
PREPARING THE ARMY FOR JOINT OPERATIONS**Bruce Pirnie**

The National Security Strategy states that the military, which had been structured for operations against the massive armies of the Warsaw Pact, must be transformed to handle new adversaries. The administration wants a broad portfolio of military capabilities, including “transformed maneuver and expeditionary forces” (*National Security Strategy*, 2002, p. 30).

In the Army’s vision of future warfare, its forces will fight in radically new ways. They will arrive in theater very quickly, fighting their way in if necessary, proceed immediately into combat, and overwhelm the enemy through simultaneous, continuous, and widespread operations. Far more often than in the past, they will operate in a nonlinear fashion, develop situations out of contact, engage enemy forces beyond range of enemy weapons, and tactically assault at times and places of their own choosing. To accomplish all these tasks will require much closer integration with forces from other services, especially from the Air Force, than has been achieved in the past.

This chapter explores the nature of service rivalries; examines current issues in the control of joint forces; suggests how the Army might become more expeditionary, especially for contingencies involving forcible entry; and addresses air-land operations, emphasizing the implications for Army transformation. It concludes that the Army’s vision of future warfare is attainable only in a joint context, implying that in the final analysis transformation is a joint process.

PROMOTING “JOINTNESS”**Service Rivalry**

Some service rivalries are unavoidable. By design, the budget process promotes competition among the services. The Department of Defense and Congress expect the services to advocate their programs within a defense budget that will not satisfy all demands. The services also compete in the theory of warfare,

each emphasizing the importance of its own contributions. More concretely, they compete in the development of new doctrine. Each service naturally has its own perspective on how combat should be conducted, which it tries to codify in doctrine. In this process, turf battles are inevitable.

Against a background of peacetime rivalries, it is not always easy for service-members to develop the joint perspective required in war. Two broad factors seem to influence an officer's propensity to think jointly: familiarity with other services and the threat posed by an enemy. The special operations community, for example, has a joint perspective because special operations are inherently joint at very low levels. An example would be the Army Special Forces teams and the Air Force combat air controllers who supported opposition to the Taliban in Afghanistan. Generally speaking, assignment to joint staffs tends to increase officers' understanding of sister services and to broaden their perspectives. The enemy threat is the greatest spur to "jointness." Military officers are generally determined to accomplish their missions at least risk to their forces. When the threat becomes dire, they cast service rivalries aside and make decisions on a practical basis.

It would be very pernicious if combatant commanders made operational decisions on the basis of service interests, but this does not seem to be the case. During the Persian Gulf War, Gen. H. Norman Schwarzkopf conducted a protracted aerial bombardment before initiating a ground offensive. He subsequently wrote: "At bottom, neither [Gen. Colin] Powell nor I wanted a ground war" (Schwarzkopf, 1992, p. 445). Gen. Wesley K. Clark conducted an air-only operation against Serbia that accomplished NATO's aims just as it seemed to be failing.¹ Gen. Tommy R. Franks toppled the Taliban in Afghanistan largely through providing air support to opposition forces, a striking demonstration of the advantage air power can confer. All of these commanders are Army generals, and their decisions appear free from service bias.

Systemic Changes

In recent years, a series of systemic changes have promoted "jointness." It was a major goal of the Goldwater-Nichols reform of 1986, which strengthened the Chairman of the Joint Chiefs of Staff (CJCS) and the authority of the combatant

¹Clark had to start with an air-only effort because NATO would not approve or even consider more strenuous options. Attacks against infrastructure were constrained for political reasons, and attacks against fielded forces were ineffective. As a result, Serbia remained intransigent through months of bombardment. Confronted with the awful prospect of failure, Clark began to advocate planning and preparation for ground operations but encountered resistance from his own service. See Clark (2001, pp. 341–344, 349–350, and 438–440).

commanders.² At the same time, Congress created the Joint Requirements Oversight Council (JROC), which assists the CJCS in assessing the priority of joint military requirements and in evaluating acquisition programs to meet these requirements.³ In 1996, the CJCS published *Joint Vision 2010*, since updated by *Joint Vision 2020*, to provide “an operationally based template for the evolution of the Armed Forces” (CJCS, 1996).⁴ In 1999, the former U.S. Atlantic Command became U.S. Joint Forces Command with a new mandate to lead transformation of military forces through experimentation with new concepts and technologies.⁵

The Army component of Joint Forces Command is U.S. Army Forces Command (FORSCOM), headquartered at Fort McPherson, Georgia. In partnership with U.S. Army Training and Doctrine Command (TRADOC), FORSCOM operates the Joint Readiness Training Center at Fort Polk, Louisiana. Starting this year, Army attack aviation will participate biennially in a rotation at the National Training Center at Fort Irwin, Calif.; China Lake, Calif.; or Nellis AFB, Nev., to train for joint air operations at the corps level (Hendrix, 2001, p. 58).

Although “jointness” has progressed under the leadership of two Army generals as CJCS,⁶ the Army as an institution can be surprisingly inward-looking. Its current high-level operational doctrine is less imbued with “jointness” than was air-land doctrine developed during the Cold War. Army transformation, focusing on the Objective Force, acknowledges a joint context but tends to ignore other services, even in such areas as remote sensing and deep strike, where they would make large contributions. Perhaps most surprisingly, the Army set deployment goals—e.g., moving a combat brigade anywhere in the world 96 hours after liftoff—that depend on airlift, without bringing in the Air Force as a partner.

The Army is uniquely dependent on other services to conduct operations. The Air Force and Navy (together with the Marine Corps) can conduct large-scale operations alone. The Air Force, for example, made by far the greatest contribution to air operations against Serbia. The Navy and Marine Corps flew some

²Sen. Barry Goldwater (R-Arizona) and Rep. William Nichols (D-Alabama) sponsored the Department of Defense Reorganization Act of 1986, which amended Title 10, United States Code. The Goldwater-Nichols reform implemented many recommendations of the Packard Commission, chartered by President Ronald Reagan in 1984.

³JROC replaced the Joint Requirements and Management Board, which similarly included the vice chiefs of the four services. For the JROC charter, see CJCS (2001a, Enclosure A). For a critique of the JROC process, see Davis (1998).

⁴*Joint Vision 2020*, published in May 2000, refined but did not supplant CJCS (1996).

⁵For an overview, see Gehman (2000, pp. 77–82).

⁶Gen. John M. Shalikashvili, CJCS from October 25, 1993, to September 30, 1997, and Gen. Henry H. Shelton, CJCS from October 1, 1997 to September 30, 2001.

sorties and the Army posed a threat from Albania,⁷ but the Air Force was clearly dominant. The Navy can conduct deep-water operations on its own. Moreover, the Navy and Marine Corps can combine sea-land-air operations, achieving within one service the synergies of joint operations, as demonstrated during Operation Enduring Freedom in south-central Afghanistan. The Army cannot operate alone and therefore has the greatest stake in “jointness.”

JOINT CONTROL OF FORCES

Current Doctrine

Current doctrine calls for “joint control” and offers plenty of guidance on the subject. The problem is that joint control can seem a forbidding subject. Even military officers are often unfamiliar with its principles and terminology until they have served in joint assignments. Civilians are even less likely to understand joint control and may regard the entire subject as needlessly overburdened with outlandish jargon. Some aspects of joint control can seem a bit arcane, but fundamentally it contains just three elements: command extending from the President down, control through combatant commanders, and the services’ roles as force providers.

