalition lost only 38 fixed-wing aircraft. On the ground, Coalition armored forces traveled over 250 miles in 100 hours, one of the fastest movements of armored forces in the history of combat, to execute the now famous "left hook" that enveloped Iraq's elite, specially trained and equipped Republican Guards. Shortly after the end of the war, the U.S. Central Command (CENTCOM) estimated that Iraq lost roughly 3,800 tanks to Coalition air and ground attack; U.S. combat tank losses were fifteen.

The Coalition defeated not only Saddam Hussein's forces, but his strategy. Coalition strategy ensured that the war was fought under favorable conditions that took full advantage of Coalition strengths and Iraqi weaknesses. By contrast, Saddam's political and military strategy was soundly defeated. Despite his attempts to intimidate his neighbors, the Gulf states requested outside help; a coalition formed; the Arab "street" did not rise up on his behalf; and Israeli restraint in the face of Scud attacks undermined his plan to turn this into an Arab-Israeli war. Saddam's threats of massive casualties did not deter us; his taking of hostages did not paralyze us; his prepared defenses in Kuwait did not exact the high toll of Coalition casualties that he expected; and his army was decisively defeated. His attempts to take the offense his use of Scuds and the attack on the Saudi town of Al-Khafji at the end of January failed to achieve their strategic purpose. The overall result was a war in which Iraq was not only beaten, but failed to ever seize the initiative. Saddam consistently misjudged Coalition conviction and military capability.

## **GEOPOLITICAL CONSEQUENCES OF THE VICTORY**

The victory against Iraq had several important and positive geopolitical consequences, both in the Persian Gulf and for the role the United States plays in the world. The geostrategic objectives set by the President on August 5, 1990, were achieved. Kuwait was liberated, and the security of Saudi Arabia and the Persian Gulf was enhanced. Saddam Hussein's plan to dominate the oil-rich Persian Gulf, an ambition on which he squandered his country's resources, was frustrated. The threat posed by Iraq's preponderance of military power in the region was swept away. Although underestimated before the war, Iraqi research and production facilities for ballistic missiles and nuclear, chemical and biological weapons were significantly damaged; furthermore, victory in the war was the prerequisite for the intrusive *<pg xv start>* United Nations inspection regime, which continues the work of dismantling those weapons programs. And even though Saddam Hussein remains in power, his political prestige has been crippled and his future prospects are uncertain. He is an international pariah whose hopes of leading an anti-Western coalition of Arab and Islamic peoples have been exposed as dangerous but ultimately empty boasts.

Although Saddam Hussein today has been reduced enormously in stature and power, we need to remember that the stakes in this conflict were large. Had the United States and the international community not responded to Saddam's invasion of Kuwait, the world would be much more dangerous today, much less friendly to American interests, and much more threatening to the peoples of the Middle East and beyond. The seizure of Kuwait placed significant additional financial resources and, hence, eventually military power in the hands of an aggressive and ambitious dictator. Saddam would have used Kuwait's wealth to accelerate the acquisition of nuclear, chemical and biological weapons and to expand and improve his inventory of ballistic missiles. Saddam had set a dangerous example of naked aggression that, unanswered, would ultimately have led to more aggression by him and perhaps by others as well. Having defied the United States and the United Nations, Saddam Hussein's prestige would have been high and his ability to secure new allies would have grown.

Saddam's seizure of Kuwait, left unanswered, threatened Saudi Arabia and its vast oil resources, in particular. He could have moved against Saudi Arabia; but even if he did not, the ominous presence of overwhelming force on the Kingdom's borders, coupled with the stark evidence of his ruthlessness toward his neighbors, constituted a threat to Saudi Arabia and vital U.S. interests. As Iraqi forces moved toward the border between Kuwait and Saudi Arabia, the world's largest concentration of oil reserves lay within reach. Iraqi forces could have quickly moved down the Saudi coast to seize the oil-rich Eastern Province and threaten the Gulf sheikdoms. Iraqi control of Saudi Gulf ports also would have made military operations to recapture the seized territory extremely difficult and costly. But even without physically seizing eastern Saudi Arabia, Saddam threatened to dominate most of the world's oil reserves and much of current world production, giving him the ability to disrupt the world oil supply and hence the economies of the advanced industrial nations. He could have used this economic and political leverage, among other things, to increase his access to the high technology, materials, and tools needed for the further development of his nuclear, biological and chemical weapons and ballistic missile programs.

As the UN deadline for withdrawal approached in early January 1991, some wondered whether the use of force to free Kuwait should be postponed. The use of force will always remain for us a course of last resort, but there are times when it is necessary. By January of 1991, we had given Saddam every opportunity to withdraw from Kuwait peacefully and thereby avoid the risk of war and the cost of continued sanctions. By then he had made it clear that he considered it more important to hold on to Kuwait and had demonstrated his readiness to impose untold hardships on his people.

Further application of sanctions might have weakened the Iraqi military, especially the Iraqi Air Force; but delay would have imposed significant risks for Kuwait and the Coalition as well. Had we delayed longer there might have been little left of Kuwait to liberate. Moreover, the Coalition had reached a point of optimum strength. U.S. resolve was critical for holding together a potentially fragile coalition; our allies were reluctant only when they doubted America's commitment. Not only would it have been difficult to sustain our forces' fighting edge through a long period of stalemate, delay would have run the risk of successful Iraqi terrorist actions or a clash between Iraq and Israel or unfavorable political developments that might weaken the Coalition. Delay would also have given Iraq more time to thicken and extend the minefields and obstacles through which our ground forces had to move. It might have allowed the Iraqis to anticipate our plan and strengthen their defenses in the west. Worst of all, it would have given them more time to work on their chemical, biological, and even nuclear weapons. Since Saddam had made it clear that he would not leave Kuwait unless he was forced out, it was better to do so at a time of our choosing.

