THE U.S. MILITARY AND THE EVOLVING CHALLENGES IN THE MIDDLE EAST

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T he U.S. armed forces have long faced challenges in the Middle East, and they have generally done so with considerable success. The attacks on the World Trade Center and the Pentagon on 11 September 2001 did not create a radically new set of problems in the Middle East for services that had already experienced attacks on the Marine Corps barracks in Lebanon, punished terrorism by attacks on Libya, fought over a decade of asymmetric warfare with Iraq, and suffered from terrorist bombings at the National Guard Training Center and the al-Khobar barracks in Saudi Arabia and on the USS *Cole* (DDG 67) in Yemen. Neither 11 September nor the war in Afghanistan has made fundamental changes in U.S. interests in the Middle East or changed the basic strategic ratio-

nale behind the American military presence in the Gulf and the eastern Mediterranean. If anything, what is now called the "war on terrorism" exposed the depth of the challenges that have been evolving for many years, as well as the risks the United States will face if it does not come to grips with the security problems of the Middle East.

Terrorism and asymmetric warfare are clearly part of that challenge, but only part. We still confront the problems of protecting a key source of the world's energy supplies, supporting Arab allies and Israel, securing sea lines of communication, and dealing with weapons proliferation. We still face the risks of major regional contingencies and of war with

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Iraq, and possibly Iran. Terrorism and asymmetric warfare simply add new dimensions.

ENERGY EXPORTS AND LINES OF COMMUNICATION

The Middle East may represent a significant part of the global terrorist threat to the United States, as well as of the threat posed by asymmetric warfare, but we need to remember what our key strategic priorities are. The United States is ever more dependent on a globalized economy, and the global economy is becoming steadily more dependent on Middle Eastern energy exports.

We tend to take this dependence so thoroughly for granted that we sometimes fail to consider how important it is and how much it is estimated to grow in the future. There also is a tendency to view the issue in terms of American import dependence, our normal peacetime reliance on given countries for imports, and dependence on direct imports. These are all false approaches to the problem. We are steadily more dependent on *global* imports; therefore, what affects the global economy affects us.

Specifically, our level of direct imports is no measure of our strategic dependence. We compete for oil on a world market. Any shortage or price rise in a crisis forces us to compete for imports on the same basis as every other nation. Focusing on direct imports of oil ignores the fact that the United States has shifted its manufactured imports to include energy-dependent goods, particularly from Asia. These, in turn, are produced by economies that are critically dependent on oil obtained from the Middle East. Estimates of import dependence that include only direct imports of crude and refined products understate our true net dependence on oil imports to the point of analytical absurdity.

The New Level of Strategic Dependence on Energy Exports

To put this in perspective, the Gulf region alone has two-thirds of the world's proven oil reserves. The U.S. government estimates that Saudi Arabia sits atop at least 262 billion barrels of proven oil reserves, 25.4 percent of the world supply. This compares with 11 percent for Iraq, 9.6 percent for the United Arab Emirates, 9.2 percent for Kuwait, 8.6 percent for Iran, 13 percent for the rest of the Organization of Petroleum Exporting Countries (OPEC), and 23.2 percent for all of the rest of the world.

These reserves make the Persian Gulf the one region in the Middle East that is a truly vital American strategic interest, although the United States does have major strategic interests in friends like Israel and Egypt. The sheer scale of Gulf oil reserves explains why the Department of Energy estimates that the region's oil exports will have to rise by 125 percent between 2000 and 2020 to meet the world's need for energy. The department also estimates that Gulf producers will

account for more than 45 percent of worldwide trade by 2002—reaching this percentage for the first time since the early 1980s. The Gulf share of worldwide petroleum exports is projected to increase gradually after 2002 to almost 60 percent by 2020. The impact on key countries is illustrated by the fact that the Department of Energy estimates that Saudi oil production capacity must rise from 14.5 percent of all world export capacity in 2000 to 19.2 percent of that capacity by 2020.