The most easily understood concept is *command*, an all-embracing authority established by the Constitution, which makes the President commander in chief of the armed forces. A “chain of command” extends from the President through the Secretary of Defense to combatant commanders and to the military departments through the service secretaries. The CJCS, as his title indicates, is not in this chain of command.

At the apex in a theater of operations are combatant commanders, who *control* the actions of military forces. They have a variety of subordinates, including service component commanders, functional component commanders, commanders of subordinate unified commands, commanders of joint task forces, single-service force commanders, and directly subordinate operational forces, such as special operations commands. Subordinate commanders may exercise operational control or tactical control over assigned forces. The distinction between these two forms of control is primarily temporal and not particularly important.

Of these subordinates, functional component commanders are potentially the most critical. According to joint doctrine, combatant (more precisely, “joint

⁷The Army’s forces in Albania (Task Force Hawk) also used counterbattery radar to identify Serb firing positions in Kosovo near the Albanian border, but the rules of engagement and procedural problems impeded its full exploitation.

force”) commanders may establish functional components to provide centralized direction and to ensure unity of effort across the mediums of land, air, and sea. A joint force land component commander controls the actions of Army forces and Marine forces ashore. A joint force air component commander ensures that aircraft and air defense weapons of all services operate harmoniously in a common airspace. A joint force maritime component commander controls actions of forces at sea, including Marine amphibious task forces. These commanders are normally chosen from the service making the predominant contribution, and their core staffs come from the service component commands.

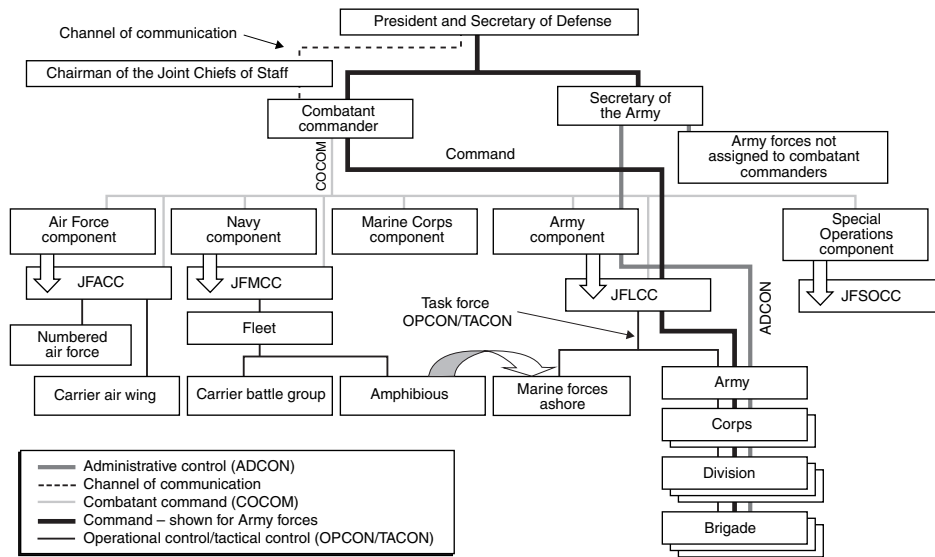
While not commanding or controlling operations, the role of the services is to *provide forces* to combatant commanders and ensure that these forces are properly organized, equipped, trained, and supplied.⁸ The Army, for example, as an institution, prepares forces in these ways to conduct operations on land. Strictly speaking, statements that the “Army” did or failed to do anything during an operation are incorrect because the Army as an institution does not have operational responsibilities. Correctly speaking, a combatant commander did or failed to do something with forces provided to him by the Army.

Figure 8.1 presents a simplified view of command relationships within a theater of operations, with the following assumptions: the combatant commander appointed functional commanders from the service component commands and the joint force land component commander is in the chain of command for Army forces.⁹

The U.S. military exhibits several interrelated problems in achieving the joint control of forces. First, most military officers spend most of their careers within their service chains of command and do not fully understand the principles of joint control, much less its nuances and subtleties. For example, when Task Force Hawk was deployed to Albania, controversy arose about placing Army helicopters on the air tasking order prepared under direction of the air component commander. However, the air tasking order is intended primarily to coordinate the overall air effort and need not constrain the tactical employment of helicopters, rightfully the domain of Army officers. Moreover, the air tasking order directed support vital to missions of the Army’s AH-64 attack helicopters, notably the recovery of downed pilots. It would hardly have made sense to task recovery assets without reference to the attack helicopters they would support. Secondly, real-world command relationships often deviate from doctrine,

⁸These responsibilities among others are listed in Title 10 Armed Forces, United States Code, and are sometimes called simply “Title 10.”

⁹For a more complete description of joint command relationships, see CJCS (2001b; 2001c).



NOTE: JFACC = joint force air component commander; JFLCC = joint force land component commander; JFMCC = joint force maritime component commander; JFSOCC = joint force special operations component commander.

Figure 8.1—Theater Command Relationships

sometimes egregiously. For example, Operation Allied Force in Kosovo did not include a joint force land component commander, despite a need to plan for Army helicopter operations from Albania.¹⁰ Moreover, the command relationships in Albania were so convoluted that no single officer had the responsibility and authority to ensure safe operation of Rinas Airport, on which the entire operation hinged. Third and most important for this discussion, the Army currently lacks procedures and resources to play its part well when smaller (less than a division) Army forces are involved.

The Predominant Service

The service that makes the predominant contribution to operations usually will provide the overall commander. According to this principle, the combatant commander in a theater of operations where large-scale land operations may

¹⁰Adm. James O. Ellis, USN, who commanded or controlled most NATO and U.S. forces during Operation Allied Force, believed that not having a land component commander was a mistake because it shifted responsibility to the joint task force staff, which was only marginally prepared to handle the issues raised. Admiral Ellis's views were contained in a briefing entitled "A View from the Top," prepared at Headquarters, U.S. Naval Forces, Europe, in Naples, Italy, immediately subsequent to Operation Allied Force in June 1999.

ensue is usually a full general in the U.S. Army, as is the case today in Korea. The Navy provides the unified commander in the Pacific. The Army or the Marine Corps provides the commander of Central Command, who is responsible for operations on the Arabian Peninsula, the Horn of Africa, and Afghanistan. With only two exceptions, including the current incumbent, the Army has provided the commander in Europe.

In large-scale joint operations, combatant commanders are almost always Army generals. But post-Cold War operations have typically been small-scale, and combatant commanders have come from other services. For example, Vice Adm. Joseph Metcalf III largely controlled the intervention in Grenada and Adm. James O. Ellis, Jr., had operational control over most of the air forces employed in the Kosovo operation. The trend may be toward increasing interchangeability of services, implying that Air Force generals may someday lead joint operations. If so, the Army will face dual challenges: preparing its own generals to head joint task forces and preparing general officers from other services to at least understand land operations.

