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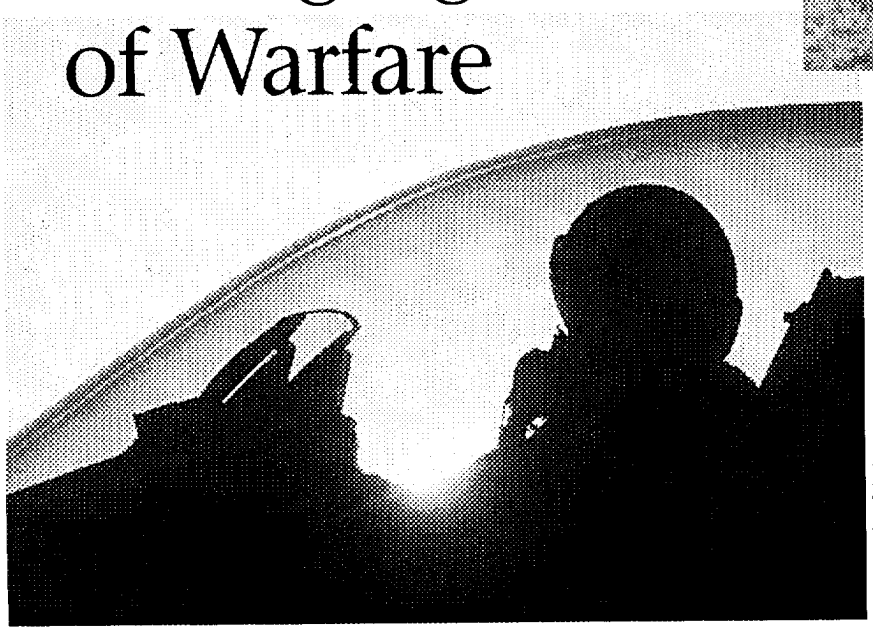
Airpower and the Changing Nature of Warfare

Courtesy of National Air and Space Museum, Smithsonian Institute

British F.E. 2b being readied for night attack, World War I.



U.S. Air Force (Greg Suhay)

By RICHARD P. HALLION

This century has been characterized by the widespread impact of technology in many fields. Mechanization, communications, and data processing have profoundly influenced every significant aspect of human activity. The internal combustion engine transformed transportation. Journeys that took weeks or months in the past now take days or hours. There are few if any places in the world that are truly unknown or unexplored. Out of necessity the nature of warfare also has changed. Swords, muskets, machine guns, artillery, tanks, airplanes, and rockets have all had their day on the evolution chain of weaponry. Warfare as we know it today combines the most modern of these elements to create a third dimension that has irrevocably transformed land and sea warfighting. While airmen can point to numerous evolutionary steps in airpower dating back to World War I, it is the second great war that gave the first convincing demonstrations of air warfare to a disbelieving military community.

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The Historical Record

During World War II, when British land forces were too weak to fend off an invasion by the *Wehrmacht*, the Royal Air Force defeated the *Luftwaffe* and forced the dispersal of barges and ships massing for attack. Britain thus became the first nation whose national survival was secured by airpower. Later, hammered by air attacks that disrupted his operations in the Western Desert, Rommel complained after the battle of Alam Halfa that the Royal Air Force:

had pinned my army to the ground and rendered any smooth deployment or any advance by time-schedule completely impossible. . . . Anyone who has to fight, even with the most modern weapons, against an enemy in complete command of the air, fights like a savage against modern European troops, under the same handicaps, and with the same chances of success.[1]

Besieged in Normandy in summer 1944, Rommel echoed his desert commentary in diary entries and conversations with fellow commanders: "The enemy's air superiority has a very grave

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effect on our movements. There's simply no answer to it."[2] His naval aide, Vice Admiral Friedrich Ruge, ruefully wrote, "Utilization of the Anglo-American air force is the modern type of warfare, turning the flank not from the side but from above."[3] The same held true in Italy, where the German commander, General Frido von Senger und Etterlin, complained that Allied air attacks had put him in the position of a chess player who could make only one move to an opponent's three.[4]

German casualties increasingly came from Allied air attack, with artillery second and infantry weapons third