These figures do not take account of the facts that the Middle East also has roughly 40 percent of all the world's gas reserves, some 35 percent of which are in the Gulf, and that similar increases must take place in gas exports. They do not account for world demographic trends that ensure that total Middle Eastern exports must also rise. They do not show that most importers have few or no strategic reserves and are increasingly dependent on a constant and predictable flow of oil and gas. Finally, they cannot take account of the fact that most of the growth in petroleum exports will go to nations that can be reached only by tanker and not by pipeline.

The growth in world dependence on imported oil and gas will also be accompanied by major changes in the world energy market, as a result of which the Middle East will export more and more highly specialized kinds of products that end users will be unable easily to replace. It means in addition that today's ports must be massively expanded, that tanker and cargo ship movements must vastly increase, and that the industrialized world will become more and more dependent on the timeliness and continuity of these ships' movement through the world's sea-lanes.

The Military Challenge
Even today, most ports are highly vulnerable; many oil facilities are near coastlines or in relatively exposed inland areas; and a handful of maritime choke points are of critical strategic importance. Between three and 3.3 million barrels per day move through the Bab al Mandab, at the southeastern end of the Red Sea; about fifteen million move through the Strait of Hormuz at the exit from the Persian Gulf; and more than three million barrels a day move through the Suez Canal. This involves roughly 240 tanker movements a month through the Red Sea and over 1,400 passages by tankers and petroleum-product-carrying ships through the Strait of Hormuz, plus a vast number of voyages of additional cargo ships. If the Department of Energy projections are correct, these figures must triple by 2020.

At the same time, however, more and more nations will acquire long-range and highly sophisticated antiship missiles, strike and maritime patrol aircraft, submarines, and mines. They will acquire weapons of mass destruction,

long-range cruise missiles, and precision ground-attack missiles that can be used against port and oil facilities or key points of vulnerability, like desalination plants. The very meaning of "choke point" is changing as regional powers acquire longer-range strike systems, the ability to hit sources of enemy exports, and better sensor and targeting systems.

Equally important, terrorist and asymmetric attacks are likely to involve better planning about what targets to destroy, what installations are most costly or have the longest replacement lead-times, and what casualties and damage are the most politically sensitive. The use of chemical, biological, radiological, and nuclear (CBRN) weapons is becoming increasingly possible, and so are attacks to produce the maximum disruptive effect or lasting levels of contamination in key facilities, with corresponding impacts on the world oil market.

Aside from the United States, no combination of powers inside or outside the Persian Gulf region has the military presence, power-projection capabilities, force levels, or technology to protect the sources of Middle Eastern energy exports, ensure the global flow of energy exports, and deny hostile states the ability to attack or blackmail exporting states. Only the United States can hope to adapt to the strategic challenges involved or provide the necessary military power. No other country can link such power to a mix of joint and coalition warfare capabilities, or provide steadily higher levels of heavy and light land power, air and missile power, antisubmarine and mine warfare, escort, maritime surveillance, air defense, and missile-defense capabilities. No other nation can provide an integrated defense against asymmetric attacks by forces like the Naval Branch of the Iranian Revolutionary Guards. No other nation has any serious prospect of deterring and defending against the use of CBRN weapons.

Yes, defense of energy facilities and exports is an old mission, virtually a strategic cliché. It lacks the glamour of, and the attention being paid to, terrorism per se. The fact is, however, that the scale and importance of the energy mission will expand radically over the next few decades; the question, therefore, is whether the U.S. military services, particularly the Navy and Marine Corps, have fully reexamined these changes and made plans to adjust their capabilities. If they have, we must say they have done so with far more stealth than has ever been achieved by a B-2B or F-117A. If anything, the current success of the U.S. forces in the region, particularly of the Fifth and Sixth Fleets, may have to some extent removed from the American military agenda the need for highly detailed force and operational planning. The fact remains, nevertheless, that the only vital U.S. strategic interest in the region is the security of energy facilities and exports. Fundamental strategic interests still matter.