Consider, for example, Operation Allied Force. The overall combatant commander was Admiral Ellis, who had three responsibilities. He was Commander of the U.S. Joint Task Force Noble Anvil. He controlled the entire NATO operation, as Commander, Allied Forces Southern Europe. As Commander in Chief, U.S. Naval Forces, Europe, he controlled U.S. land forces, including Task Force Hawk (Army forces in Albania). In this case, the command relationships were skewed because NATO prescribed an admiral, even though the U.S. Navy made a relatively modest contribution. Had the United States conducted the operation unilaterally, the overall commander would logically have been an Air Force general because his service predominated. He too would have controlled the Army forces in Albania and would have been responsible for planning of a larger air-land operation. Had an Army general been chosen, he would initially have controlled an air-only operation. So, all the services clearly face challenges in preparing for future operations and training their general officers.

Control Measures

The Army and its sister services need to consider how the traditional division of responsibilities may be affected by greater fluidity and dispersion on the battlefield. If, as anticipated by the Joint Vision and the Army's emerging concepts, new Army forces are highly dispersed and operate in fluid ways, then traditional ways of working together may become inadequate. This problem is most acute in operations, where the distinction has been made in the past between close air support and interdiction. Close air support involves the operations of air forces, both Air Force airplanes and the Army helicopters, which are in close

proximity to friendly forces and require careful integration. Normally, the combatant commander apportions some part of the overall air effort to close air support, and field commanders determine how that effort will be applied. Interdiction operations are typically conducted to destroy enemy forces prior to contact with friendly forces on land. Normally, the air component commander has the responsibility for these operations. These distinctions presuppose conventional combat developing in linear fashion so that “close proximity” can be clearly delineated. As friendly forces (and enemy forces, for that matter) flow through the battle area, the definition of “close proximity” to friendly forces may vary quickly and in unpredictable ways.

From the Army’s perspective, “close proximity” simply means that the land force commander controls the air operations. A field commander quite naturally and appropriately wants to control those air operations that will affect enemy forces in his vicinity, not only to assure the enemy’s destruction but also to minimize risk of fratricide. So long as this commander intends simply to advance in a linear fashion, he may be content to control sorties directed against enemy forces in his front. If he intends to disperse his forces and attack in several different locations simultaneously, he will want at least to influence air attacks against all these enemy forces. He may want air attacks to precede his own attack, occur simultaneously, or follow his attack, whether or not he is still in contact with the enemy. In other words, field commanders will need overall synchronization of air and land actions, not just control over air efforts in “close proximity” to maneuvering land forces.

Of all the issues raised in assigning responsibilities, perhaps the most controversial involves what is called the fire support coordination line.¹¹ The land or amphibious force commander draws this line and directs attacks for all weapons short of the line, but they need only be informed of attacks beyond it. Air Force officers tend to be comfortable with this division, whereas Army officers tend to think that land commanders should plan attacks throughout the area of operations (Reimer and Fogleman, 1996, pp. 11–17). Joint doctrine very specifically provides that the line is not a boundary—i.e., it is not intended to prevent forces from conducting actions on either side but merely to define what coordination is required. In actual operations, however, it can easily become a boundary with unwanted consequences. During Operation Desert Storm, for example, Air Force officers thought that the Army corps commander set the fire support coordination line much too deep, curtailing the ability of air forces to engage time-sensitive targets. Ironically, Army aviators found that the line impeded their own opportunities to attack Iraqi ground forces beyond the Euphrates River.

¹¹For an outline of the issues, see D’Amico (1999, pp. 70–77).

As battle becomes increasingly less linear, this line may need to be redrawn dynamically in response to events or it may even become counterproductive. The Army and Air Force need to rethink the concept of a fire support coordination line. Just drawing the line ahead of the farthest advanced Army units might include the entire battlespace, imposing a counterproductive restriction on air operations. More innovatively, a line could be drawn around Army units and redrawn automatically as they maneuvered, producing areas similar to the restrictive fire areas drawn for special operations forces. Currently available means, including identification, friend or foe; communication nets; and graphic displays might not support such dynamic control measures, but future means might be adequate.

More fundamentally, relations between the services are tinged with anxiety that parochially minded commanders might employ forces foolishly. From an Air Force perspective, for example, it would be nightmarish if a combatant commander were to dole out air power piecemeal or treat it like flying artillery. From an Army perspective, it would be disastrous if air power were employed only to conduct strategic air campaigns, neglecting support to terrestrial operations. The ideal relationship would be an air-land partnership that neither partner would dominate, although either might have the lion's share in any given operation.

Forming Joint Task Forces

A combatant commander will control theater-level operations, through his own joint staff and functional commanders. For smaller operations, he may create joint task forces that dissolve when these missions are accomplished. This was the case when the Commander in Chief, U.S. European Command (General Clark), established Task Force Noble Anvil, commanded by the Commander in Chief of U.S. Naval Forces, Europe (Admiral Ellis), to control U.S. forces in Kosovo.

During the Cold War, the Army was organized to fight large battles, involving corps and army groups on the Central Front against very large Warsaw Pact forces. Land forces predominated, while opposing air forces fought for air superiority so that they could conduct interdiction and deep strikes. Close air support played a relatively small role. This general pattern applied during Operation Desert Storm in the Persian Gulf, fought predominantly by U.S. forces developed to defeat the Warsaw Pact, fighting an enemy equipped largely with Soviet-built weapons. With this notable exception, Army deployments since 1989 have been at less than divisional strength: Somalia, Haiti, Bosnia, Kosovo, Afghanistan.

The problem is that Army forces are not configured for such small joint operations. So the Army has responded in ad hoc fashion, using most of a division headquarters along with assets from corps headquarters and above. This process is cumbersome and inefficient, particularly because the officers were initially unfamiliar with the new headquarters and its relationships to U.S. and other allied forces. Moreover, these built-from-scratch organizations had to raid headquarters that stayed behind. In the case of Task Force Hawk in Albania, the Army had to draw key elements from V Corps headquarters in Germany, thus incapacitating the whole corps.

Figure 8.2 illustrates why forming joint task forces causes difficulty for the Army. In this simplified example, Army forces predominate, so the combatant commander selects the joint task force commander from his Army component. The joint task forces include two Army brigades, an Air Force wing, and a Marine Expeditionary Unit (reinforced infantry battalion). The joint task force commander decides to work through the service components, although he could have designated functional commanders, such as a joint force land component commander or air component commander. He needs a joint staff to

