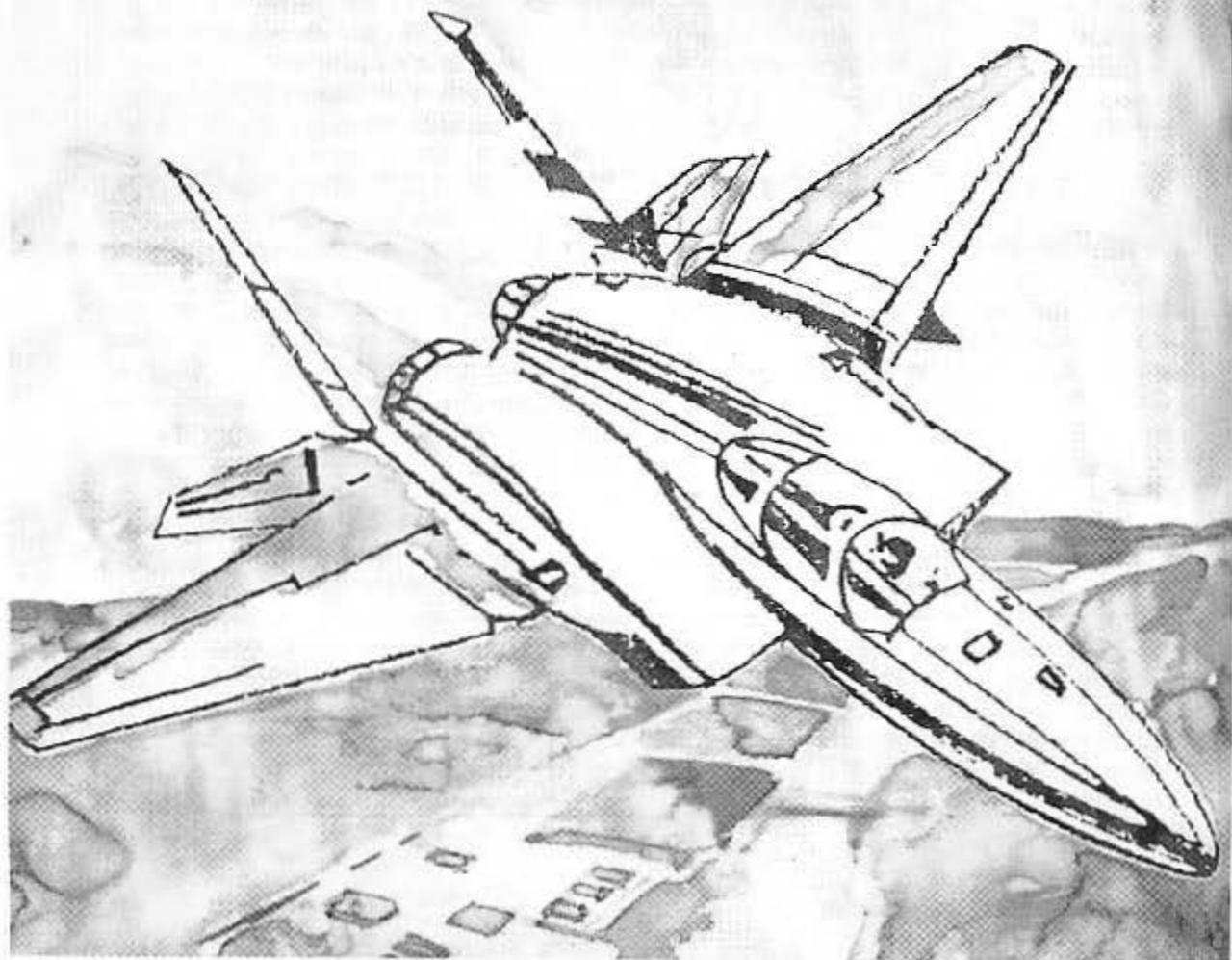


# THE AIR CAMPAIGN

Lieutenant General Charles A. Horner, US Air Force

The air campaign of Desert Storm inflicted unprecedented damage on the Iraqi armed forces, preparing the battlefield for the swift and equally successful 100-hour ground campaign. The commander of US and coalition air forces outlines here the massive effort by planners, supporters and those who flew the sorties that brought the once proud Iraqi military to its knees. He also offers several important implications for future war that can be drawn from the dramatic results of air operations in the Gulf War.