Accompanying this impact of airpower on surface mobility was a decided shift away from the traditional means of winning surface campaigns, namely inflicting heavy casualties and material loss on an enemy by battering its fleets or land armies. In land combat after 1943, German army casualties increasingly came from Allied air attack, with artillery second and infantry weapons third. By the end of 1944, air attack was the overwhelming cause of German casualties in the field due to hostile action. In the Pacific Theater, naval warfare saw a similar evolution from traditional naval strategy. A joint U.S. Army-Navy postwar assessment of Japanese ship losses found that 48 percent stemmed from submarine attack, 45 percent from air attack, and only 0.45 percent from surface vessels.[5]

Courtesy of Special Collections, NDU Library

Erwin Rommel.

High technology since 1945 has generally borne out the lessons of the airpower campaigns prior to V-E and V-J days. During the Korean War, the majority of communist losses came from U.N. air attack: 47 percent of troops killed along with 75 percent of tanks, 81 percent of trucks, and 72 percent of artillery destroyed.[6] More significantly, the situation in Korea was in fact saved by joint and coalition air operations during the critical opening weeks of the war, down through the bitter fighting on the Pusan perimeter. As Lieutenant General Walton Walker, the commander of all U.S. ground forces in Korea in 1950, commented, "If it had not been for the air support that we received from the Fifth Air Force we would not have been able to stay in Korea."[7]

In the Gulf War decisionmakers recognized that air attack constituted the logical means to defeat Iraq. Testifying before Congress during the air campaign, General Colin Powell declared: "Airpower is the decisive arm so far, and I expect it will be the decisive arm into the end of the campaign, even if ground forces and amphibious forces are added to the equation."[8] In the Persian Gulf most Iraqi prisoners cited fear of air attack—or the experience of having survived one—as the reason for surrendering.[9]

Today the capabilities available to the air campaigner, particularly in precision attack, mean even more remarkable achievements may be obtained, as the two most recent experiences, the Gulf War and Bosnia, have clearly demonstrated. The current Air Force posture statement, *Global Engagement*, argues that in the next century "the strategic instrument of choice will be air and space power."[10]

Warfare Needs

The last hundred years have witnessed a military revolution: 3–D warfare (particularly air and now space) that has overturned previous tradition and experience. Ironically, sculptures in the British Museum from the age of savage Assyrian kings reveal how court artists visualized the value and versatility of aerial war, with gods on flying disks shooting arrows into their foes as Assyrian forces charged forward on the ground.

Perhaps the best indicator of what the airpower revolution has meant is that surface and air forces increasingly select air armament as their weapons of choice: attack helicopters, battlefield missile systems, submarine-launched cruise missiles, carrier-based strike airplanes, and land-based fighters and bombers. For this reason, armies and navies worldwide are developing air and space forces, supplanting traditional expenditures on troops, tanks, and warships.

The most dramatic example of this shift is the proliferation of attack helicopters in military inventories worldwide and the growing recognition that they represent more than "flying tanks" or adjuncts to artillery and armor. The newsletter of the British Army Air Corps (which will field the Apache in December 2000) recognized the challenge of going beyond conventional thinking:

The attack helicopters will be a divisional manoeuvre asset, capable of operating in the deep, close, and rear battles, perhaps simultaneously. Some attack helicopters will almost certainly be allocated to support the close battle in a tactical role with battle groups, but it is the training to operate effectively across the whole spectrum of operations that presents the greatest challenge. . . . Apache may well discharge its missiles from up to eight kilometers behind forward troops, and these troops will rarely see the aircraft once battle is joined. Moreover, the pace of attack helicopter operations will be faster than armour, for instance.[11]

To generations of soldiers schooled in the supremacy of the tank and mechanized infantry supported by artillery, these are challenging notions. Today, army aviators around the world share a view of conflict that recognizes that air war permits simultaneous theater-wide parallel operations. Such strategies are rarely available to a traditional army focused on a sequential vision of conflict.

Though long-standing, the advent of "air mobility" thinking—the trend of changing focus from traditional surface forces (infantry and tanks) to aerospace forces—has dramatically increased over the last two decades. In the United States, the advent of the Army's AirLand Battle doctrine of the early 1980s signalled a shift in surface-oriented doctrinal thought that had implications both at home and abroad.