Unfortunately, Saddam Hussein's brutal treatment of his own people, which long preceded this war, has survived it. The world will be a better place when Saddam Hussein no longer misrules Iraq. However, his tyranny over Kuwait has ended. The tyranny he sought to extend over the Middle East has been turned back. The hold that he tried to secure over the world's oil supply has been removed. We have frustrated his plans to prepare to fight a nuclear war with Iran or Saudi Arabia or Israel or others who might oppose him. We will never know the full extent of the evils this war prevented. What we have learned since the war about his nuclear weapons program demonstrates with certainty that Saddam Hussein was preparing for aggression on a still larger scale and with more terrible weapons.

This war set an extraordinary example of international cooperation at the beginning of the post-Cold War era. By weakening the forces of violence and radicalism, it has created new openings for progress in the Arab-Israeli peace process, hopes that are symbolized by the process that began with the unprecedented conference in Madrid. This is part of a broader change in the dynamics of the region. It may not be a coincidence that after this war our hostages in Lebanon were freed. The objectives for which the United Nations Security Council authorized the use of force have been achieved. Potential aggressors will think twice, and small countries will feel more secure.

Victory in the Gulf has also resulted in much greater credibility for the United States on the world scene. America demonstrated that it would act decisively to redress a great wrong and to protect its national interests in the post-Cold War world. Combined with the dissolution of the Soviet Union, the victory in the Gulf has placed the United States in a strong position of leadership and influence.

## **THE LESSONS OF THE WAR FOR OUR MILITARY FORCES**

The war was also important for what it tells us about our armed forces, and America's future defense needs. On August 2, 1990, the very day Saddam Hussein invaded Kuwait, President Bush was in Aspen, Colorado, presenting for the first time America's new defense strategy for the 1990s and beyond, a strategy that takes into account the vast changes in Eastern Europe and the former Soviet Union and envisions significant reductions in our forces and budgets. A distinguishing feature of this new strategy which was developed well before the Kuwait crisis is that it focuses more on regional threats, like the Gulf conflict, and less on global conventional confrontation.

The new strategy and the Gulf war continue to be linked, as we draw on the lessons of the war to inform our decisions for the future. As we reshape America's defenses, we need to look at Operations Desert Shield and Desert Storm for indications of what military capabilities we may need not just in the next few years, but 10, 20 or 30 years hence. We need to consider why we were successful, what worked and what did not, and what is important to protect and preserve in our military capability.

As we do so, we must remember that this war, like every other, was unique. We benefitted greatly from certain of its features such as the long interval to deploy and prepare our forces that we cannot count on in the future. We benefitted from our enemy's near-total international isolation and from our own strong Coalition. We received ample support from the nations that hosted our forces and relied on a well-developed coastal infrastructure that may not be available the next time. And we fought in a unique desert environment, challenging in many ways, but presenting advantages too. Enemy forces were fielded for the most part in terrain ideally suited to armor and air power and largely free of noncombatants.

We also benefitted from the timing of the war, which occurred at a unique moment when we still retained the forces that had been built up during the Cold War. We could afford to move the Army's VII Corps from Germany to Saudi Arabia, since the Soviet threat to Western Europe had greatly diminished. Our deployments and operations benefitted greatly from a world-wide system of bases that had been developed during, and largely because of, the Cold War. For example, a large percentage of the flights that airlifted cargo from the United States to the theater transited through the large and well-equipped air bases at Rhein-Main in Germany and Torrejon in Spain. Without these bases, the airlift would have been much more difficult to support. U.S. forces operating from Turkey used NATO-developed bases. In addition, bases in England and elsewhere were available to support B-52 operations that would otherwise have required greater flying distances or the establishment of support structures in the theater.

We should also remember that much of our military capability was not fully tested in Operations Desert Shield and Desert Storm. There was no submarine threat. Ships did not face significant anti-surface action. We had little fear that our forces sent from Europe or the U.S. would be attacked on their way to the region. There was no effective attack by aircraft on our troops or our port and support facilities. Though there were concerns Iraq might employ chemical weapons or biological agents, they were never used. American amphibious capabilities, though used effectively for deception and small scale operations, were not tested on a large scale under fire. Our ground forces did not have to fight for long. Saddam Hussein's missiles were inaccurate. There was no interference to our space-based systems. As such, much of what was tested needs to be viewed in the context of this unique environment and the specific conflict.

Even more important to remember is that potential adversaries will study the lessons of this war no less diligently than will we. Future adversaries will seek to avoid Saddam Hussein's mistakes. Some potential aggressors may be deterred by the punishment Iraq's forces suffered. But others might wonder if the outcome would have been different if Iraq had acquired nuclear weapons first, or struck sooner at Saudi Arabia, or possessed a larger arsenal of more sophisticated ballistic missiles, or used chemical or biological weapons.