**M**UCH has been said about the air campaign during Operation Desert Storm, some calling it the largest air operation in history, and others declaring it the most successful air war since the beginning of manned flight. I think those kind of statements should be left to the historians; time will surely be the judge of what occurred during Operation Desert Storm. My intent here is to tell the story as I saw it, as the commander of the coalition air forces. This is the story of ordinary people from across our country and around the globe working together in an unprecedented way to stop the brutal Iraqi aggression. The results serve as testimony to what can be accomplished when honorable people commit themselves to a higher moral calling and put service above self.

The Desert Storm air campaign story begins long before the first bomb struck Baghdad at 0300 on 17 January 1991. Actually, the preparation began in the mid-1970s as the US Air Force began a detailed analysis of the years of combat in Vietnam. The experience gained during our involvement in Southeast Asia proved invaluable in our preparation, planning and execution in Southwest Asia (SWA). Time and again, we would draw on our memories and experiences. People who fail to study their history are destined to repeat it, and we, the United States, were bound and determined not to make the same mistakes that had so frustrated our military efforts in Vietnam.

The following combined to form the basis of what happened during operations Desert Shield and Desert Storm:

- Unity of command and the joint forces air component commander (JFACC).
- The significance of strategic strikes at the heart of the enemy's governmental and command and control infrastructure.
- The absolute necessity of suppression of enemy air defenses.
- Increased survivability through timely use of electronic combat.
- Intense and realistic aircrew training.
- A logistic train to meet the needs of fluid and dynamic deployment and employment.

***{The} National Command Authority . . . was willing to ensure that the military had the best possible equipment and weapons and the freedom to act, created an unprecedented synergistic effect. The equation was simple: the right national leadership, concrete national objectives, well-trained and motivated airmen and the right equipment to do the job.***

These, coupled with a National Command Authority (NCA) that was willing to ensure that the military had the best possible equipment and weapons and the freedom to act, created an unprecedented synergistic effect. The equation was simple: the right national leadership, concrete national objectives, well-trained and motivated airmen and the right equipment to do the job.

With this as the background, I will describe how the US Central Command Air Force (USCENTAF) was formed, trained, deployed and fought. I will conclude with a discussion of the implications the air campaign will have on future conflicts.

## **A Decade of Preparation**

USCENTAF was formed in the early 1980s as the Air Force component of the US Central Command (USCENTCOM). The requirement for specialization in the SWA region grew from anti-American occurrences commencing with the overthrow of the Shah of Iran and the taking of hostages at the US Embassy in Tehran. The initial concept was the Rapid Deployment Force (RDF), designed for the quick and efficient projection of power, enabling the United States to take immediate action around the globe, should the need arise. Because of the seriousness of the situation in the Middle East, it was determined that a unified command-level organization was required to focus the degree of attention necessary to detect and, if required, defeat aggression within the region. With the RDF concept as a base, USCENTCOM was created.

Once the parent command was established, immediate actions were initiated by its air component to meet the NCA and Joint Chiefs of Staff (JCS) taskings. Planning staffs began focusing on potential threats. Working relationships with friendly countries were established and the foundations laid for agreements that would be critical for deployments and operations in times of crisis. Detailed studies and analyses of

logistic requirements and capabilities were conducted, identifying shortfalls and the need for pre-positioning of supplies and munitions. Also, immediate training began for desert warfare.

The realistic training programs, initiated nearly a decade ago, paid great dividends as our aircrews entered the conflict having been trained as they were expected to fight. Regional exercise scenarios gave us the opportunity to closely analyze our potential adversaries. Understanding the enemy gave us the opportunity to exploit his weaknesses. With strength against weakness being the prudent way to go, we placed a great deal of emphasis on our ability to operate at night. (Our sophisticated night capabilities proved to be an obstacle Iraq was never able to overcome.)