For example, European armies have been dramatically restructured for airpower projection in the last decade. Britain, Belgium, Sweden, and Spain have reduced army manpower and armor while increasing aviation assets. Even Germany, France, and Italy—which have downsized forces across the board—have reduced aviation to a lesser extent. Leading navies also exhibit similar trends with the United States and Britain reducing manpower, surface combatants, and submarines by margins that outweigh slight reductions (or increases) in aircraft.[12]

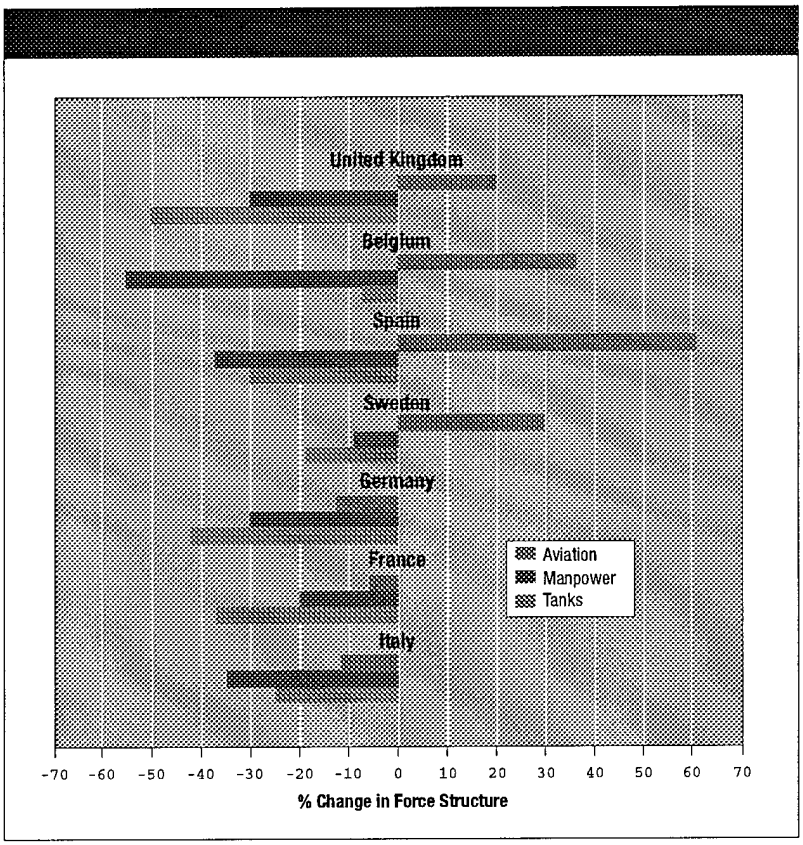
Aircraft and aerospace weapons constitute a large proportion of U.S. procurement dollars. For example, the Army spent $1.36 billion during FY96 on aircraft (18 percent), $839 million on missiles (11 percent), and $1.6 billion on tracked weapons (21 percent). Thus missiles and aircraft accounted for 29 percent of Army procurement. In the same year the Navy devoted $4.44 billion to aircraft procurement (28 percent) and $6.5 billion to shipbuilding and conversion (41 percent).

H-13 joining mechanized forces, 1952.

U.S. Army

F4F taking off from *USS Enterprise* in Coral Sea, 1942.

U.S. Navy



Source: International Institute for Strategic Studies, *The Military Balance, 1985–1986,* and *The Military Balance, 1995–1996.*

Again, the investment in surface ships is potentially misleading since much of this funding went to aircraft carriers, guided missile destroyers, and supply vessels—all critical to maritime airpower projection. By contrast, Air Force purchases of aircraft in FY96 amounted to more than $7 billion (43 percent) and missiles $334 million (2 percent). Overall direct aerospace weapons expenditures (aircraft and missiles) accounted for over 32 percent ($14.1 billion) of a total procurement budget of $43.4 billion for active and Reserve components of the Army, Navy, and Air Force in FY96.[13]

growing interest in airpower projection acknowledges the diminution of the battlefield as the arbiter of victory