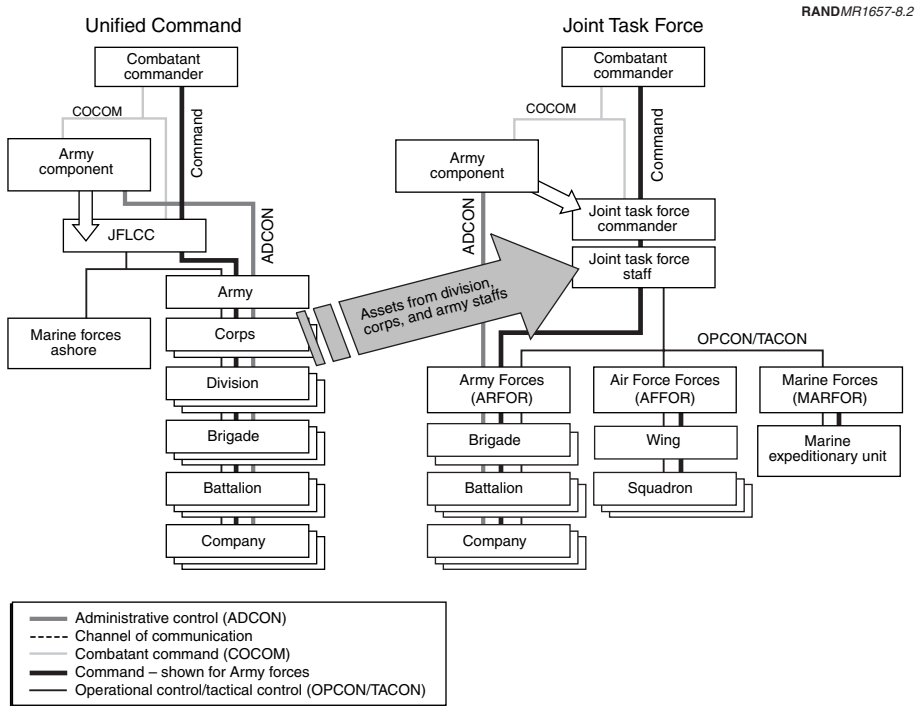


Figure 8.2—Forming a Joint Task Force Staff

plan and direct common action. Normally, the predominant service forms the core of such a staff, but the Army has no echelon of command below corps that has the appropriate assets and training. As a result, the joint task force commander has to draw on division, corps, and army headquarters to develop his new staff. By contrast, if the Marines were to provide the task force commander, he could draw on the existing staffs of a Marine Expeditionary Brigade or a Marine Expeditionary Force, who are accustomed to operating as an air-ground task force under a single commander.

To cope with the post-Cold War trend, the Army needs some way to generate appropriate headquarters quickly and efficiently so it would be ready to control multiple brigades (not divisions or corps), serve the Army component command, support a joint force land component commander, or form the nucleus of a joint task force headquarters. The Army can fill this need in several possible ways. It might augment corps headquarters with elements that could be detached without gutting the corps headquarters. The problem with this approach is it might bloat the Army hierarchy. Alternatively, the Army might create command entities comparable to the Marine air-ground task force, which varies in size from a Marine Expeditionary Unit (reinforced infantry battalion) to a Marine Expeditionary Force (division and up).¹² For this to work, the Army would have to exercise these headquarters during normal peacetime to ensure proficiency.

Standing Joint Task Force Headquarters

Recognizing the problems in forming joint task forces, the Quadrennial Defense Review directed the Department of Defense to develop a Standing Joint Task Force for each of the regional combatant commands (DoD, 2001, pp. 33–34). Subsequently, U.S. Joint Forces Command organized the Experimental Standing Joint Command and Control Element with 55 personnel, which it tested during Millennium Challenge 2002. During normal peacetime, these 55 personnel would study areas where the command would most likely operate. During a crisis, they might help form the headquarters of a joint task force. In line with the practice of selecting the predominant service to provide the core of the task force headquarters, the Army's XVIII Airborne Corps provided this core during the last Millennium Challenge exercise. However, the Experimental Standing Joint Command and Control Element will be limited in the posts it can fill and so will have difficulty introducing enough joint expertise.

If the experiment goes well, unified commanders may eventually have small numbers of suitably trained personnel prepared to help form the headquarters

¹²For an argument in favor of Marine-style organization, see Macgregor (1999, pp. 25–33).

for joint task forces. But the services still must provide most of the required personnel, who will come primarily from the headquarters of their large formations. In this case, the Army still faces the challenge of preparing its corps and divisional staffs to take on joint responsibilities with very little advance notice. There may not be enough time during crises to learn joint operations before actually having to conduct them. At a minimum, corps commanders, divisional commanders, and key staff officers will need to be thoroughly conversant with the capabilities of other services and such joint control measures as the air tasking order. To gain this expertise, they must exercise with their counterparts in other services. At Army corps level, these counterparts might include numbered air forces and air expeditionary forces in the Air Force, carrier battle groups and amphibious ready groups in the Navy, and Marine expeditionary forces.

AN EXPEDITIONARY ARMY

The administration's *National Security Strategy* and the Army's transformation efforts both emphasize strategic mobility and power projection, implying rapid deployment of forces ready to fight on arrival. A critical part of this effort will be for the Army to develop an expeditionary posture in ways similar to those of the other services. For the Army to do this, it must work with the other services.

A few years after the Cold War ended, the Air Force and Navy–Marine Corps developed expeditionary postures for their current forces. In 1996, the Air Force promulgated *Global Engagement*, a strong advertisement for air power, which announced among other things an Air Expeditionary Force that could “launch and be ready to fight in less than three days” (U.S. Air Force, 1996, p. 11). Subsequently, the Air Force developed a plan to cycle its active units so that two Air Expeditionary Forces would always be ready for deployment. In 1992, the Navy and Marine Corps promulgated *From the Sea*, which announced a shift in focus from global war to regional challenges. “The new direction of the Navy and Marine Corps team, both active and reserve, is to provide the nation Naval Expeditionary Forces—Shaped for Joint Operations Operating Forward from the Sea—Tailored for National Needs” (U.S. Navy, 1992, p. 2). The Marine Corps, already represented in this overall strategy, revived use of the word “expeditionary” to describe its force packages.

In contrast, the Army emphasized not what its current forces could do, but what its new forces would be able to do, especially the Stryker Brigade Combat Team (SBCT), scheduled to achieve an initial operational capability in 2003. The Army's apparent reluctance to adopt a more expeditionary posture had several causes. One cause is its traditional focus on scenarios of major theater warfare that provided the rationale for the Army's force structure and its mix of active

and reserve forces. During the Cold War, the scenario involved war against the Warsaw Pact on NATO's Central Front. After the Cold War, the scenario became a campaign against Iraq, analogous to Operation Desert Storm. Strategic deployment was, of course, central to these scenarios, but neither was expeditionary in the sense of responding rapidly during crisis without the benefit of fully developed war plans. Another cause is the Army's ambivalence toward peace operations that have come to the fore since the end of the Cold War. The Army is proud of its accomplishments yet uneasily aware that peace operations might divert resources from the fundamental mission of warfighting.

The Army is now undergoing a transformation that will make its forces lighter, more easily deployable, and more flexible in their employment. But the Army should not wait for these new forces to become available before adopting a more expeditionary posture. Just as the other services announced their new expeditionary postures simply on the basis of existing forces, the Army can become more expeditionary using its existing forces, referred to as the "Legacy Force." In Somalia, Haiti, Bosnia, Kosovo, and now Afghanistan, the Army has demonstrated its capability to be expeditionary. It only needs to accept such contingencies as typical, not exceptional, and develop a corresponding posture.

For the Army, in contrast to the other services, being expeditionary implies working jointly. The Air Force can envision independent employment of an Air Expeditionary Force, and the Navy can conduct blue-water operations and small-scale forays onto land without any assistance. An expeditionary Army needs very close cooperation with other services, not only to support its deployment but in all its operations.

FORCIBLE ENTRY

The National Security Strategy naturally focuses on forcible entry operations. The unpredictability of the post-Cold War era strongly suggests that U.S. forces will not always be afforded the luxury of deploying forces without opposition.