CHANGES IN THE REGIONAL STRATEGIC CLIMATE

At the same time, the U.S. military does face newer challenges, challenges that are more directly related to terrorism and asymmetric warfare. Over the years, the American armed forces have developed an enviable mix of forward bases, exercise and training activities, advisory efforts, port calls, and other aspects of military presence in the Mediterranean and Red Seas, North Africa, the Levant, and around the Persian Gulf. Many of these arrangements have survived crises in relations with nations in the region, including those arising from the influence of President Gamal Abdel Nasser of Egypt, from Arab nationalism, and from the oil embargo following the October War in 1973. The United States has steadily strengthened its presence in the Gulf since the "tanker war" with Iran that began in 1986, a development greatly reinforced by DESERT STORM and by the continuing threat posed by Iran and Iraq.

Ironically, however, maintaining that military presence and a rapid power-projection capability may be becoming more difficult, just when it is becoming more necessary. The aftermath of the attacks of 11 September—enormously exacerbated by the Palestinian crisis—have exposed tensions between the United States and its Arab friends and allies, as well as a popular hostility to the United States that is considerably deeper than many American analysts had estimated. The tensions involved affect the entire region and a wide range of issues. As a result, it seems useful to discuss each of the major challenges the United States faces in maintaining its forward presence in the Gulf, as well as the best- and worst-case situations that may result.

The "Clash within a Civilization"?

Western fears of a clash between civilizations are only a side effect of the struggle within the region to modernize its political and social structures, economies, and Islamic practices. Economic progress has lagged behind population growth for nearly a quarter of a century, threatening to turn oil wealth into oil poverty and sharply lowering living standards in many states. Governments have talked but not practiced economic reform, and they have failed to modernize and open their political systems.

A massive "youth bulge" (that is, in the demographic age-distribution curve) is only beginning to create critical unemployment problems; the percentage of young men and women in the labor force will increase for at least two decades, because of population momentum. At the same time, hyperurbanization and population mobility are destroying traditional social safety nets, while modern media publicize the region's weakness and at the same time present images of material wealth that most citizens can never obtain. The result is to drive many into the mosques, and some toward an Islamic extremism that is at least as

opposed to modernization and secular government as it is anti-Western. Let us consider two (albeit extreme) futures.

The Best Case. Most regimes and most pro-reform, pro-modernization elites in the region finally face the fact they are dealing with an enduring crisis that only they can solve. Economic reform plans are actually implemented. The need for population control is recognized and acted upon. Educational systems are modernized to create job skills. Moderate Islamic scholars meet the challenge from Islamic extremists. Political systems are liberalized enough to create a rule of law, stable structures for economic development, and broader participation. It is a close race between reform and regression, and the race is lost in several countries; in broad terms, however, the progressive forces win.

The Worst Case. Regional elites continue to talk but not act and to export the blame and responsibility for their problems. A systemic mix of economic and population problems creates massive internal instability. The West gets much of the blame; nonetheless, effective political leadership, economic action, and modernization in the region become impossible. Moderate Islamic leaders continue to temporize and avoid coming to grips with extremists. Events play out differently in each state, but the cumulative result is structural economic collapse and political turmoil, with no near-term prospect of progress.

The Impact of the Arab-Israeli Conflict and the Second Intifada
The struggle between Israel and the Palestinians and the broader struggle between Israel and its Arab neighbors is only one factor fueling regional extremism, resentment of the United States and the West, and terrorism. It is, however, a critical one. Even if Arab leaders sometimes use it as a scapegoat or distraction for their own failings, it remains a real human tragedy for Israeli and Arab alike. What might the future hold? Again, two extremes can be imagined.

