Airpower and the Changing Nature of Warfare

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.

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.

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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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. 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.

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. 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." 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." In the Persian Gulf most Iraqi prisoners cited fear of air attack—or the experience of having survived one—as the reason for surrendering.

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."

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 warfare, 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.
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 signaled 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).
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

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.

A-20 over English Channel on D-Day.

A-4E firing 3-inch rockets, Southeast Asia.
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 tor-
  pedoes, together with both simple and sophisti-
  cated 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 ad-
  vanced surface-to-air missiles, advanced fighters (at least
  MiG-29 equivalent), and antiaircraft artillery
- battlefield rocket artillery with advanced anti-
  armor submunitions
- robust command and control bunkerized 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 bu-
dgetary 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 de-
fenses (such as the assault breacker study) to
counter armor-heavy scenarios of a NATO-War-
saw Pact exchange in Central Europe. From this
came enlightened approaches that used sophisti-
cated 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 mun-
tions, and increasingly sophisti-
cated 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:

> 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 casu-

Or look at the kind of policy problems and military op-
erational issues we’re going to be facing in the years
ahead, we said the very same technology that was de-
volved to deal with superior numbers of Soviets
would become the key to our new systems.¹⁶

That statement enumerates what have be-
come the characteristic goals of modern post-
Gulf, post-Somalia military operations: “to win
quickly, decisively, and with remarkably few casu-
alties.” 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 preci-
sion strike, apparent unwillingness to commit forces
for a long period, aversion to casualties, fear of collat-
eral 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
correspondingly. 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 sur-
f ace warfare stress punishing contact between ro-
 bust 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 read-
ily accepts casualties as “necessary to get the job
done.” But wars in this century have shown that
when airpower—an inherently maneuver-orien-
ted 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 addi-
tion, moving vehicle-heavy surface forces into a
crime region created problems. Before the fighting
ended in Bosnia after a swift air campaign, a

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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...
Iran-Iraq and observe that warfare has increasingly seen the smarter, more technologically sophisticated protagonists 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.

NOTES

2 Ibid., p. 491.

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