Often, Marine Corps forces may lead the way and Army forces follow. The Marine Corps specializes in forcible entry from the sea and considers itself the "optimal enabling force, prepared to open ports and airfields" (U.S. Marine Corps, 2002). But Army forces also play a large role in forcible entry. Army special operations forces will usually conduct special reconnaissance and take direct action in this context. Army airborne forces may seize airfields by parachute assault. Army aviation, sometimes operating from large-deck carriers, may provide firepower and transport. The issue for the Army is whether and how its other forces will be involved in forcible entry operations.

From the Air

The Army has one division of airborne troops, the well-known 82nd Airborne Division, although World War II was the last time it dropped a division in combat and the Korean War saw the last multibattalion combat drop. The Rangers conducted drops in smaller operations in Grenada, Panama, and Afghanistan. The Ranger Regiment alone has enough strength to accomplish an airfield seizure, one of the classic airborne missions.¹³

Typically, combat drops are conducted at the lowest practical altitude, usually about 500 feet, to minimize time spent under canopy and subsequent dispersion. In employing this technique, transport aircraft are highly vulnerable to ground fire, including machine guns, cannon, and missiles of all descriptions. Suppression of some threats is possible. For example, AC-130 aircraft suppressed the 23-mm cannon fire during the Rangers' drop at Salines Airport on Grenada. But it will seldom be possible to eliminate low-level air defense, especially man-portable missiles with passive seekers. As a result, airdrops have receded into a small, although sometimes critical, niche. Small numbers of transport aircraft rely on surprise, reduced visibility, and the defenders' weakness to survive over the drop zone. Usually these aircraft are MC-130 Combat Talon aircraft, equipped for in-flight refueling, with terrain avoidance radar, special navigation systems, and electronic countermeasures.

Another major drawback of such operations is that airborne forces lack combat power once on the ground. Airborne forces are light infantry, foot-mobile, and lack firepower. A brigade of the 82nd Airborne Division flew to Saudi Arabia immediately after Iraq invaded Kuwait in order to deter further Iraqi aggression. Had Iraqi troops continued south, this brigade would have been at risk, unable either to conduct a strong defense or to withdraw successfully. To magnify their combat power, airborne troops normally rely on close air support. To make this support effective, they work very closely with Air Force tactical air control parties attached to the airborne units. At the time airborne first arrived in Saudi Arabia, however, the Air Force was still building up its own strength.

Special operators, such as Rangers and Special Forces, will certainly continue to jump, but the future for large-scale airborne operations seems doubtful unless they can be better protected. One solution, requiring close Army–Air Force cooperation, would be to have the airborne forces exit the aircraft from medium altitude, above the ranges of many air defense weapons, and use steerable

¹³The 75th Ranger Regiment has one battalion each at Fort Benning, Georgia; Hunter Army Airfield, Georgia; and Fort Lewis, Washington.

parafoils to reach the drop zone.¹⁴ To achieve accurate delivery from medium altitude would require some type of navigation, such as that provided through the Global Positioning System. Parafoils could support individual soldiers, small groups of soldiers, lightweight vehicles, and heavier equipment, including even medium-weight armored vehicles. Airborne units might normally operate with lightweight vehicles mounting crew-served weapons and receive medium-weight vehicles when required by the mission. For example, the 82nd Airborne Division might be augmented with a battalion or more of medium-weight armored vehicles. Such augmentation would give it considerable combat power, especially when teamed effectively with Air Force systems that could range from AC-130 gunships operating just above the low-level air defenses to bombers delivering precision munitions from higher altitudes. Having such mobile land forces in contact with the enemy would greatly magnify the effectiveness of these attack aircraft, which might otherwise be unable to target enemy forces effectively.

From the Sea

The Department of the Navy adopted the expression “From the Sea” to characterize its shift in strategy after the Cold War (U.S. Navy, 1992). The Navy observed that seaborne forces could respond on short notice and build power from the sea without requiring overflight, transit, or basing permission from foreign governments. The Marine Corps will normally be the service to build land power from the sea using amphibious assault ships, but the Army can build power as well using aircraft carriers. *Nimitz*-class carriers are the largest warships ever built, displacing in their latest variants almost 100,000 tons fully loaded and operating 80–85 aircraft of various types. These huge, nuclear-powered ships can accommodate Army forces by leaving all or part of their air wings ashore. They did so during operations in Haiti and Afghanistan.

During the Haiti intervention in September 1994, 1st Brigade of the 10th Mountain Division (1-87th and 2-22nd Infantry) and elements of the 10th Aviation Brigade went aboard the USS *Dwight D. Eisenhower* at Norfolk, Virginia. Three hangar bays were used to stage the men, vehicles, and equipment, including 26 high-mobility, multipurpose wheeled vehicles and 18 UH-60 Black Hawk helicopters. On D-Day, the Black Hawks initially ferried troops ashore and supplies by sling-load. CH-53 helicopters were used for the heaviest loads. Special operations forces arrived aboard the USS *America* (Fishel, 1997). During operations against the Taliban and al Qaeda in late 2001, special operations forces staged from the USS *Kitty Hawk*. Most of the air wing stayed in Japan, freeing

¹⁴The following insights are derived from unpublished work by RAND colleagues Peter A. Wilson and Jon G. Grossman in the Arroyo Center’s Force Development and Technology Program.

space for special operations forces that could launch from the Arabian Sea or establish forward bases ashore. These forces included Army Special Forces, the 160th Special Operations Aviation Regiment, and other special operations units (Vogel, 2001, p. A8).

This marriage of Army forces with carriers offers important operational advantages. Army forces, like their Marine counterparts, can be on the scene of developing crises without seeking permission from foreign governments. In hostile environments, they can seize bases by air-mobile assault from a carrier or they can go ashore behind Marine forces. The aim is not to duplicate the Marines' capabilities but to complement and expand them.

To be ready for carrier-borne operations, both the Army and the Navy need to plan and train appropriately. One task for Army units is to package their forces for carrier operations, and this would involve making equipment and materiel easily identifiable and readily accessible in the sequence they are likely to be needed. Army helicopter pilots would have to practice carrier landings and learn procedures unique to flight operations at sea. Navy personnel would need to be conversant with how the Army plans for deployment—e.g., Navy personnel will need to understand how to sling-load Army helicopters.

The Army would gain a useful deployment option for the SBCT, if it could also be carrier-borne. Putting the SBCT aboard a carrier would demand some way to quickly offload its armored vehicles. The problem today is that the Army's most capable heavy-lift helicopter, the CH-47E Chinook scheduled to be fielded in 2003, will lift about 12 tons, but armored vehicles in the SBCT weigh 18 tons and more. The Future Transport Rotorcraft might provide enough lift, but this program is currently on hold (Weinberger, 2002).

Options for Using a Medium-Weight Force

Currently, the SBCT can conduct combat operations immediately after deploying, but it cannot force entry. In situations requiring rapid response, it would normally deploy by transport aircraft into a secure environment, implying either a viable host government or previous forced entry. If deployed by sealift, it would come ashore dockside or arrive on lighters but not conduct amphibious assault. What alternatives might be considered to allow the SBCT to force entry?

During the "Army After Next" and the Army transformation seminar wargames, a conceptual medium-weight force conducted air-mobile operations using a conceptual vertical lift aircraft that could carry armored vehicles internally. This concept would allow medium-weight forces to conduct forced entry or at least to deploy into an area of operations without use of seaports or airfields.