The Best Case. An early return to serious peace talks and to the terms of the January 2001 negotiations at Tabah and Camp David seems impossible. The second Intifada may well drag on for several years in some form, escalating sporadically. Sheer exhaustion and frustration, however, eventually force changes in political leadership in both Israel and the Palestinian Authority and lead Syria to face the need for real-world compromises. Israel, the Palestinians, and Syria edge back toward negotiations. They finally reach a series of compromises that are unpopular on all sides but with which all sides can live. Peace, however, is still based on anger, distrust, and sometimes hate. Violence without outright war is replaced by peace with some level of violence.

The Worst Case. Three failed leaders—Ariel Sharon, Yasser Arafat, and Bashar al-Assad—slowly drag their countries into a steadily escalating conflict. Israel

produces a policy of forced separation, pushing Palestinians out of some areas and leaving them without an economy and only the shell of a state. The Palestinians acquire longer-range weapons. Jordan is destabilized and becomes anti-Western, anti-peace, and pro-Iraq. Egypt distances itself from peace and from the United States. Nuclear and biological saber rattling becomes constant. Syria and Iran expand their support of extremists and their use of proxies in a low-intensity war. The United States and the West get much of the blame, and terrorism becomes a fact of life.

Saudi Arabia and the Southern Gulf States

Events since 11 September have created major new tensions between the West and the Persian Gulf states, particularly between the United States and Saudi Arabia. They have also exposed the urgency with which Saudi Arabia must take action to diversify and privatize its economy, deal with its massive population problems and youth bulge, modernize its education system and implement Saudisation, come firmly to grips with the need for religious modernization, and cope with Islamic extremism. What are two, quite different possibilities?

The Best Case. The United States and Saudi Arabia realize that military disengagement and political feuding are no substitutes for a more effective partnership. Crown Prince Abdullah and President G. W. Bush concentrate on creating a new strategic partnership. Saudi Arabia aggressively implements its plans and efforts in the area of economic reform, diversification, and privatization. The educational system is reformed, and the regime takes seriously the need to oppose Islamic extremism and terrorism while maintaining its religious legitimacy with the moderate *Ulema*. Political reform keeps pace with the evolution of Saudi society.

The Worst Case. U.S.-Saudi relations so deteriorate that the United States largely disengages in military terms, creating a power vacuum in the Gulf, leaving Saudi Arabia without effective military advisers or technical support, and making effective cooperation in counterterrorism impossible. Saudi efforts at economic, population, educational, religious, and political reform falter, leading to growing internal instability. The Saudi regime falls, and progressive technocrats and businessmen flee. The result is a weak, extremist Saudi Arabia that cannot achieve the level of investment necessary to expand oil exports to meet world demand.

The Impact of Iran

Iran is not "evil"; it is deeply divided between religious hard-liners and more moderate elements. It is a major proliferator of weapons, however, and it has significant capabilities to threaten or attack the flow of oil through the Gulf. It is

committed to supporting anti-Israeli movements. At the same time, Iran's internal economic problems undermine its stability as an oil exporter and its ability to attract the outside investment and technology it needs to maintain and expand energy exports. How might Iran develop?

The Best Case. The moderate factions in Iran slowly win their long political battle with the hard-liners and extremists. Iran carries out serious economic reform and restructures its energy sector to attract large-scale foreign investment. Weapons proliferation is cut back, and no major CBRN forces are deployed. Iran seeks regional stability and peaceful political influence. Its opposition to Israel is reduced to political hostility; it accepts an eventual peace settlement between Israel and its Arab neighbors.

The Worst Case. Moderation and democracy (in any significant degree) fail, because the hard-liners successfully block reform, assert their power over the internal security apparatus, and drag Iran into conflicts with the West, Israel, and Iran's neighbors, out of conviction and as a means of mobilizing the state. Iran supports terrorism and expands its arms shipments to Palestinian and Lebanese extremists. It openly proliferates weapons and uses its missiles and CBRN capabilities to threaten its Gulf neighbors, Israel, and U.S. forces in the region. It expands its maritime and air threat to Gulf shipping as a further means of politico-military leverage.