Cultural Conflict versus Reality

This growing interest in airpower projection by surface forces acknowledges a new reality in warfare: the diminution of the battlefield as the arbiter of victory. Not surprisingly this is an unpopular notion. Armies have built on traditions dating across millennia emphasizing that victory can only come on the battlefield. The Army posture statement in 1995 unequivocally stated:

Wars are won on the ground. Success or failure of the land battle typically equates to national success or failure. The culminating or decisive action of a war is most often conducted by land forces. . . . The application of military force on land is an action an adversary cannot ignore; it forces a decision.[14]

The view that only land combat can be decisive leads to a belief that the most legitimate role for airpower is in support of land warfare. But as Air Commodore Andrew Vallance of the Royal Air Force has indicated:

There is no factual basis to the belief that, in land/air campaigns, the purpose of aviation forces must always be to support the land forces. Airpower can and often has acted as lead element in land/air as well as maritime/air operations, and—as capabilities grow—it is likely to do so with increasing frequency.[15]

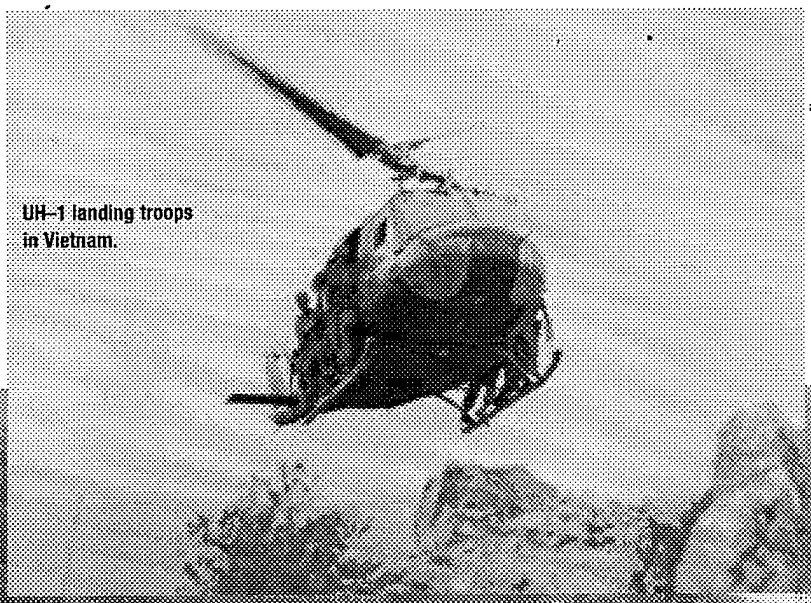
The most recent examples of that view are the Gulf War—which had no Gettysburg, Stalingrad, or El Alamein where one could erect monuments stating "on this spot Iraq lost the war" nor even a series of battles that together merit recognition for having doomed Saddam Hussein's army; and the Balkans—where the 1995 air campaign was credited with having forced the Bosnian Serbs to the Dayton peace table. As former negotiator Richard Holbrooke stated after the air campaign, precision bombing had "the decisive effect" on forcing the Serbs to negotiate.

Another shibboleth often trotted out at the expense of airpower is the notion that since air cannot "occupy or hold" ground, it cannot be decisive. Yet this line of reasoning increasingly ignores that the most important role of military forces is not in actual physical presence, but rather in using airpower or artillery to dominate and control access to and progress across the ground. In this way airpower is a gatekeeper with many examples, from World War I to the Gulf War, which attest to this role.

In brief, growing investments in air warfare by armies is a clear recognition that the nature of warfare has changed, that armies can no longer be built exclusively—even primarily—around surface-to-surface systems. Unsurprisingly, as this vision drives acquisition of aerospace systems such as helicopters, unmanned aerial vehicles, and ballistic missiles, armies still reflect the rhetoric of the past which prevents them from totally abandoning the "heroic era" of land operations.