However, such a concept confronts serious, perhaps insurmountable, obstacles. No current program exists to develop the required aircraft, nor is it clear what technology would be appropriate. Rotary-wing technology would probably not be a wise choice, especially considering the requirement that the armored vehicle be carried inside. Tilt-wing technology seems more promising, but there would be technical risks. The required aircraft would demand new development, not just an enlargement of the V-22, assuming that the Marine Corps' troubled program is ultimately successful. If such an aircraft were developed, it would either be a joint project, implying that the aircraft might not always be available to lift Army forces, or an Army project, making a huge demand on the Army's budget. Moreover, the stream of aircraft required to lift Army forces would be highly vulnerable to low-level air defense, especially passive systems. To ensure survival, the force would have to land outside opposing air defenses, a severe operational restriction.

Another alternative might be to drop medium-weight forces from C-130 or C-17 aircraft using parachute or parafoil. A company or battalion of medium-weight forces in conjunction with airborne troops might seize airfields or other ports of entry in advance of a larger body. Vulnerability to air defenses would remain a problem but perhaps less so than for vertical-lift aircraft, especially if a drop could be conducted above the range of small-caliber air defense guns and most man-portable missiles. The resulting capability might resemble postwar Soviet airborne forces, which were mechanized forces configured for airdrop.

AIR-LAND OPERATIONS

Air-land synergy can pay enormous dividends, as illustrated by recent operations in Kosovo and Afghanistan. Unfortunately, U.S. military doctrine, especially Army doctrine, has not kept pace with technological innovation in air power and even seems to have regressed since the Cold War. Army special operations forces, which always have the closest possible ties with other services, may offer a useful paradigm to the Army as a whole. The goal is for the Army and Air Force to integrate their force projection operations, perhaps modeled on special operations. One area for fruitful teamwork is to suppress the enemy's air defenses, where Army rocket systems have great capability.

Contrast of Kosovo with Afghanistan

Recent operations in Kosovo and Afghanistan dramatically illustrate the necessity of joint Army–Air Force operations. In Kosovo, an air-only campaign failed initially to protect the Albanian Kosovars. In Afghanistan, an air-land effort brought a dramatically quick end to the Taliban regime.

During Operation Allied Force, Yugoslav (primarily Serb) forces faced no threat on land and therefore could disperse and hide from NATO air forces. As a result, these forces presented few targets to air attack and survived months of bombardment with small losses of heavy equipment.¹⁵ This allowed them to commit massacres and conduct large-scale “ethnic cleansing” while the NATO operation was in progress. President Slobodan Milosevic capitulated because he realized that NATO’s will would not be broken, that its bombing would continue, and that its ground invasion was likely. NATO attacks on military targets probably did not provide a major source of pressure.¹⁶ Clearly, NATO would have done better to mount air-land operations, rather than rely on air only.

During Operation Enduring Freedom, by contrast, Taliban forces had to concentrate in defense against the Northern Alliance and therefore offered good targets to air attack. The United States deployed Army Special Forces A-teams and Air Force combat air controllers to coordinate with leaders of the Northern Alliance and to spot targets.¹⁷ Using a wide variety of assets, including AC-130 gunships, F-16 and F-15E fighters, B-1 and B-52 bombers, and F/A-18 and F-14 fighters, the United States conducted air attacks that eventually caused Taliban

¹⁵On June 10, 1999, Secretary of Defense William S. Cohen, Chairman of the Joint Chiefs of Staff Gen. Henry Hugh Shelton, USA, and Vice Director for Strategic Plans and Policy on the Joint Staff Maj. Gen. Charles F. “Chuck” Wald, USAF, presented a briefing in the Pentagon entitled “Operation Allied Force.” According to this briefing, NATO had destroyed about 120 tanks, 220 armored personnel carriers, and 450 artillery pieces and mortars. On September 16, 1999, Supreme Allied Commander Europe Gen. Wesley K. Clark, USA, and the Chief of the Kosovo Mission Effectiveness Assessment Team Brig. Gen. John Corley, USAF, presented a briefing in Brussels entitled “Kosovo Strike Assessment.” According to this briefing, NATO had destroyed 110 tanks, 210 armored fighting vehicles, and 449 artillery pieces and mortars. This assessment was based on aircrew mission reports, supported where possible by cockpit video and poststrike imagery. But when the Munitions Effectiveness Assessment Team visited the sites in Kosovo where successful strikes had been reported, it found remains of only 14 tanks, 18 armored fighting vehicles, and 20 artillery pieces. Moreover, the team found no indications, such as debris or drag marks, to suggest that damaged equipment had been removed. See Barry and Thomas (2000, pp. 23–26). See also Grant (2000, pp. 74–78) and *Air Force Magazine* (2000, pp. 6–7). In April 2000, Air Force Chief of Staff Gen. Michael E. Ryan issued a report prepared by the Studies and Analysis Directorate, U.S. Air Forces in Europe (USAFE), entitled “The Air War over Serbia.” This report did not assess how much equipment had been destroyed. Instead, USAFE (2000, p. 23) noted: “Without the threat of a ground invasion, Serbian forces were free to disperse and hide from NATO aircraft. . . . While flying at high altitudes has been cited by some as the primary reason for the inability to kill tanks and fielded forces, finding, fixing, and attacking dispersed and hidden forces proved a challenging task at any altitude.”

¹⁶See Hosmer (2001). Hosmer found that the Serb leaders “apparently believed that NATO had both the intent and the freedom of action to destroy their country’s entire infrastructure if need be” (Hosmer, 2001, pp. xxii and 131). They might have held out longer, if they had perceived NATO’s real inhibitions. For a comprehensive analysis of the air operation and its effects, see Lambeth (2001).

¹⁷For an account of special operations in the Panjshir Valley and around Bagram, see Priest (2002, pp. A1, A12–A13). Priest interviewed more than 30 members of the 5th Special Forces Group at Fort Campbell, Kentucky.

forces to abandon their positions and attempt to flee.¹⁸ With the help of well-directed, precise air support, Northern Alliance troops quickly enjoyed overwhelming success, prompting Pushtun elements in central and southern Afghanistan to change their allegiance. Subsequently, Marine and light Army forces used air power to help destroy remnants of Taliban and al Qaeda forces lurking in mountainous terrain near the Pakistan border.

The operations in Kosovo and Afghanistan demonstrated that air power is far more effective against fielded forces when they are opposed on the ground. Afghanistan also demonstrated that new methods of target designation coupled with precision munitions have enormously increased the effectiveness of close air support. “Precision” implies not only greater effect on the targets but also greatly reduced risk of fratricide. In addition, opposing forces have less chance to escape the effects of air power by “hugging” U.S. forces. These developments are of great value to the Army’s new medium-weight forces, especially if these have to enter combat with less-than-optimal artillery support.

Doctrine for Air-Land Operations

The Army’s new medium-weight forces, starting with the SBCT, will have less passive protection than current heavy forces. They will probably also have less organic indirect fire, both in terms of systems and ammunition stocks. As a result, air support, especially close air support, will become increasingly more important and may be absolutely necessary for success in many situations but especially during early-entry operations. If so, doctrine for air-land operations will assume pivotal importance.