During the war, we learned a lot of specific lessons about systems that work and some that need work, about command relations, and about areas of warfare where we need improvement. We could have used more ships of particular types. We found we did not have enough Heavy Equipment Transporters or off-road mobility for logistics support vehicles. Sophisticated equipment was maintained only with extra care in the harsh desert environment. We were not nearly capable enough at clearing land and sea mines, especially shallow water mines. This might have imposed significant additional costs had large scale amphibious operations been required. We moved quickly to get more Global Positioning System receivers in the field and improvised to improve identification devices for our ground combat vehicles, but more navigation and identification capabilities are needed. The morale and intentions of Iraqi forces and leaders were obscure to us. Field *<pg xviii start>* commanders wanted more tactical reconnaissance and imagery. We had difficulty with battle damage assessment and with communications interoperability. Tactical ballistic missile defense worked, but imperfectly. Mobile missile targeting and destruction were difficult and costly; we need to do better. We were ill-prepared at the start for defense against biological warfare, even though Saddam had developed biological agents. And tragically, despite our best efforts there were here, as in any war, losses to fire from friendly forces. These and many other specific accomplishments, shortcomings and lessons are discussed in greater depth in the body of the report.

Among the many lessons we must study from this war, five general lessons noted in the Interim Report still stand out.

- Decisive Presidential leadership set clear goals, gave others confidence in America's sense of purpose, and rallied the domestic and international support necessary to reach those goals;
- A revolutionary new generation of high-technology weapons, combined with innovative and effective doctrine, gave our forces the edge;
- The high quality of our military, from its skilled commanders to the highly ready, well-trained, brave and disciplined men and women of the U.S. Armed Forces made an extraordinary victory possible;
- In a highly uncertain world, sound planning, forces in forward areas, and strategic air and sea lift are critical for developing the confidence, capabilities, international cooperation, and reach needed in times of trouble; and
- It takes a long time to build the high-quality forces and systems that gave us success. These general lessons and related issues are discussed at length below.

## Leadership

President Bush's early conviction built the domestic and international consensus that underlay the Coalition and its eventual victory. The President was resolute in his commitment both to expel the Iraqi forces from Kuwait and to use decisive military force to accomplish that objective. President Bush accepted enormous burdens in committing U.S. prestige and forces, which in turn helped the nation and the other members of the Coalition withstand the pressures of confrontation and war. Many counseled inaction. Many predicted military catastrophe or thousands of casualties. Some warned that even if we won, the Arabs would unite against us. But, having made his decision, the President never hesitated or wavered.

This crisis proved the wisdom of our Founding Fathers, who gave the office of the Presidency the authority needed to act decisively. When the time came, Congress gave the President the support he needed to carry his policies through, but those policies could never have been put in place without his personal strength and the institutional strength of his office.

Two critical moments of Presidential leadership bear particular mention. In the first few days following the invasion, the President determined that Saddam Hussein's invasion of Kuwait would not stand. At the time, we could not be sure that King Fahd of Saudi Arabia would invite our assistance to resist Iraq's aggression. Without Saudi cooperation, our task would have been much more difficult and costly. The Saudi decision to do so rested not only on their assessment of the gravity of the situation, but also on their confidence in the President. Without that confidence, the course of history might have been different. A second critical moment came in November, 1990, when the President directed that we double our forces in the Gulf to provide an overwhelming offensive capability. He sought to ensure that if U.S. forces were to go into battle, they would possess *decisive force* the U.S. would have enough military strength to be able to seize and maintain the initiative and to avoid getting bogged down in a long, inconclusive war. The President not only gave the military the tools to do the job, but he provided it with clear objectives and the support to carry out its assigned tasks. He allowed it to exercise its best judgment with respect to the detailed operational aspects of the war. These decisions enabled the military to perform to the best of its capabilities and saved American lives.

The President's personal diplomacy and his long standing and carefully-nurtured relationships with other world leaders played a major role in forming and cementing the political unity of the Coalition, which made possible the political and economic measures adopted by the United Nations and the Coalition's common military effort. Rarely has the world community come so close to speaking with a single voice in condemnation of an act of aggression.

While President Bush's leadership was the central element in the Coalition, its success depended as well on the strength and wisdom of leaders of the many countries that comprised it. Prime Minister Thatcher of Great Britain was a major voice for resisting the aggression from the very outset of the crisis. King Fahd of Saudi Arabia and the leaders of the other Gulf states Bahrain, Qatar, the United Arab Emirates and Oman defied Saddam Hussein in the face of imminent danger. President Mubarak of Egypt helped to rally the forces of the Arab League and committed a large number of troops to the ground war. President Ozal of Turkey cut off the oil pipeline from Iraq and permitted Coalition forces to strike Iraq from Turkey, despite the economic cost and the risk of Iraqi military action. Prime Minister Major of Great Britain continued his predecessor's strong support for the Coalition, providing important political leadership and committing substantial military forces. President Mitterrand of France also contributed sizable forces to the Coalition. Our European allies opened their ports and airfields and yielded priorities on their railroads to speed our deployment. Countries from other regions, including Africa, East Asia, South Asia, the Pacific, North and South America, and a sign of new times Eastern Europe chose to make this their fight. Their commitment provided essential elements to the ultimate victory. Their unity underlay the widespread compliance with the UN-mandated sanctions regime, which sought to deprive Iraq of the revenues and imported materials it needed to pursue its military development programs and to put pressure on its leadership to withdraw from Kuwait. Once the war began, and the first Iraqi Scud missiles fell on Israeli cities, the Israeli leadership frustrated Saddam Hussein's plans to widen the war and disrupt the unity of the Coalition by making the painful, but ultimately vindicated decision to not take military action and attempt to preempt subsequent attacks.