Future War

The "one size fits all" approach is neither applicable nor appropriate to the enemies and conflicts the United States and its allies may face. But

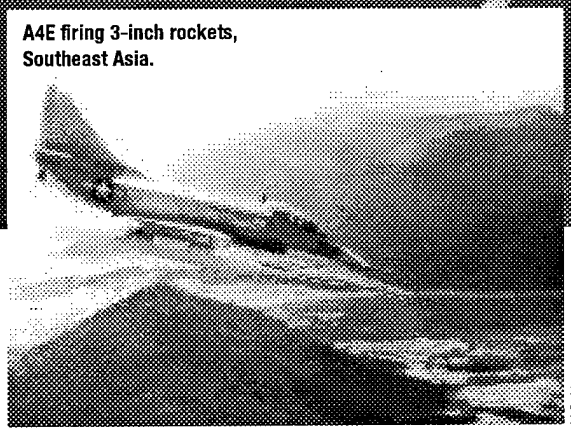


UH-1 landing troops in Vietnam.

U.S. Army

A-20 over English Channel on D-Day.

U.S. Air Force



A4E firing 3-inch rockets, Southeast Asia.

U.S. Navy

such enemies may possess some of the following generic characteristics in addition to "traditional" infantry and armor forces:

- weapons of mass destruction programs
- information warfare capabilities
- small conventional submarines with smart torpedoes, together with both simple and sophisticated sea mines
- precision weaponry such as laser-guided bombs, antishipping missiles, and even longer-range cruise and ballistic missiles
- global positioning system technology
- satellite reconnaissance through third party vendors
- small unmanned air vehicles for intelligence, surveillance, and reconnaissance
- an integrated air defense network tied to advanced surface-to-air missiles, advanced fighters (at least MiG–29 equivalent), and antiaircraft artillery
- battlefield rocket artillery with advanced antiarmor submunitions
- robust command and control bunkered in underground facilities.

In fact, a study by the Defense Science Board looked at a similar 21st century enemy. Soberingly, such capabilities are within the budgetary range of many Third World nations, some of which have decidedly militaristic intentions and could not be defeated by traditional surface warfare.

Throughout the late 1970s and 1980s, American planners proposed a series of imaginative defenses (such as the assault breaker study) to counter armor-heavy scenarios of a NATO-Warsaw Pact exchange in Central Europe. From this came enlightened approaches that used sophisticated air warfare-based means to defeat an enemy, typified by AirLand Battle.

Meanwhile, at the heart of American defense was an attempt to combine emerging stealth technology, newer generations of precision munitions, and increasingly sophisticated intelligence and reconnaissance systems into an offset strategy to wreak havoc on an enemy force. That work, validated in the Gulf War, forms a point of departure for future regional conflicts of the post-Cold War variety. As former Secretary of Defense William Perry commented:

wars in this century have shown that when airpower is applied, the land effort is often deflated in importance