Annual and biannual exercises such as GALLANT KNIGHT, GALLANT EAGLE, BRIGHT STAR, QUICK FORCE, BLUE FLAG and RED FLAG paved the way to realistic and pragmatic expectations. As the years passed, we honed our ability to conduct air operations and fight in the desert and grew in our understanding of the uniqueness of our area of



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operations that were to be major factors in the execution of Desert Storm. While nothing could have fully prepared us for what was to happen in August 1990, the realistic training of the 1980s had created a nucleus of trained specialists ready to react to the largest deployment tasking ever experienced by the Air Force.

The Total Force concept proved to be an absolute necessity. The integration of the Air Force Reserve and Air National Guard forces went extremely well. Training together in peacetime paid great dividends as Air Reserve forces blended in with their Active counterparts to form a very effective combat organization. From airlift, to tankers, to fighter squadrons, prior planning and training made it happen. The Civil Reserve Air Fleet also played a major role. Representatives from the US air carriers moved personnel and equipment in enormous quantities, flying all hours of the day and night to help ensure that missions objectives were met.

## **Deployment**

The deployment phase was an awesome display of US determination and flexibility. No sh-

responsibility. Deployments into the desert gave us an understanding of the effects of heat, sand and dust on our personnel and equipment and allowed us to make adequate preparations to overcome the elements.

Also, early on, we realized the importance of "jointness." Therefore, we trained and planned together with our sister services. This togetherness resulted in joint concepts and



A B-52 flying low over the Pyramids during BRIGHT STAR, an annual exercise focusing on the Middle East, 10 September 1983.

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ing we had ever attempted was even close to the size and magnitude of *Desert Shield*. The JCS apportionment process had provided USCENTAF forces for planning purposes; however, when it came time to go, other forces were made available, and these assets had to be worked into the flow. The timing was critical and the sequencing essential. Getting the right capabilities into the theater early was critical to deter any further advance of the Iraqi army. The proper mixture of combat aircraft, combat support and combat service support had to be closely orchestrated to make all the pieces of the puzzle come together. The resulting deployment moved more tonnage in six weeks than the Berlin Airlift moved in 65 weeks. Identifying the right aircraft for the initial deployment and then selecting the follow-on forces to ensure the numbers and capabilities were present to accomplish the mission objectives provided a manageable schedule for bed-down (reception and placement of forces and support capabilities) and initiation of operational flying.

The challenges associated with the bed-down of the numbers of personnel and equipment were enormous to say the least. Rapid and often intense negotiations resulted in international agreements providing access to airfields. In many cases, any similarity between our assumed

housing locations and where the host nations agreed to let us operate were purely coincidental. Direct and often high-level dialogue was required to ensure that final locations were compatible with aircraft mission and capabilities. Sites close enough to the basefield to ensure the timely entrance into the fight without unnecessarily jeopardizing the security of the assets were of primary concern.

Once the real estate was acquired, the concept of bare base operations was put to the test. In many cases, everything that was needed to operate had to be brought in and set up. Intertheater and intratheater airlift were critical as supplies and equipment from all over the globe were identified for shipment to the theater. After arriving in Southwest Asia, this megatonnage needed to be moved quickly and efficiently to the users throughout the region. Tying all the buses together in an operational communication network was essential to making the bed-down work. A sophisticated network of multisource communications capability had to be built from the ground up to tie the coalition forces together so that timely command and control could become a reality. Literally turning a desert runway strip into a full-up combat operating base overnight was demonstrated time and again as unit after unit became combat ready.



C-5 Galaxy transports at Rhein-Main Air Base, Germany, during the around-the-clock effort to supply coalition forces in Saudi Arabia.

***The timing was critical and the sequencing essential. . . . The proper mixture of combat aircraft, combat support and combat service support had to be closely orchestrated to make all the pieces of the puzzle come together. [This] deployment moved more tonnage in six weeks than the Berlin Airlift moved in 65 weeks.***

## Organization

Management of this enormous force required some modification to the USCENTAF organizational structure, especially in the Directorate of Operations. The Air Force assets were divided into four divisions, each commanded by a brigadier general. The divisions, set up in accordance with mission specialties were fighters, electronic combat, strategic (bombers and tankers) and airlift. The wing commanders reported directly to the division commanders who, in turn, reported to the commander USCENTAF (COMUSCENTAF). This was instrumental in resolution of span-of-control problems and provided the wing commanders someone with whom to discuss their concerns.