The Impact of Iraq

More than a decade since the Gulf War left Saddam Hussein's regime in power and a still-powerful conventional military machine in being, Iraq presumably has a considerable capability to develop weapons of mass destruction. Iraq also is a continuing threat to Kuwait, Saudi Arabia, and Iran. Iraq plays a growing role in supporting Palestinian hard-liners. At the same time, renewed oil wealth and oil-for-food arrangements have not begun to correct the effects of some twenty years of crisis, war, and failure to develop, nor is there the stable climate necessary to develop energy resources. Should we be optimistic or pessimistic?

The Best Case. Iraq's regime proves to be far more fragile than expected; internal tensions destroy not only Saddam Hussein but also the elite around him. Leaders emerge who focus on the peaceful development of Iraq and can force sufficient unity of action upon Sunni, Shi'ite, and Kurd. Economic reform takes place; resources go into social development and not arms; and Iraq becomes a major but peaceful player in regional and Arab politics.

The Worst Case. Saddam Hussein's tyranny continues and becomes hereditary as his younger son institutionalizes his power. Efforts to support an uprising around a weak opposition fail and strengthen Saddam by default. This "Bay of

Kurdistan" failure deprives the United States of the regional allies it needs for a major war to remove Saddam from power. Saddam breaks out of UN sanctions, rearms, and reproliferates. He is a constant source of tension throughout the Middle East and supports terrorism by proxy, hardening Iranian attitudes and posing an unremitting threat to the region and its energy exports.

Another "Algerian Civil War" in North Africa?

Algeria has "won" its civil war against its Islamic extremists, but all North African states have failed at effective economic reform and face major demographic crises. Islamic extremism is gaining influence in the Maghreb for the same reasons it is gaining influence in other parts of the Middle East. What might happen in North Africa?

The Best Case. North African states finally act upon their economic and political reform plans. They aggressively deal with the problem of population growth. They encourage serious privatization and foreign investment, and avoid military adventures. Morocco, Libya, and Tunisia succeed in internal economic reform. Algeria's vicious and corrupt military junta is overthrown without shifting power to Islamic extremists.

The Worst Case. North Africa becomes a shoreline of failed regimes and economies. A new Algerian-style civil war breaks out in several of these states, and extremists seize power. Energy investment is inadequate, and political and economic instability encourage massive new flows of emigration, attacks on energy facilities, and the export of terrorism. Europe is directly affected by all three consequences.

Extremism and Terrorism

Global terrorism does not originate solely in the Middle East; it is a serious problem in many countries and among many movements. What is its trajectory?

The Best Case. Regional regimes realize that they cannot tolerate extremism or the export of terrorism without being counterattacked, without making more likely their own eventual overthrow, and without further crippling their prospects for social and economic development. In the short run, they deal effectively with internal security issues. In the long run, they make the economic, social, political, and religious reforms necessary to deal with the root causes of terrorism.

The Worst Case. Leaders temporize, dither, and exploit extremism and terrorism for short-term advantage. Terrorists are used in both regional and global proxy wars and attacks. Radical regimes steadily encourage terrorism and provide terrorists better weapons, tolerating or encouraging their acquisition of CBRN weapons. U.S. and Western counterterrorist attacks and campaigns win tactical

victories but cannot address the root causes; each success accordingly breeds more skilled and determined terrorist groups. World order and liberal values are threatened, exactly as extremists hope, and millions die.

Proliferation and CBRN Weapons
Algeria, Libya, Egypt, Israel, Syria, the Sudan, Iran, and Iraq are all proliferators. al-Qaʻida has made it clear that terrorists have a serious interest in CBRN weapons as well. Current arms-control and export-control policies cannot deal with the problem. What might happen?