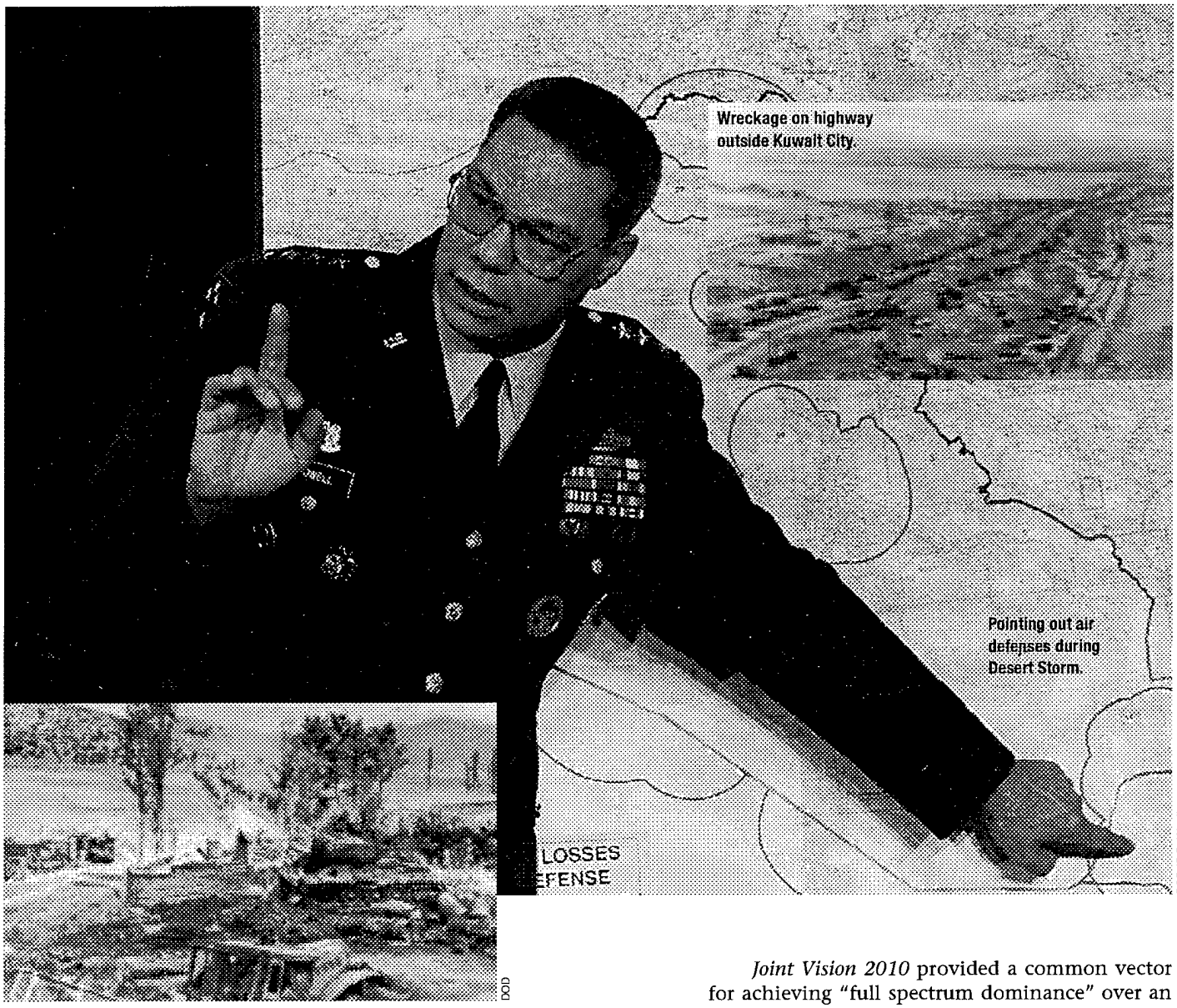
What we had done in the offset strategy—the applications of the reconnaissance strike force, the application of proceed and strike—had a second policy objective, an alternative policy objective when used in a major regional conflict like Desert Storm. When used against an opponent with equal numbers, [it] *did not simply offset the other side, it gave us the ability to win quickly, decisively, and with remarkably few casualties. And when we . . . studied that result, we looked at the kind of policy problems and military operational issues we're going to be facing in the years ahead, we said the very same technology that was developed to deal with superior numbers of Soviets would become the key to our new systems.*[16]

That statement enumerates what have become the characteristic goals of modern post-Gulf, post-Somalia military operations: "to win quickly, decisively, and with remarkably few casualties." Simply put, the American people do not have a willingness, desire, or mind-set to accept long, ambiguous, and costly conflicts. To some leaders, this poses a serious problem. As the Chief of Staff of the U.S. Army has warned:

The world has witnessed our infatuation with precision strike, apparent unwillingness to commit forces for a long period, aversion to casualties, fear of collateral damage, and sensitivity to domestic and world opinion. Those who don't wish us well understand where our strengths and weaknesses lie and may act accordingly. Therefore, it is even more important to maintain balance between dominant maneuver, particularly on the ground, and precision engagement. Ground forces employing dominant maneuver in a show of force or demonstration may be able to resolve many issues without employing lethal means. More important, employment of maneuver forces sends an unequivocal message of U.S. resolve.[17]

But is such fear on one hand and promise on the other well founded? Sequential models of surface warfare stress punishing contact between robust opposing forces, with horrendous levels of casualties and mutual destruction even under the best of circumstances. For instance, prior to the Gulf War, General Edward Meyer, a former Chief of Staff of the U.S. Army, estimated that up to 30,000 American casualties would be sustained in dislodging Iraq from Kuwait.[18] This mindset readily accepts casualties as "necessary to get the job done." But wars in this century have shown that when airpower—an inherently maneuver-oriented force—is applied, the land effort is not only increasingly reduced in cost and complexity but often deflated in importance.