COMUSCENTAF, also the JFACC, was able to concentrate on joint/coalition issues while maintaining easy access to the combat units. The USCENTAF director of operations, a major general, interfaced with the other components and coalition operations chiefs. He was responsible for the production and execution of the daily air tasking order (ATO). This several hundred-page document provided the coordinated taskings and guidance for the execution of the air campaign. All components and coalition nations participated in the ATO pro-

duction process. It was here that jointness proved its real value.

The joint force concept integrates all services into one coordinated plan and ensures the maximum use of available capabilities. Marine attack aircraft accompanied by Air Force suppression of enemy air defenses (SEAD) assets and escorted by Navy fighters made for effective and lethal packages. Working together, the services were able to limit duplication of effort, minimize breakdowns in communication and fly 10,000 sorties without running into each other or committing air-to-air fratricide. Jointness afforded us the opportunity to capitalize on our capabilities without losing service identities. Placing all air forces under the command of the JFACC was successful application of our military doctrine.

While the JFACC idea has been discussed for several years, this was the first time it was used in a major conflict. Consistency in guidance and a coordinated effort were the products of this unified command organizational concept. The unity within our military also set the stage for the integration of the coalition air forces into the air campaign.

Operating as a coalition was essential in keeping the war from becoming a United States-

versus-Iraq conflict. Continuous coordination was necessary to make sure that all coalition members' training, communications and objectives were compatible. The problems encountered from differences in doctrine and equipment were offset by the positive effect of all coalition partners working together for a common goal. We were actually able to capitalize on unique capabilities such as the Saudi runway attack weapons, the French air-to-ground missiles and the British precision-guided munitions. However, in the war's aftermath, it is the potential for a stable atmosphere in the region that remains as the real benefit of the coalition.

### Operations and Initial Defense

Immediately upon arrival, the coalition forces began preparing for the defense of Saudi Arabia. If further aggression was to be detected, Iraq had to be convinced that forces were present to counter any additional attacks. Initial forces arriving in theater were designed to do just that.

Defensive counterair forces to prevent aggressive Iraqi air operations arrived in theater and began flying combat air patrol alongside the Royal Saudi Air Force. Antiarmor and close air support assets were placed in strategic locations where immediate action could have been taken, had the Iraqi ground forces begun moving south. Airborne command and control aircraft began flying orbits to increase surveillance and be prepared to orchestrate air combat operations, had the situation dictated.

The D-day ATO was developed and refined. Initial integration of coalition forces began to take place. Each participating nation was given a new piece of the pie commensurate with its numbers and capabilities. To be ready to defend, significant logistics problems had to be overcome. Getting the missiles, bombs and bullets to the correct locations (to provide teeth for the tiger) was an absolute must. Supply lines were established to sustain operations and ensure critical resources were available. With this, the stage was set for the defense of Saudi Arabia, and energy could be directed toward the development of the offensive air campaign.

A Washington Air National Guard KC-135 refuels an F-15 during Desert Shield.



***The integration of the Air Force Reserve and Air National Guard forces went extremely well. Training together in peacetime paid great dividends as Air Reserve forces blended in with their Active counterparts to form a very effective combat organization.***

### Planning the Offensive

The planning for the offensive air campaign began in Washington, DC, shortly after the invasion of Kuwait. A working group at the Pentagon formulated the initial target list, briefed it to the commander in chief of USCENTCOM prior to his deployment and then took it to COMUSCENTAF, who had deployed to Southwest Asia three days after Iraq invaded Kuwait. The entire operation needed to develop an offensive air campaign shrouded in absolute secrecy and the number of people involved kept to a minimum. This small group, working with the following specific objectives, produced the operations order and the ATO that became the initial phases of Desert Storm:

- Destroy/neutralize air defense command and control.
- Destroy nuclear, biological and chemical storage and production capability.
- Render ineffective national and military command, control and communications infrastructure.