The prospects for the Coalition were also increased by the vastly changed global context and the relationship that had been forged between President Bush and President Gorbachev of the former Soviet Union. During the Cold War, the invasion of Kuwait by Iraq a state that had close ties to the former Soviet Union might well have resulted in a major East-West confrontation. Instead, President Bush sought and won Soviet acceptance to deal with the problem not in the old context of an East-West showdown, but on its own terms. Without the Cold War motive of thwarting U.S. aims, the Soviet Union participated in an overwhelming United Nations Security Council majority that expressed an international consensus opposing the Iraqi aggression. No longer subordinated to East-West rivalry, the United Nations' action during the Persian Gulf crisis was arguably its greatest success to date: for the first time since the North Korean invasion of South Korea in June, 1950, the Security Council was able to authorize the use of force to repel an act of aggression.

Strong political leadership also underlay important international financial support to the war effort, including large financial contributions from Saudi Arabia, Kuwait, the United Arab Emirates, Japan, Germany, South Korea and others to help defray U.S. incremental costs. The total amount committed to defray the costs of the U.S. involvement in the war was almost \$54 billion. This spread the financial burden of the war and helped to cushion the U.S. economy from its effects. In fact, the \$54 billion that was raised, were it a national defense budget, would be the third largest in the world.

In sum, close examination of the successful international response to the invasion of Kuwait returns repeatedly to the theme of strong leadership. President Bush's early and firm opposition to the Iraqi invasion and the military force that stood behind it convinced Saudi Arabia and the other Gulf states that they could withstand Iraqi threats and led others to provide not only political support at the UN but also armed forces and money to a Coalition effort. This remarkable international effort coalesced because Coalition members could take confidence from the initial U.S. commitment, whose credibility derived from the U.S. willingness and military capability to do much of the job alone, if necessary. For at the military level, U.S. leadership was critical. No other nation was in a position to assume the military responsibility shouldered by the United States in liberating Kuwait.

### **A Revolutionary New Generation of High-Technology Weapons**

A second general lesson of the war is that high-technology systems vastly increased the effectiveness of our forces. This war demonstrated dramatically the new possibilities of what has been called the "military- technological revolution in warfare." This technological revolution encompasses many areas, including stand-off precision weaponry, sophisticated sensors, stealth for surprise and survivability, night vision capabilities and tactical ballistic missile defenses. In large part this revolution tracks the development of new technologies such as the microprocessing of information that has become familiar in our daily lives. The exploitation of these and still-emerging technologies promises to change the nature of warfare significantly, as did the earlier advent of tanks, airplanes, and aircraft carriers.

The war tested an entire generation of new weapons and systems at the forefront of this revolution. In many cases these weapons and systems were being used in large-scale combat for the first time. In other cases, where the weapons had been used previously, the war represented their first use in large numbers. For example, precision guided munitions are not entirely new they were used at the end of the Vietnam war in 1972 to destroy bridges in Hanoi that had withstood multiple air attacks earlier in the war but their use in large numbers represented a new stage in the history of warfare.

Technology greatly increased our battlefield effectiveness. Battlefield combat systems, like the M1A1 tank, AV-8B jet, and the Apache helicopter, and critical subsystems, like advanced fire control, the Global Positioning System, and thermal and night vision devices, gave the ground forces unprecedented maneuverability and reach. JSTARS offered a glimpse of new possibilities for battlefield intelligence. Our forces often found, targeted and destroyed the enemy's before the enemy could return fire effectively.

The Persian Gulf War saw the first use of a U.S. weapon system (the Patriot) in a tactical ballistic missile defense role. The war was not the first in which ballistic missiles were used, and there is no reason to think that it will be the last. Ballistic missiles offered Saddam Hussein some of his few, limited successes and were the only means by which he had a plausible opportunity *<pg xxi start>* (via the attacks on Israel) to achieve a strategic objective. While the Patriot helped to counter Saddam Hussein's use of conventionally-armed Scud missiles, we must anticipate that in the future more advanced types of ballistic missiles, some armed with nuclear, chemical or biological warheads, will likely exist in the inventories of a number of Third World nations. More advanced forms of ballistic missile defense, as well as more effective methods of locating and attacking mobile ballistic missile launchers, will be necessary to deal with that threat.

The importance of technology in the impressive results achieved by Coalition air operations will be given special prominence as strategists assess the lessons of Desert Storm. Precision and penetrating munitions, the ability to evade or suppress air defenses, and cruise missiles made effective, round-the-clock attacks possible on even heavily defended targets with minimal aircraft losses. Drawing in large part on new capabilities, air power destroyed or suppressed much of the Iraqi air defense network, neutralized the Iraqi Air Force, crippled much of Iraq's command and control system, knocked out bridges and storage sites and, as the war developed, methodically destroyed many Iraqi tanks and much of the artillery in forward areas capable of delivering chemical munitions.

Indeed, the decisive character of our victory in the Gulf War is attributable in large measure to the extraordinary effectiveness of air power. That effectiveness apparently came as a complete surprise to Iraqi leaders. This was illustrated by Saddam Hussein's pronouncement a few weeks after he invaded Kuwait that, "The United States relies on the air force, and the air force has never been the decisive factor in the history of war." Coalition land and sea-based air power was an enormous force multiplier, helping the overall force, and holding down Coalition casualties to exceptionally low levels. Air power, including attack helicopters and other organic aircraft employed by ground units, was a major element of the capability of the ground forces to conduct so effectively a synchronized, high speed, combined arms attack. Moreover, it helped enable the Arab/Islamic and Marine Corps forces whose assigned missions were to mount supporting attacks against major Iraqi forces in place in southeastern Kuwait to reach Kuwait City in just three days.