During the 1980s, the Army developed doctrine for air-land operations, articulated in the Army’s capstone operational document, Field Manual (FM) 100-5, *Operations*, which went through iterations in 1982, 1986, and 1993.¹⁹ This doctrine responded to the demands of NATO’s central front. It was frankly inspired by the German *Blitzkrieg* during World War II. The Army coordinated air-land doctrine with the Air Force to some extent, although it never became joint doctrine. In contrast to air-land doctrine, the current FM 3-0 (FM 100-5 renumbered to correspond to the joint system) is centered on land forces and

¹⁸For an overview, see Cordesman (2001). Cordesman (2001, p. 8) finds that the Taliban and al Qaeda forces had to concentrate in defense of key cities, implying that U.S. aircraft could target them day and night.

¹⁹For a recent critique, see Fastabend (2001, pp. 37–44). Fastabend (2001, p. 43) writes: “To compare these operational concept-like statements end to end—from 1982 through 1986 to 1993—is to see an Army that is progressively ‘losing it.’ Each attempt at the articulation of an operational concept is progressively more vague, more jargonized, and more compromised by genuflection to the Army’s numerous stakeholders.”

says little about the coordination of land and air forces. Its example of “Close Combat”—Landing Zone X-Ray in the Ia Drang Valley—makes no mention of close air support, although close air support played an important role (U.S. Army, 2001c, sidebar below paragraph 4-9). During this operation, the forward air controller attached to 1st Battalion, 7th Cavalry, gave the codeword “Broken Arrow,” meaning that a unit was in danger of being overrun. As a result, the controller had aircraft stacked at 1,000-foot intervals from 7,000 to 35,000 feet waiting to receive targets (Moore and Galloway, 1992, p. 175). The example of “Operational Maneuver and Fire” (U.S. Army, 2001c, sidebar below paragraph 4-15) in FM 3-0 is drawn from the Persian Gulf War. Again the discussion concerns only land forces, although air forces made a major contribution to success.

FM 3-0 addresses air efforts in a few sentences, awkwardly subsumed under the heading “Fire Support Coordination”—e.g., “Army force commanders recognize the enormous potential of synchronizing maneuver with interdiction” (U.S. Army, 2001c, paragraph 2-70). Without saying how this potential can be realized, it goes on to emphasize the “full understanding and strict adherence to common maneuver control mechanisms and [fire support coordinating measures]” (U.S. Army, 2001c, paragraph 2-71), especially the fire support coordination line. But measures of this sort relate much better to deliberate, linear warfare than to the fluid, dispersed warfare envisioned in FM-3 and the Army’s concept for the Objective Force.

In contrast, the Air Force has devoted considerable attention to the subject of air-land synergy. Its doctrine subsumes close air support and air interdiction under the concept of “counterland” operations, usually conducted in coordination with friendly land forces. According to Air Force doctrine, the proper coordination of air and land operations creates a dilemma for enemy commanders: If they mass to defend against land forces, they will offer good targets to air forces; if they disperse and hide from air forces, they will be easily defeated by land forces (U.S. Air Force, 1999, p. 28). Future iterations of Army doctrine should take a similar approach.

The Special Operations Paradigm

In October 2000, Chief of Staff of the Army Gen. Eric K. Shinseki announced his decision to equip ordinary soldiers with the black beret worn by Rangers.²⁰ In his statement to the Army, General Shinseki said that the black beret symbol-

²⁰Rangers protested losing a symbol of elite status and were eventually allowed to adopt a tan beret. As a result, the Army now has berets in four colors: black across most units, tan for Rangers, maroon for airborne soldiers, and green for Special Forces.

ized excellence and was especially appropriate for the transition to “an Objective Force with early entry capabilities that can operate jointly” (Shinseki, 2000). It would be easy to deride or even deplore this decision to give every soldier a symbol of elite status.²¹ Indeed, proliferation changed the headgear’s meaning. It came to imply an Army-wide standard, not elite status. In another sense, this controversial decision might be on target: The Army’s special operations forces may indeed offer a useful paradigm for future development.

Special operations forces, such as the Rangers, will always be a small part of the entire Army. It is both impractical and unnecessary to man an entire Army with people meeting the standards of the Special Forces. However, the Army needs to consider seriously whether the characteristics of special operations, especially its “jointness” at tactical levels, might well be the Army’s future. Special operations are in their very nature joint, constantly requiring contributions from several services for success. Special operations forces rely on speed, stealth, and very violent action to accomplish their missions. They lack the combat power to endure long engagements with an enemy’s conventional forces. Therefore, air support can be essential not only to their success but to their very survival. Air Force MH-53 Pave Low helicopter and MC-130 Combat Talon aircraft often enable the insertion and recovery of Army special operations forces. Air Force combat control teams accompany these forces and are outwardly hardly distinguishable from Army troops, except by their specialized equipment. These teams perform a variety of tasks, including strikes by a wide variety of aircraft, such as the Air Force’s A-10s and AC-130 gunships. Operation Enduring Freedom in Afghanistan provided a powerful example of this synergy when Special Forces A Teams accompanied by combat control teams produced swift, dramatic success for the Northern Alliance against the Taliban.

Of course, most Army forces have more staying power than special operations forces do and are therefore less dependent on air power. New Army forces may increase their responsiveness by adopting methods pioneered in special operations. They may engage enemy forces more rapidly, operate in greater depth, disperse more widely, disengage more frequently, and generally eschew the more deliberate, linear pattern of historical Army operations. If so, they will need that close, habitual association with other services, especially with the Air Force, that have long characterized special operations. Viewed from this perspective, the Chief of Staff of the Army may have invoked the right symbol when he prescribed the black beret for conventional Army troops.

²¹See, for example, Roos (2001, p. 2).

Suppression of Enemy Air Defenses

One area for fruitful teamwork is the suppression of enemy air defenses. Suppression will be of increasing importance to allow operation of unmanned aerial vehicles, both Army-operated systems and those operated by other services, such as Predator. In addition, air defense suppression may be vital to special operations, airborne operations, and deep operations using attack helicopters. Had Army helicopters been employed in Kosovo, for example, air defense suppression would have been critical to reducing their vulnerability.²²

The Air Force and Navy are currently developing the unmanned combat aerial vehicle, which will initially concentrate on suppressing air defenses. This system may prove highly effective, but the Army can also make an important contribution to suppression. The MLRS and Army Tactical Missile System are extremely useful in this role because of quick response, great accuracy, and devastating fire. Moreover, these systems can relocate before an enemy's counterbattery fire arrives and need not surmount air defenses. Once fed targeting data, they are ideal weapons to suppress and destroy any air defense systems within range—300 kilometers for the Army Tactical Missile System. Air Force doctrine notes: "don't use [special operations forces] when the mission can be accomplished with aircraft and don't use direct attack munitions when standoff weapons can be used" (U.S. Air Force, 1998, p. 22). It might add, "don't use aircraft at all, when surface-to-surface fire can be used."