F-14 Tomcats crowd the deck of the USS Saratoga during operations in the Red Sea, February 1991.

**The joint force concept integrates all services into one coordinated plan . . . Marine attack aircraft accompanied by Air Force suppression of enemy air defenses assets and escorted by Navy fighters made for effective and lethal packages. Working together, the services were able to limit duplication of effort, minimize breakdowns in communication and fly 110,000 sorties without . . . air-to-air fratricide.**

- Destroy key electrical grids and oil storage facilities.
- Deny military resupply capability.
- Eliminate long-term offensive capability.
- Disrupt and weaken Republican Guard forces.

The group, initially made up of representatives from each component and the British Royal

al Air Force, began its efforts to produce a flyable ATO. Long hours of detailed study and analysis, emphasizing the identification of exploitable weaknesses, paid great dividends as the plan came together. Exploiting our strengths against Iraq's weaknesses was the objective of our investigation. For example, our ability to operate effectively at night and Iraq's weakness to defend during darkness resulted in heavy emphasis on night operations. Detailed study of strategic targets within Iraq was accomplished to determine timing and munition requirements. Extensive logistics analysis and planning ensured the correct munitions were scheduled to be at the right base at the right time. All this had to be done without divulging the fact that we were planning offensive operations against Iraq.

By the early part of September, we had an executable plan. From that point on, the plan was reviewed and modified as additional information and targets became available. As follow-on forces arrived in theater, the plan grew in size and complexity. The high security classification level and limited distribution restrictions placed on the plan made dissemination possible only on a strict need-to-know basis. Countries with top secret clearance were used to distribute each new addition to the ATO to small target planning cells at the combat units. By the end of October, the Royal Saudi Air Force had become an active participant in the working group and other coalition nations were in-briefed as execution neared.

**The ATO.** The integral ATO process is designed to produce a daily product of varying size dependent on the magnitude of the operation. In this case, the ATO grew to several hundred pages and served as the single source document for the entire flying operation of Desert Storm. It was a 48-hour process, so the initial planning was for targets to be struck two days down the road. It was a never-ending cycle, continuously taking place for as long as air operations were necessary.

The cycle began with USCENTCOM's decision on the weight of effort and where he wanted the emphasis of air operations placed. Targets were then selected. Interservice and interna-

F-117A Stealth aircraft preparing for a mission into Iraq from their base near the Red Sea. The great distance from targets—which prompts one pilot to quip that missions were like flying from Las Vegas to St. Louis and back—would have prevented Iraq from retaliating against this precious asset even if its air force had not been destroyed.



**Rapid and often intense negotiations resulted in international agreements providing access to airfields. . . . Direct and often high-level dialogue was required to ensure that final locations were compatible with aircraft mission and capabilities. Sites close enough to the battlefield to ensure the timely entrance into the fight without unnecessarily jeopardizing the security of the assets were of primary concern.**

tional coordination occurred. A master attack plan was generated. The end product was disseminated. By the time the unit received the ATO for a given day, the next day's ATO was well on the way to completion, and planning for the following day had begun. When the war began, we started with the ATOs for the first two days, which had been produced over the previous five months. By the third day, we were into the classic ATO process, turning out a new product every 24 hours.

**Intelligence.** A key factor in the production of an effective ATO is the availability of timely and accurate intelligence. Operations and intelligence interface is a must. Intelligence is a significant force multiplier in the modern air battle. Timely flow of information on enemy activities, capabilities and intentions is absolutely critical. The close integration of national, regional and local collection capabilities and analysis is essen-

tial to the battlefield management decision-making process. Whether it comes from local human sources or airborne collection assets, the data must be collected, analyzed and disseminated to the user as near a real-time rate as possible. Knowing both the condition of targets to be struck and the board damage assessment on those already hit is critical to the planner who is attempting to maximize the use of available resources. Understanding the enemy's defense capabilities and the plans for employment of his defense assets plays an important part in strike package size, makeup and timing. The Desert Storm demands on the system resulted in unprecedented cooperation between the intelligence community and the operations planners.