Although the specific circumstances of the Coalition campaign were highly favorable to such an air offensive, the results portend advances in warfare made possible by technical advances enabling precision attacks and the rapid degradation of air defenses. That assessment acknowledges that the desert climate was well suited to precision air strikes, that the terrain exposed enemy vehicles to an unusual degree, that Saddam Hussein chose to establish a static defense, and that harsh desert conditions imposed constant logistical demands that made Iraqi forces more vulnerable to air interdiction. And, with Iraq isolated politically, the Coalition air campaign did not risk provoking intervention by a neighboring power a consideration which has constrained the U.S. in other regional wars. Nonetheless, while we should not assume that air power will invariably be so successful with such low casualties in future wars fought under less favorable conditions, it is certain that air power will continue to offer a special advantage, one that we must keep for ourselves and deny to our opponents.

On the other hand, air power alone could not have brought the war to so sharp and decisive a conclusion. Saddam not only underestimated the importance of the Coalition air forces, but he underestimated our will and ability to employ ground and maritime forces as well. The ground offensive option ensured that the Coalition would seize the initiative. A protracted air siege alone would not have had the impact that the combination of air, maritime and ground offensives was able to achieve. Without the credible threat of ground and amphibious attacks, the Iraqi defenders might have *<pg xxii start>* dispersed, dug in more deeply, concentrated in civilian areas, or otherwise adopted a strategy of outlasting the bombing from the air. For these purposes, even a much smaller Iraqi force would have sufficed. Such a strategy would have prolonged the conflict and might have strained the political cohesion of the Coalition. Given more time, Iraq might have achieved Scud attacks with chemical or other warheads capable of inflicting catastrophic casualties on Israeli or Saudi citizens or on Coalition troop concentrations. Even absent those contingencies, a failure to engage on the ground would have left Saddam Hussein able to claim that his army was still invincible. The defeat of that army on the ground destroyed his claims to leadership of the Arab world and doomed his hopes to reemerge as a near term threat.

As was recognized by senior decisionmakers from the earliest days of planning a possible offensive campaign, the combination of air, naval and ground power used together would greatly enhance the impact of each. The air campaign not only destroyed the combat effectiveness of important Iraqi units, but many that survived were deprived of tactical agility, a weakness that our own ground forces were able to exploit brilliantly. The threat of ground and amphibious attacks forced the Iraqis to concentrate before the ground attack and later to move, increasing the effect of air attacks. Similarly, while the air campaign was undoubtedly a major reason why more than 80,000 Iraqi soldiers surrendered, most of these surrendered only when advancing ground forces gave the Iraqis in forward positions the chance to escape the brutal discipline of their military commanders. The ground campaign also enabled the capture and destruction of vast quantities of Iraqi war materiel.

Evaluations of such complex operations inherently risk selective interpretation, which may miss the key point that the collective weight of air, maritime, amphibious, and ground attacks was necessary to achieve the exceptional combat superiority the Coalition forces achieved in the defeat of Iraq's large, very capable forces. In sum, while air power made a unique and significantly enlarged contribution to the decisive Coalition victory, the combined effects of the air, maritime and ground offensives with important contributions from many supporting forces were key.

The military technological revolution will continue to pose challenges to our forces both to keep up with competing technologies and to derive the greatest potential from the systems we have. For example, the extensive use of precision munitions created a requirement for much more detailed intelligence than had ever existed before. It is no longer enough for intelligence to report that a certain complex of buildings housed parts of the Iraqi nuclear program; targeteers now want to know precisely which function is conducted in which building, or even in which part of the building, since they have the capability to strike with great accuracy. In addition, the high speed of movement of the ground forces creates a requirement to know about the locations and movements of friendly and opposing formations to a greater depth than would have been the case in a more slowly moving battle. Such improvements can make our forces more effective and save lives that might otherwise be tragically lost to fire from friendly forces an area in which we still need to improve.

As we assess the impressive performance of our weaponry, we must realize that, under other circumstances, the results might have been somewhat less favorable. Conditions under which the Persian Gulf conflict was fought were ideal with respect to some of the more advanced types of weapons. Even though the weather during the war was characterized by an atypically large percentage of cloud cover for the region, the desert terrain and climate in general favored the use of airpower. The desert also allowed the U.S. armored forces to engage enemy forces at very long range before *<pg xxiii start>* our forces could be targeted, an advantage that might have counted for less in a more mountainous or built-up environment.

In addition, future opponents may possess more advanced weapons systems and be more skilled in using them. In general, Iraqi equipment was not at the same technological level as that of the Coalition, and Iraq was even further behind when it came to the quality and training of its military personnel and their understanding of the military possibilities inherent in contemporary weaponry. A future adversary's strategy may be more adept than Saddam's. But, the U.S. must anticipate that some advanced weaponry will for a number of reasons become available to other potential aggressors. Relevant technologies continue to be developed for civilian use; the end of the Cold War is likely to bring a general relaxation in constraints on trade in high-technology items; and declining defense budgets in their own countries may lead some arms producers to pursue more vigorously foreign sales and their governments to be more willing to let them sell "top-of-the-line" equipment. Thus, much care is needed in applying the lessons of this war to a possible future one in which the sides might be more equal in terms of technology, doctrine, and the quality of personnel.

The war showed that we must work to maintain the tremendous advantages that accrue from being a generation ahead in weapons technology. Future adversaries may have ready access to advanced technologies and systems from the world arms market. A continued and substantial research and development effort, along with renewed efforts to prevent or at least constrain the spread of advanced technologies, will be required to maintain our advantage.