The Best Case. A total roll-back in CBRN weapons capability is impossible. No amount of control or inspection can prevent states or even subnational groups from becoming able to manufacture significant amounts of biological agents with nuclear-like lethalities and to use them with only limited, if any, alerting to the targeted state. The resolution of regional quarrels, the advance of political and economic reform, and some form of inspection and arms control do, however, reduce proliferation to very low-profile stockpiling, eliminate the specter of delivery by hair-trigger missile and air forces, and produce true roll-back in some countries.

The Worst Case. The race for weapons of mass destruction becomes increasingly widespread. Saber rattling and CBRN threats become endemic. Nations develop first-strike capabilities and launch-on-warning/launch-under-attack options. Terrorists manipulate this volatile situation so as to trigger a major exchange somewhere in the world, or a radical leader starts a process of escalation that cannot be stopped. A catastrophe ensues.

Immigration, Labor Mobility, and Prejudice
Europe already sees regional immigration—particularly illegal immigration—as a major security threat. Economic and demographic pressures can make this kind of threat much worse in the future. The resulting racial and religious prejudice can harden Islamic antagonism with the West and encourage terrorism; similar forces can impel millions from Latin America or Asia toward wealthy nations like the United States. What might then happen?

The Best Case. Widespread economic and population control reforms attack the root cause of the problem while Western and regional governments work far more closely together to limit its near-term impact.

The Worst Case. Massive waves of attempted and successful illegal immigration trigger draconian "First World" responses and equally hostile regional reactions among impoverished societies. A "clash of civilizations" becomes a clash over immigration throughout the world.

REDEFINING FORWARD PRESENCE

Several aspects of this list of challenges need to be kept carefully in mind. The first is that only some of these problems and challenges may have major impact at any given time. The second is that neither the best nor the worst case normally takes place; the actual pattern of events almost always lies somewhere between. The third is that the primary responses must come from within the affected region; these are not problems that can be fixed from the outside—although this is not reassuring in a region like the Middle East that has mastered the art of exporting blame while failing to take decisive action. The fourth is that no one can predict which challenge will emerge at a given time, the exact threat it will pose, or what other challenges may be ongoing. Finally, while U.S. military power in regions like the Middle East can help deal with all these problems to a greater or lesser degree, the primary agents of American action in the political and grand strategic dimensions will be the president, secretary of state, secretary of defense, and members of the Joint Chiefs of Staff.

Creeping Withdrawal versus Positive Engagement

That said, U.S. military forces cannot afford simply to deal with these problems passively and wait for events to take their course. It is easy to call for low-profile, reduced forces and to achieve "smaller footprints" by moving forces and facilities offshore and over the horizon. The practical question is whether that approach really would make the United States any more popular or less controversial, and whether it would be as effective as a major effort to engage and explain. There is a real risk that no critic of the United States will notice or care about reductions in presence and visibility, that there will be steadily escalating demands to eliminate any kind of U.S. presence, and thus that the United States (and its allies) will only have lost substantial deterrent and defensive capability by withdrawing.

Instead, U.S. forces could take a number of important actions. In terms of forward presence, they can greatly strengthen efforts to engage Middle Eastern military forces and civilians. This inevitably means putting men and women, aircraft, ships, and facilities into harm's way. It means expanding diplomatic and outreach activities, increasing and restructuring training and exercise cooperation and related programs, and making a far more deliberate effort to explain the value of U.S. presence to the Arab media and civilians. The Navy in particular has long been a de facto diplomat; all U.S. military services and commands must now become regional politicians, ready to assist regimes striving for a political order compatible with American values and to defeat terrorism and other forces of asymmetric warfare. The United States needs to staff, prioritize, and fund this

mission as one that may well be more important than purely military tasks like air strikes and mine warfare.

U.S. forces alone, however, can reach out only in very limited ways beyond military-to-military relations. If the United States is to explain and justify its presence, arms sales, security relations, and efforts to build regional coalitions, the State Department and American embassies in the region must be far more active and effective than in the past. Volumes could be, and are being, written about the role and impact of American and multinational corporations in the globalized economy of the future.