**Command and Control.** Having the best personnel, equipment and plans are meaningless if you cannot talk to anyone or have a functioning system for command and control. Building a



A coalition soldier peers up at the gaping hole blown through the roof of an Iraqi hardened aircraft hanger. General Schwarzkopf had warned Iraq's air force that if it did not come up and fight, its shelters would be destroyed "one by one by one."

***By the end of the first day, the stage was set for the crushing defeat of the Iraqi military. By day two, we had control of the air, and by the fourth day, the Iraqi air force was virtually nonexistent. . . . As the objectives of the offensive air campaign were achieved, more and more attention could be focused on the preparation of the battlefield for the ground phase of the war.***

communications infrastructure from scratch was one of the most significant challenges faced as our forces arrived in the theater. The demand for, and subsequent use of, secure communications placed a heavy load on the system, but proved to be of immeasurable value. Available satellites, leased land lines and tactical equipment had to be woven into a sophisticated net-

work to meet the communications needs of a dynamic and rapidly changing combat situation. Our ability to disseminate information was testimony to the successful efforts of the communicators. While being able to talk to one another was a critical first step, much work was necessary to ensure an effective command and control system existed. Procedures were developed to integrate permanent host nation radar sites with our mobile and airborne assets. The Airborne Warning and Control System (AWACS) chainlink was critical in providing essential information to those managing the conflict. The multiservice and multinational presence in the tactical air control center had access to the available intelligence and the means of coordinating with their respective headquarters. This closed the command and control loop with the coalition.

## Execution

With the forces in place, the command, control and communications system up and operational and the plan ready, the coalition air forces stood prepared for the president's order to action. On 17 January, the air campaign was set into motion. With surgical precision, the initial strikes were flown to near perfection. The months of agonizing preparation, coordination and planning paid off. By the end of the first day, the stage was set for the crushing defeat of the Iraqi military. By day two, we had control of the air, and by the fourth day, the Iraqi air force was virtually nonexistent. Mission after mission struck at the heart of Iraq, systematically eliminating the enemy's warfighting capabilities. As the objectives of the offensive air campaign were achieved, more and more attention could be focused on the preparation of the battlefield for the ground phase of the war.

The preparation of the battlefield actually began with the first bomb falling on Baghdad. The establishment of air supremacy was essential to our ability to operate at will throughout Iraq, interdicting critical elements of the Iraqi war machine. The disruption of Iraq's command and control created confusion and chaos in a system that demands rigid adherence to



US F-15 and Saudi F-5 aircraft flying a mission over Iraq.

*Initial forces arriving in theater were . . . defensive counterair forces to prevent aggressive Iraqi air operations. . . . [They flew] combat air patrol alongside the Royal Saudi Air Force. Antiarmor and close air support assets were placed in strategic locations where immediate action could have been taken, had the Iraqi ground forces begun moving south.*

centralized guidance. The constant bombardment of the enemy ground forces and the precision-guided weapon attacks against armor and artillery took a tremendous toll on men and equipment. The unremitting bombing, coupled with the effective interdiction of supply lines, made the Iraqi soldier susceptible to our psychological campaign. The thousands of leaflets that rained down on Iraqi soldiers appeared over and over again in the hands and pockets of surrendering soldiers. By the time the ground war began, their will to fight had been so damaged that a strong Iraqi resistance just did not exist. What transpired in the 100-hour ground war serves as testimony of the impact air power can have on the modern battlefield.

### Implications for Future War

We have only begun to analyze all that transpired during the period of August 1990 through February 1991 and to find implications on future

war. It may be a bit premature to draw concrete conclusions, but I will list several perceptions that will have to be dealt with in the planning and execution phases of future conflicts.

- As the only nation with the ability to project the kind of power required to confront the type of aggression experienced in Kuwait, the United States must maintain a rapid deployment capability. Time becomes such a critical factor, and the rapid movement of well-trained, modern-equipped and highly mobile forces is the answer. From the beginning, our ability to project force made the difference.

- Airlift, sealift and pre-positioning make this kind of operation possible. Future conflicts will require forces to get there in a hurry, creating tremendous logistic requirements. What cannot be stored in theater will have to be moved in quickly and in an orderly manner. We must ensure that our lift capabilities are modernized and updated to meet future needs.