Partnerships Across All Operations

To make all of this a success, the Army and Air Force need to develop close working relationships between Aerospace Expeditionary Forces and the Army's rapidly deployable forces, including its new SBCT. For example, an SBCT and an Air Expeditionary Wing might plan and train to operate together as an air-land team. Because the SBCT gains mobility by being a lightly armored force supported by towed artillery, it forfeits the armor protection and massive firepower of today's heavy forces. As a result, an SBCT will need more responsive air support and more of it. To replace the shock generated by heavy forces, it can call for precise and devastating attacks from the air. Such teamwork

²²Suppression of enemy air defenses (SEAD) was a "go/no-go" criterion for AH-64 missions, but suppression was normally conducted to support air strikes and therefore was not available when such strikes were not flown—for example, because of poor weather. See Headquarters, U.S. Army, Europe (1999, entry headed "SEAD"). Alternatively, Task Force Hawk might have fired the Multiple-Launch Rocket System (MLRS) against areas where Yugoslav air defense systems were likely to be, but such area fires would have risked too much collateral damage—for example, to refugee columns.

demands careful preparation in peacetime, especially if the Army forces must enter combat soon after their arrival in theater.

Tactical Partnership

Partnership at the tactical level also offers prospects of great payoffs but presents great challenges as well. The Army has recently begun a far-reaching transformation that should eventually produce the Objective Force, a force distinguished by new equipment and a radically new concept of employment:

Soldiers and leaders enabled by advanced technologies will provide revolutionary increases in operational capability. Information systems provide dominant situational understanding enabling combined arms units to conduct simultaneous, non-contiguous, distributed operations. Weapons technology breakthroughs promise significantly greater tactical, operational, and strategic lethality from smaller, more agile forces. Platform designs in an arrangement of system-of-systems technologies will enable decisive maneuver, horizontal and vertical, day and night, in all terrain and weather conditions. . . .

The hallmarks of Objective Force operations will be developing situations out of contact; maneuvering to positions of advantage; engaging enemy forces beyond range of their weapons; destroying them with precision fires and maneuver; and tactically assaulting enemy capabilities or locations at times and places of our choosing. (U.S. Army, 2001b.)

In this vision, land operations would increasingly resemble air and naval operations in fluidity, dispersion, and long-range engagement. Rather than maintaining contact with enemy forces along a recognizable line—the forward edge of the battle area or more simply the “front”—U.S. land forces would maneuver in unpredictable ways and initiate engagements at extended range. They would not have to make contact to discover the capabilities and locations of enemy forces. Instead, they would gain this information through improved means of reconnaissance and employ standoff fires to destroy enemy forces that could respond effectively. Tactical assault, implying close combat—i.e., combat within the range of enemy direct fire weapons—would occur only at U.S. choosing as necessary to complete the enemy’s destruction.

To fully realize the concept would require connectivity and decision aids well beyond the current state of the art that are supported by appropriate doctrine. Consider, for example, Objective Force units maneuvering in the presence of the enemy. They are equipped with the Future Combat Systems, whose variants include rocket and artillery platforms, which can deliver long-range precision fires. They include the Comanche attack helicopter, new unmanned aerial vehicles, and robotic land vehicles mounting sensors and weapons. Moreover, Air Force units, trained to work in close partnership with Objective Force units,

are overhead. Having assessed enemy dispositions, the Objective Force units open fire at extended ranges. Some of the responding fire comes from a bunker not previously identified. Within minutes, an Air Force fighter busts the bunker with a large concrete-penetrating weapon. In the course of this attack, an unidentified air defense system launches a missile at the fighter. Within a few seconds of the launch, one of the Objective Force fire systems lays a carpet of dual-purpose munitions across the site. After engaging all identified targets, the Objective Force units close for the kill. Suddenly, enemy forces open fire from within several buildings. To get a better picture, the Objective Force commander has an Air Force drone approach for a closer look. With friendly forces only a few hundred meters away, an Air Force bomber drops guided bombs neatly into the roofs. The Objective Force units employ robotic vehicles to clear the ruin safely.

This sort of close partnership would demand an extraordinary degree of interoperability and cooperation, if only to prevent fratricide. But as Army forces become digitized, commanders should know where their forces are all the time, an incredible breakthrough in land combat. Armed with this knowledge, they could partner with air power to an extent hitherto realized only by special operators. They can identify targets to aircraft while suppressing air defense systems that threaten them. They can build a more complete picture of enemy dispositions by drawing on a wide variety of sensors extending from the earth's atmosphere into space. Their partnership can extend into close combat, the ultima ratio of land power.

CONCLUSION

The Army's vision of future warfare is attainable only in a joint context. To achieve this vision, Army forces must deploy very rapidly, go immediately into combat operations, operate in distributed, nonlinear fashion, develop situations out of contact, attain very high levels of situational awareness, and engage beyond range of enemy weapons. To accomplish any of these tasks will demand contributions from other services, especially in strategic lift, logistic support, surveillance, reconnaissance, close air support, and interdiction. It would not be too much to say that the Army's vision is a joint vision.

The Army and Air Force would gain from closer teamwork, but obstacles exist in both services. Inspired by progress in precision engagement and impressive operational success, airmen may feel tempted to think that air power should be applied in isolation. They may even feel tempted to espouse a national strategy that relies on strategic air attack. But the United States will very seldom conduct all-out bombardment of enemy countries; neither can it defeat all enemies from the air. Moreover, air power becomes far more effective when combined

with land power, as illustrated by contrasting operations in Kosovo and Afghanistan.

For their part, soldiers have to rethink their assumption that air forces should simply support the land forces' scheme of maneuver. Often they do, but, at other times, the relationship may be more of an equal partnership. At one point, air forces may conduct interdiction and provide close air support to land forces as they advance in enemy-held terrain. At another point, land forces may fix enemy forces in place so that air forces can pummel them. The overall plan should best use their complementary capabilities without assuming that either is always paramount.

Army officers normally think of firepower and maneuver as complementary.²³ In the traditional definition, "firepower" refers to the weapons employed by land forces. In World War II, firepower meant primarily artillery, the single greatest killer on the battlefield. To a great extent, the function of maneuver forces was to fix enemy forces so they could be attacked by artillery that was more responsive, more precise, and more devastating than their own. As air power becomes more effective on the battlefield and Army forces become lighter to maneuver more rapidly, Army officers need to include air attacks in their definition of "firepower."

Obviously, the Army's weapons cannot be replaced by close air support. Misusing fixed-wing aircraft as "flying artillery" would be very bad for the Air Force and disastrous for the Army. Land forces must have their own firepower, including mortars, rockets, and artillery, to ensure quick, reliable, on-call response day and night in all weather. Of course, occasionally, air forces will fly nearly continuous patrols waiting for calls from the ground. It would be a deplorable waste of aircraft if they were routinely used to supplant the indirect fire weapons normally organic to land forces, even assuming comparable responsiveness.

The air-land partnership should not subordinate either land or air forces but rather exploit their complementary strengths. Operating alone, land forces may not be able to defeat enemy forces before they can escape. Operating alone, air forces may not be able to target enemy forces, which can stay hidden. Operating together, air and land forces can destroy the enemy, whether he stays or flees.

²³"Firepower and maneuver complement each other. Firepower magnifies the effect of maneuver by destroying enemy forces and restricting his [sic] ability to counter friendly actions; maneuver creates the conditions for the effective use of firepower. Although one element might dominate a phase of an action, the synchronized effects of both are present in all operations. The threat of one in the presence of the other magnifies the impact of both. One without the other makes neither decisive" (U.S. Army, 2001c, paragraph 4-11).

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