### **The High Quality of the U.S. Armed Forces**

The third general lesson is the importance of high-quality troops and commanders. Warriors win wars, and smart weapons require smart people and sound doctrine to maximize their effectiveness. The highly trained, highly motivated all-volunteer force we fielded in Operations Desert Shield and Desert Storm is the highest quality fighting force the United States has ever fielded.

Many aspects of the war the complexity of the weapon systems used, the multinational coalition, the rapidity and intensity of the operations, the harsh physical environment in which it was fought, the unfamiliar cultural environment, the threat of chemical or biological attack tested the training, discipline and morale of the members of the Armed Forces. They passed the test with flying colors. From the very start, men and women in the theater, supported by thousands on bases and headquarters around the world, devoted themselves with extraordinary skill and vigor to this sudden task to mount a major military operation far from the United States and in conditions vastly different from the notional theaters for which our forces had primarily trained in the Cold War. Reflecting that American "can do" spirit, the campaign included some remarkable examples where plans were improvised, work arounds were found, and new ways of operating invented and rapidly put into practice. Over 98 percent of our all-volunteer force are high school graduates. They are well trained. When the fighting began, they proved not just their skills, but their bravery and dedication. To continue to attract such people we must continue to meet their expectations for top-notch facilities, equipment and training and to provide the quality of life they and their families deserve. In taking care of them, we protect the single most important strategic asset of our armed forces.

The units that we deployed to the Gulf contrast meaningfully with the same units a decade ago. Among our early deployments to Saudi Arabia following King Fahd's invitation were the F-15 air superiority fighters of the 1st Tactical Fighter Wing from Langley Air Force Base in Virginia. *<pg xxiv start>* Within 53 hours of the order to move, 45 aircraft were on the ground in Saudi Arabia. Ten years ago, that same wing failed its operational readiness exam; only 27 of 72 aircraft were combat ready the rest lacked spare parts.

The 1st Infantry Division out of Fort Riley, Kansas, did a tremendous job in the Gulf. When we called upon them to deploy last fall, they were ready to go. But, 10 years ago, they only had two-thirds of the equipment needed to equip the division, and half of that was not ready for combat.

Our forces' performance bore testimony to the high quality of the training they had received. Of particular note are the various training centers which use advanced simulation, computer techniques, and rigorous field operations to make the training as realistic as possible and to exploit the benefits of subsequent critique and review. For example, many of the soldiers who fought in Desert Storm had been to the armored warfare training at the National Training Center at Fort Irwin, California, which has been described as tougher than anything the troops ran into in Iraq. Similarly, the Air Force "Red Flag" exercise program, which employs joint and multinational air elements in a realistic and demanding training scenario, provided a forum for the rehearsal of tactics, techniques and procedures for the conduct of modern theater air warfare. The Navy's "Strike University" aided greatly in air and cruise missile operations, and the Marine Corps training at 29 Palms sharpened Marine desert war fighting skills. That is the way training is supposed to work.

The war highlighted as well the importance and capability of the reserves. The early Operation Desert Shield deployments would not have been possible without volunteers from the Reserves and National Guard. The call-up of additional reserves under the authority of Title 10, Section 673(b) the first time that authority has ever been used was critical to the success of our operations. Reserves served in combat, combat support and combat service support roles and they served well. However, the use of reserves was not without some problems. For example, the war exposed problems with including reserve combat brigades in our earliest-deploying divisions. Tested in combat, the Total Force concept remains an important element of our national defense. Nonetheless, as we reduce our active forces under the new strategy, we will need to reduce our reserve components as well.

Our success in the Gulf reflected outstanding military leadership, whether at the very top, like General Colin Powell, Chairman of the Joint Chiefs of Staff, and General Norman Schwarzkopf, Commander in Chief of the forces in U.S. Central Command; or at the Component level, like Lieutenant General Chuck Horner, who orchestrated the Coalition's massive and brilliant air campaign, or Vice Admiral Hank Mauz and Vice Admiral Stan Arthur, who led the largest deployment of naval power into combat since World War II, or Lieutenant General John Yeosock, who implemented the now-famous "left hook," or Lieutenant General Walt Boomer who led his Marines to the outskirts of Kuwait City, while continuing to divert Iraqi attention to a possible amphibious attack, or Lieutenant General Gus Pagonis who provisioned this enormous force that had deployed unexpectedly half-way around the world; or at the Corps or division commander, wing commander, or battle group commander level. The command arrangements and the skills of the military leadership were challenged by the deployment of such a large force in a relatively short period of time, the creation or substantial expansion of staffs at various levels of command and the establishment of working relationships among them, the melding of the forces of many different nations and of the different services into an integrated theater campaign, and the rapid pace of the war and the complexity of the operations. The result was a *<pg xxv start>* coordinated offensive operation of great speed, intensity and effectiveness.

This conflict represented the first test of the provisions of the Goldwater-Nichols Department of Defense Reorganization Act of 1986 in a major war. The act strengthened and clarified the authority of the Chairman of the Joint Chiefs of Staff. We were fortunate in this precedent setting time when joint arrangements were tested to have a Chairman with the unique qualities of General Colin Powell. General Powell's strategic insight and exceptional leadership helped the American people through trying times and ensured our forces fought smart. He drew upon all of our capabilities to bring the necessary military might to bear. We were also fortunate to have a superb Vice Chairman, Admiral Dave Jeremiah, and an outstanding group of Service Chiefs who provided excellent military advice on the proper employment of their forces. Working with their Service Secretaries, they fielded superbly trained and equipped forces, and saw that General Schwarzkopf got everything he required to prosecute the campaign successfully. The nation was well served by General Carl Vuono, Admiral Frank Kelso, General Merrill McPeak, and General Al Gray of the Joint Chiefs, as well as Admiral Bill Kime of the Coast Guard. To them and their associates, great credit must be given.