The control reporting center at King Khalid Military City where information from US ground-based radars, Saudi early warning systems and AWACS was processed.



***A sophisticated network of multisource communications capability had to be built from the ground up to tie the coalition forces together so that timely command and control could become a reality. Literally turning a desert runway strip into a full-up combat operating base overnight was demonstrated time and again.***

***Available satellites, leased land lines and tactical equipment [were] woven into a sophisticated network to meet the communications needs of a dynamic and rapidly changing combat situation. . . . Procedures were developed to integrate permanent host nation radar sites with our mobile and airborne assets. The AWACS datalink was critical in providing essential information to those managing the conflict.***

- The JFACC concept works. Consistency and unity in guidance reduce coordination conflicts. Operating under one coordinated plan improves efficiency and lessens the possibility of fratricide.

- Early air supremacy is critical. Plans must ensure that adequate forces are dedicated early in the campaign to seize control of the air. With the freedom to fly at will, the rest falls into place.

- Strategic planning for regional conflicts is essential. Much of the success experienced in the ground war was the result of strategic strikes at the heart of the governmental and industrial infrastructure. These attacks ultimately had significant impact on the military discipline and morale of the Iraqi troops.

- Stealth technology is worth every penny. Operating night after night against targets protected by 3,000 anti-aircraft guns and 60 surface-to-air missile sites without a single loss or even taking a hit is positive proof of the protection

this technology offers. In addition, the stealth aircraft does not need extensive electronic counter support. This frees these assets to support other missions.

- Precision-guided munitions are essential to mission accomplishment with minimum collateral damage. It takes fewer sorties to destroy the target. This also reduces exposure and, therefore, reduces the potential for aircraft losses.

- The use of precision-guided munitions against armor is devastating. The expert action in Desert Storm could have as much impact on the tank as the bullet had on the knight in shining armor.

- Rapid battlefield movement requires improved capabilities for the identification of friendly forces. It is critical that we acquire systems that will allow pilots attacking forces on the ground to quickly distinguish friend from foe.

من النسخة يجب من حاكم القلاع والمناطق التابعة تحت الحكم  
1. اسحب ملصق القاذورة من سلاحك.  
2. اسلك ملصق بطاقة المرور مع توجيه المسيرة الى اليمين.  
3. اسلم.  
4. ارفع يديك فوق رأسك.  
5. من مواقع القوات المتعددة الجنسيات فقط وفي ظروف القتال.  
6. القذبة برفع يديك فوق رأسك.  
7. اذا حلت هذا المصغ من الحرب.

CEASE RESISTANCE - BE SAFE

To seek refuge safely, the bearer must strictly adhere to the following procedures:

1. Remove the magazine from your weapon.
2. Sling your weapon over your left shoulder, muzzle down.
3. Have both arms raised above your head.
4. Approach the Multi-National Force positions slowly, with the lead soldier holding this document above his head.
5. If you do this, you will not die.

اوقف القتال الآن، حافظ على حياتك




**The unrelenting bombing, coupled with the effective interdiction of supply lines, made the Iraqi soldier susceptible to our psychological campaign. The thousands of leaflets that rained down on Iraqi soldiers appeared over and over again in the hands and pockets of surrendering soldiers.**

- Continued emphasis must be placed on improvements in space-based early warning and surveillance systems. Space-based, wide-area surveillance has a valuable role in the modern battle.
- Real-time dissemination of intelligence data is a must.
- The Total Force concept works. Future conflicts will find the Active and Reserve forces that have trained together, fighting side by side, to be an effective fighting team.
- The dynamic initial air phases set the stage for the successful ground operations with

minimum friendly loss of life. Future campaign planning will have to take this into consideration.

The air campaign in Southwest Asia is an example of what can be done when freedom-loving people of the world commit themselves to an honorable cause and have the resolve to stand by their convictions. What occurred in the Gulf will have a lasting effect, not only on the way we prepare for and prosecute a war but on how the rest of the world views aggression and our opposition to it. Desert Storm will leave its mark on history, and air power will be a primary chapter. *MR*

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