Inserting ground forces in a region today may create more problems than it resolves. For example, in Bosnia U.N. peacekeepers became hostages to hostile forces who used them as cheap air defense systems to guard against NATO airpower. Further, peacekeeping forces served as easy targets for snipers and land mines. In addition, moving vehicle-heavy surface forces into a crisis region created problems. Before the fighting ended in Bosnia after a swift air campaign, a



Wreckage on highway outside Kuwait City.

DOD

Pointing out air defenses during Desert Storm.

DOD (R.D. Ward)

DOD

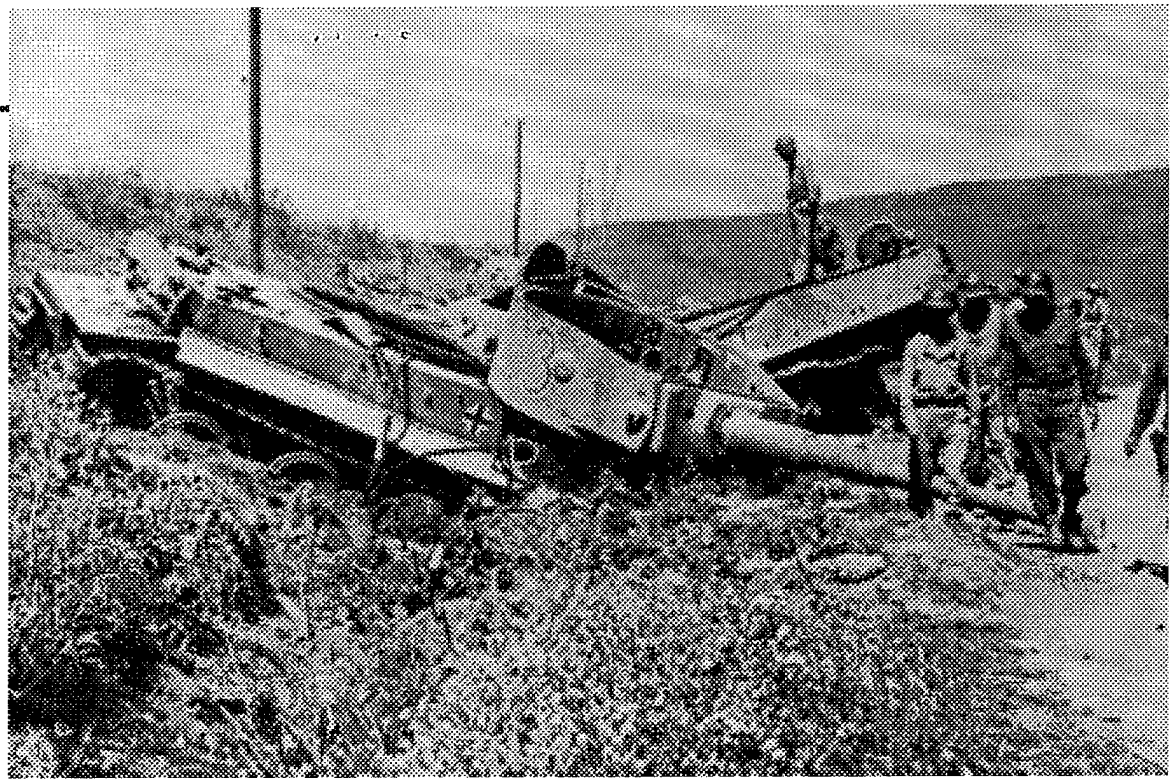
Remains of North Korean formation along Naktong River.

major concern of both American and European staffs was what to do if it became necessary to extract the large numbers of ground forces who were supporting the U.N. effort. What if they were attacked? What if the local population attempted to prevent them from leaving? What would happen to their vehicles? How could they be extracted?

In short, strategists must realize that if land forces are deployed, the "unequivocal message" sent may not be one of "U.S. resolve," but rather one of how the U.S. military is trapped in an operational morass. The penalty, as in Somalia, may be an embarrassing withdrawal.

Joint Vision 2010 provided a common vector for achieving "full spectrum dominance" over an enemy via four concepts: *dominant maneuver, precision engagement, focused logistics,* and *full dimensional protection.* What modern airpower offers—and what the Air Force has staked out in *Global Engagement* as its key contribution to joint force—is a series of mutually supportive core competencies that, linked by space-based global awareness and command and control, provide the critical airpower and spacepower that the Armed Forces will need to preserve the advantage gained both in the Gulf War and in Bosnia.