The State Department has a long way to go in its handling of the public diplomacy involved in such issues as U.S. policy toward Iraq and the impact of sanctions. It has failed to create a public diplomacy to deal with terrorism and extremism. Its efforts to explain the threat of proliferation have been both patronizing and childish. Above all, it has accepted the concept that regional governments can maintain virtual silence about their military relations with the United States, relying on sheer authority rather than explaining and justifying these relations to their people. This simply is not an acceptable approach in an era of broad social and economic unrest, Islamic extremism, and backlash from the Arab-Israeli issue and the impact of sanctions on the Iraqi people. It is simply not acceptable in an era of satellite television, Internet newsletters, and incessant questions, criticisms, and attacks.

Shifts in Military Posture and Activity

U.S. military forces inside and outside the Middle East have a number of useful options. One is to reexamine comprehensively their advisory, arms sales, and foreign training programs, including such relatively low-cost programs as International Military Education and Training. This can be coupled to a second option—finding ways to make friendly militaries even closer partners, giving them as many meaningful mission and exercise tasks as possible, and stressing low-cost and low-technology forms of interoperability.

Another is to clear up the corruption created even in the official Foreign Military Sales program by systematic abuse of so-called offset arrangements (industrial compensation to the buying country, typically in technology transfer or commodities), as well as the corruption involved in hiring consultants, shipping, and purchasing in non-FMS contracts. U.S. arms sales under FMS have far more integrity and effectiveness than those of most other countries, but every one of these U.S. arrangements must be spotless. Furthermore, public diplomacy must explain and justify such contracts in ways that are convincing to people in the region, show that they are honest, that they really contribute to

effective national defense, and that the United States is serious about coalitions and interoperability.

In any case, the era of "burden sharing" through arms sales is over. It is part of the problem and not part of the solution. The challenge now is to create true partnerships, based on respect and with no vestigial elements of patronizing mentorship. Wherever possible, "joint" should mean "coalition." Exercises, operations, and other activities should be tailored to support and validate an engagement strategy.

At the same time, however, U.S. forces need to look toward the future. Presence should not be forced on reluctant friends and allies, and it should be made clear to friends and foes alike that the United States is strengthening both its over-the-horizon options and its ability to shift forces rapidly and yet operate effectively. In this regard, the Navy needs to engineer future ships for greater endurance and less dependence on local facilities and support. Naval and Marine aviation need to take very careful looks indeed at their decades-long tendency to emphasize aspects of aircraft performance other than range. All four services need to examine the range, payload, and endurance of all future fixed and rotary-wing aircraft to emphasize ability to operate at long ranges. Some of their efforts to rush into reliance on short- or medium-range unmanned aerial vehicles and combat vehicles (UAVs and UCAVs) need to be reviewed.

The United States should examine options for using ships as replacements for land facilities in forward areas, and for ways to link the Army's and Marine Corps' searches for future generations of lighter and more mobile weapons with new, more cost-effective approaches to sea-based prepositioning. It needs to tailor all aspects of its air- and sea-based firepower and associated intelligence, targeting, and battle-damage assessment systems so as to reduce both collateral damage and the destructiveness of attacks—lessening the impact of actual combat upon a region.

This approach has implications for several elements of naval forces, such as "arsenal ships" and long-range cruise missiles. The Navy badly needs *low-cost* cruise missiles, possibly more than it needs more sophisticated ones. Finding advanced and relatively low-profile ways to deal with mines and coastal submarines may warrant even higher priority. Also, the value of long-range air and theater missile defenses deployed exclusively on ships at sea will grow as political pressures mount to reduce American presence on allied soil. Retailoring maritime surveillance and intelligence capability to make more use of low-profile assets like long-endurance UAVs may have similar value.

It should be stressed again, however, that retreat over the horizon or to more remote regional bases is not a desirable option; to some extent it is a strategic

defeat. It may well prove far more expensive than engagement and partnership, be less effective, and ultimately do little to make the United States more popular.