The act also clarified the roles of the Commanders in Chief of the Unified and Specified Commands and their relationships with the Services and the service components of their commands. Overall, the operations in the Gulf reflected an increased level of jointness among the services. Indeed, in the spirit of Goldwater-Nichols, General Schwarzkopf was well-supported by his fellow commanders. General H.T. Johnson at Transportation Command delivered the force. General Jack Galvin at European Command provided forces and support. General Donald Kutyna at Space Command watched the skies for Scuds. General Ed Burba, commanding Army forces here in the continental U.S., provided the Army ground forces and served as rear support. Admiral Chuck Larson in the Pacific and Admiral Leon Edney in the Atlantic provided Navy and Marine Forces, while General Lee Butler at SAC provided bombers, refuelers, and reconnaissance. General Carl Stiner provided crack special operations forces. It was a magnificent team effort.

General Schwarzkopf and his counterparts from diverse Coalition nations faced the task of managing the complex relationships among their forces. This task, challenging enough under the best of circumstances, was particularly difficult given the great cultural differences and political sensitivities among the Coalition partners. The problem was solved by an innovative command arrangement involving parallel international commands, one, headed by General Schwarzkopf, incorporating the forces from the Western countries, and another, under the Saudi commander, Lieutenant General Khalid bin Sultan bin Abdul-Aziz, for the forces from the Arab and Islamic ones. In historical terms, the Coalition was noteworthy not only because of the large number of nations that participated and the speed with which it was assembled, but also because the forces of all these nations were participating in a single theater campaign, within close proximity to each other on the battlefield. The close coordination and integration of these diverse units into a cohesive fighting force was achieved in large part thanks to the deftness with which General Schwarzkopf managed the relations with the various forces of the nations of the Coalition and to his great skill as a commander.

The high quality of our forces was critical to the planning and execution of two very successful deception operations that surprised and confused the enemy. The first deception enabled the Coalition to achieve tactical surprise at the outset of the air war, even though the attack, given the passage of the United Nations <pg xxvi start> deadline, was in a strategic sense totally expected and predictable. The deception required, for example, the careful planning of air operations during the Desert Shield period, to accustom the Iraqis to intense air activity of certain types, such as refueling operations, along the Saudi border. As a result, the heavy preparatory air activity over Saudi Arabia on the first night of Desert Storm does not appear to have alerted the Iraqis that the attack was imminent.

The second deception operation confused the Iraqis about the Coalition's plan for the ground offensive. Amphibious landing exercises as well as other activities that would be necessary to prepare for a landing (such as mine sweeping near potential landing areas) were conducted to convince the Iraqis that such an attack was part of the Coalition plan. At the same time, unobserved by the Iraqis who could not conduct aerial reconnaissance because of Coalition air supremacy, the VII Corps and XVIII Airborne Corps shifted hundreds of kilometers to the west from their initial concentration points south of Kuwait. Deceptive radio transmissions made it appear that the two Corps were still in their initial positions, while strict discipline restricted reconnaissance or scouting activity that might have betrayed an interest in the area west of Kuwait through which the actual attack was to be made. The success of this deception operation both pinned down several Iraqi divisions along the Kuwaiti coast and left the Iraqis completely unprepared to meet the Coalition's "left hook" as it swung around the troop concentrations in Kuwait and enveloped them.

Coalition strategy also benefitted immensely from psychological operations, the success of which is evidenced primarily by the large number of Iraqi soldiers who deserted Iraqi ranks or surrendered without putting up any resistance during the ground offensive. Our efforts built on, among other factors, the disheartening effect on Iraqi troops of the unanswered and intensive Coalition aerial bombardment, the privations they suffered due to the degradation of the Iraqi logistics system, and the threat of the impending ground campaign. Radio transmissions and leaflets exploited this demoralization by explaining to the Iraqi troops how to surrender and assuring them of humane treatment if they did. More specific messages reduced Iraqi readiness by warning troops to stay away from their equipment (which was vulnerable to attack by precision munitions) and induced desertions by warning troops that their positions were about to be attacked by B-52s.

The skill and dedication of our forces were critical elements for the Coalition's efforts to design and carry out a campaign that would, within the legitimate bounds of war, minimize the risks of combat for nearby civilians and treat enemy soldiers humanely. Coalition pilots took additional risks and planners spared legitimate military targets to minimize civilian casualties. Coalition air strikes were designed to be as precise as possible. Tens of

thousands of Iraqi prisoners of war were cared for and treated with dignity and compassion. The world will not soon forget pictures of Iraqi soldiers kissing their captors' hands.

In the course of Desert Shield and Desert Storm our troops spent long hours in harsh desert conditions, in duststorms and rainstorms, in heat and cold. The war saw tense periods of uncertainty and intense moments under enemy fire. It was not easy for any American personnel, including the quarter of a million reservists whose civilian lives were disrupted, or for the families separated from their loved ones. The fact that our pilots did not experience high losses going through Iraqi air defenses and our ground forces made it through the formidable Iraqi fortifications with light casualties does not diminish the extraordinary courage required from everyone who faced these dangers. It was especially hard for American prisoners of war, our wounded, and, above all, the Americans *<pg xxvii start>* who gave their lives for their country and the families and friends who mourn them. Throughout these trials as America indeed, all the world watched them on television, American men and women portrayed the best in American values. We can be proud of the dignity, humanity and skill of the American soldier, sailor, airman and marine.