Those nations that are potentially hostile to U.S. interests are unlikely to ignore the lessons of recent history as they reshape air and surface forces for the next century. They will evaluate the value of advanced weaponry demonstrated repeatedly in Yom-Kippur, Falklands, Bekaa, and



German tanks hit by fighter-bombers in Tunisia.

DOD

Iran-Iraq and observe that warfare has increasingly seen the smarter, more technologically sophisticated protagonist seek to strike at enemies from a distance. When that advantage was lost, unnecessary casualties or defeat followed. In the wars of tomorrow, a new airpower and artillery paradigm for military force will predominate, not the old infantry-armor team. Except for a few scenarios, the need (as opposed to the ability or the desire) to commit friendly ground forces to close combat with an enemy simply will not exist. Air weaponry—such as battlefield missiles, attack helicopters, fixed-wing aerial attackers, and remotely launched cruise missiles—will not only suffice but will be the most desirable means of confronting an enemy. If the Armed Forces do not transform their thinking on future war, the Nation will expose its men and women in uniform to unnecessary and foolish risks. And that is an alternative that is no longer acceptable. **JFQ**

NOTES

[1] B.H. Liddell Hart, editor, *The Rommel Papers* (New York: Harcourt, Brace, 1953), pp. 284–86.

[2] Ibid., p. 491.

[3] Friedrich Ruge, *Rommel in Normandy: Reminiscences by Friedrich Ruge* (San Rafael, Calif.: Presidio Press, 1979), p. 187.

[4] Frido von Senger und Etterlin, *Neither Fear Nor Hope* (New York: Dutton, 1964), p. 224.

[5] Joint Army-Navy Assessment Committee, *Japanese Naval and Merchant Shipping Losses During World War II by All Causes* (Washington: Government Printing Office, 1947), table II, p. vii.

[6] "The Air War in Korea: A Statistical Portrait of the USAF in the First Hot Conflict of the Cold War," *Air Force Magazine*, vol. 79, no. 4 (April 1996), p. 66.

[7] Barcus Board Report, book 2, vol. 1, pp. 227–28. The commander of Fifth Air Force controlled all tactical air support provided to Eighth Army and liaised directly with Walker.

[8] Transcript of testimony of Colin L. Powell before the Senate Armed Service Committee, January 21, 1991.

[9] A.P.N. Lambert, "Synergistic Operations," in Royal Air Force, *Chief of the Air Staff's Air Power Seminar*, papers presented at the Church House Conference Centre, London, March 24, 1995, p. 8. See also J.M. Marcum and D.W. Cline, "Combat Stress Reaction in Iraqi Prisoners of War," *Bulletin of the Menninger Clinic*, vol. 57, no. 4 (Fall 1993), p. 479.

[10] *Global Engagement: A Vision for the 21st Century Air Force* (Washington: Department of the Air Force, 1996).

[11] R.A. James, editorial, *Army Air Corps Newsletter*, October–December 1996, p. 3.

[12] See *The Military Balance, 1985–1986*, and *The Military Balance, 1995–1996*, published by the International Institute for Strategic Studies.

[13] "Procurement Dollars," *Sea Power*, vol. 40, no. 1 (January 1997), p. 88.

[14] *A Statement on the Posture of the United States Army—Fiscal Year 1996* (Washington: Department of the Army, 1995), pp. 26–27.

[15] Andrew G.B. Vallance, *The Air Weapon: Doctrines of Air Power Strategy and Operational Art* (London: Macmillan, 1996), p. 91.

[16] Statement by William J. Perry to the Precision Strike Association in Arlington, Virginia, on January 15, 1997, and quoted in "For the Record," *The Washington Post*, January 16, 1997.

[17] Dennis J. Reimer, "Balancing Dominant Maneuver and Precision Engagement: A Strategy for the 21st Century," draft manuscript (1997).

[18] John J. Fialka and Andy Pasztor, "Grim Calculus: If Mideast War Erupts, Air Power Will Hold Key to U.S. Casualties," *The New York Times*, November 15, 1990.

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