### **Sound Planning**

The fourth general lesson of the Persian Gulf conflict is the importance in a highly uncertain world of sound planning, of having forces forward that build trust and experience in cooperative efforts, and of sufficient strategic lift.

Advance planning played an important role as the Persian Gulf conflict unfolded. It was important in the days immediately following Saddam Hussein's invasion of Kuwait to have a clear concept of how we would defend Saudi Arabia and of the forces we would need. This was important not just for our decisionmakers, but for King Fahd and other foreign leaders, who needed to judge our seriousness of purpose, and for our quick action should there be a decision to deploy. Our response in the crisis was greatly aided because we had planned for such a contingency.

In the fall of 1989, the Department shifted the focus of planning efforts in Southwest Asia to countering regional threats to the Arabian peninsula. The primary such threat was Iraq. As a result, CENTCOM prepared a Concept Outline Plan for addressing the Iraqi threat in the Spring of 1990. The outline plan contained both the overall forces and strategy for a successful defense of friendly Gulf states. This plan was developed into a draft operations plan by July 1990. In conjunction with the development of the plan, General Schwarzkopf had arranged to conduct an exercise, INTERNAL LOOK 90, which began in July. This exercise tested aspects of the plan for the defense of the Arabian peninsula. When the decision was made to deploy forces in response to King Fahd's invitation, this plan was selected as the best option. It gave CENTCOM a head start.

However, while important aspects of the planning process for the contingency that actually occurred were quite well along, more detailed planning for the deployment of particular forces to the region had only just begun and was scheduled to take more than a year to

complete. In the end, the actual deployments for Desert Shield and Desert Storm were accomplished in about half that time.

In the future we must continue to review and refine our planning methods to make sure that they enable us to adapt to unforeseen contingencies as quickly and as effectively as possible. General Eisenhower once remarked that while plans may not be important, planning is. The actual plans that are devised ahead of time may not fit precisely the circumstances that eventually arise, but the experience of preparing them is essential preparation for those who will have to act when the unforeseen actually occurs. If we are to take this maxim seriously, as our recent experience suggests we should, then several consequences seem to flow. Training must emphasize the speed with which these types of plans must be drawn up, as that is likely to be vital in an actual crisis. Management systems, such as those which support deployment and logistics, must be automated with this need for flexibility in mind. Overall, planning systems must increasingly adapt rapidly to changing situations, with forces tailored to meet unexpected contingencies.

Past U.S. investment and experience in the region were particularly critical to the success of our efforts. Saudi Arabia's airports and coastal infrastructure were well developed to receive a major military deployment. U.S. pilots had frequently worked with their Saudi counterparts. Each of these factors, in turn, reflected a legacy <pg xxviii start> of past defense planning and strategic cooperation. U.S. steadfastness in escorting ships during the Iran-Iraq War, despite taking casualties, added an important element of credibility to our commitments. Without this legacy of past cooperation and experience in the region, our forces would not have been as ready, and the Gulf States might never have had the confidence in us needed for them to confront Iraq.

The success of Operations Desert Shield (including the maritime interception effort) and Desert Storm required the creation of an international coalition and multinational military cooperation, not just with the nations of the Arabian peninsula, but with the United Kingdom, France, Egypt, Turkey and a host of other nations. These efforts were greatly enhanced by past military cooperation in NATO, in combined exercises, in U.S. training of members of the allied forces, and in many other ways.

A key element of our strategy was to frustrate Saddam Hussein's efforts to draw Israel into the war and thereby change the political complexion of the conflict. We devoted much attention and resources to this problem, but we could not have succeeded without a history of trust and cooperation with the Israelis.

The Persian Gulf War teaches us that our current planning should pay explicit attention to the kinds of relationships which might support future coalition efforts. Building the basis for future cooperation should be an explicit goal of many of our international programs, including training, weapons sales, combined exercises and other contacts.

## **Long Lead Times**

The forces that performed so well in Desert Storm took a long time to develop; decades of preparation were necessary for them to have been ready for use in 1991. The cruise missiles that people watched fly down the streets of Baghdad were first developed in the mid-'70s. The F-117 stealth fighter bomber, which flew many missions against heavily defended targets without ever being struck, was built in the early '80s. Development and production of major weapons systems today remain long processes. From the time we make a decision to start a new aircraft system until the time it is first fielded in the force takes on the average roughly 13 years.

What is true of weapons systems is also true of people. A general who is capable of commanding a division in combat is the product of more than 25 years' training. The same is true for other complex tasks of military leadership. To train a senior noncommissioned officer to the high level of performance that we expect today takes 10 to 15 years.

Units and command arrangements also take time to build and perfect. The units described earlier that were not ready for combat a decade ago took years to build to their current state. It takes much longer to build a quality force than to draw it down. Just five years after winning World War II, the United States was almost pushed off the Korean peninsula by the army of a third-rate country.

In the past, the appearance of new weapons has often preceded the strategic understanding of how they could be used. As a result, the side that had a better understanding of the implications of the new weapons often had a tremendous advantage over an opponent whose weapons might have been as good and as numerous, but whose concept of how to use them was not. German success in 1940, for example, was less the result of superior hardware than superior doctrine. Thus, appropriate doctrine and accumulated training will be critically important in the years ahead. Here, too, years of study and experiment are required to get the most from our forces. Study of Desert Storm will, itself, be of great importance.

Finally, as noted earlier, the war has reminded us of how important investments in infrastructure and practice in international cooperative efforts can be to build the trust and capabilities that will be needed to put together future coalitions and to enable them to operate successfully in future crises. It takes years of working together to build these kinds of ties.