REDEFINING LOW-INTENSITY COMBAT

U.S. military forces cannot afford to focus on force transformation, terrorism, and asymmetric warfare to the point of weakening capabilities to engage in a major regional conflict against Iraq or be able to deal quickly and decisively with any threat from Iran. They cannot deal with a political and strategic mosaic as complicated as the Middle East as if one approach to terrorism and asymmetric warfare applies to the entire region; as if the attacks on the World Trade Center and the Pentagon somehow give the United States unrestricted freedom of action; as if the "9/11" mentality justifies ignoring the views of friends and allies or the complications and risks that result from even the most successful U.S. military action.

The Lessons and Nonlessons of Afghanistan

As the previous complex list of challenges has shown, the United States must take account of not only potential threats but the broad forces shaping instability in the Middle East, the views of its allies, and the need to forge coalitions. It needs to tailor its approach to deterrence and defense so as to deal with each individual country, each organization, and each major terrorist actor. This in turn means that U.S. military forces must be flexible and adaptive. One of the key lessons of past wars is that military doctrine should be abandoned on the first day of conflict—that strategy, tactics, and war plans should immediately give way to reality. This is all the more so in the case of asymmetric warfare and counterterrorism, where rigidity and routine are synonyms for vulnerability.

As we are learning to our cost, even major military successes in Afghanistan may not bring us victory in any traditional sense of the term. In fact, it is not clear that a thoroughgoing defeat of al-Qaʿida is tantamount to victory. The classic case of Aleksandr Ulyanov is a warning of what may come. In 1887 the czar's secret police found and killed the young revolutionary and destroyed the organization of which he was a part. By doing so, however, it produced a far more serious future threat, by changing the life goals of his younger brother— known to history as Vladimir Ilich Lenin.[1]

Secretary of Defense Donald Rumsfeld approved planning guidance after the collapse of the Taliban stating that the war could easily last to 2008 and beyond.[2] U.S. military planners and counterterrorism experts are also warning that the struggle in Afghanistan provides lessons for enemies as well as for friendly forces. They speculate that future terrorist and asymmetric opponents will strive to create far looser and more broadly distributed networks, groups of cells that

have a high degree of individual independence and survivability and that do not have rigid hierarchies, headquarters, or physical facilities that can be located and attacked. They argue that a key lesson of Afghanistan to such enemies is the need for more anonymity, more emphasis on cover organizations and proxies, and for sequential or multiple attacks from isolated cells and elements so that losses in any one area will not halt the overall campaign.

What remains to be seen is whether such lessons will be applied only in future wars or whether they will affect this one. Many elements of al-Qaʿida were not in Afghanistan, and large numbers of its fighters and leaders seem to have escaped. It is at least possible that they will reorganize and mount new terrorist attacks. Alternatively, elements of al-Qaʿida may go underground, reconstitute themselves, and emerge with new names, new leaders, and new methods of attack. It has become a cliché to say that death cannot deter a suicide bomber. It may be equally true that negating one kind of threat of terrorists or other asymmetric opponents simply forces them to devise and implement another kind.

Other disturbing aspects of the partial victory that has been won to date need to be kept in mind in interpreting the lessons of the Afghan war and the challenges it poses for the U.S. Navy and Marine Corps. One of these is that it remains impossible to prove a negative—such as that Iraq played no role in supporting the terrorist attacks. The same was true earlier of Syria's role in the Marine Corps barracks bombing in Beirut and of Iran's role in the bombings in al-Khobar. Nothing about Afghanistan indicates that the United States has found a solution to state use of terrorists as proxies in asymmetric warfare.

This, in turn, raises the possibility that terrorist movements will deliberately attempt to implicate states falsely in their attacks, either to drag them into the conflict as allies or to make them erroneous targets. States may do the same with other states. One has only to consider what would have happened if al-Qaʿida had deliberately tried to implicate Iraq, or if Iran had done so. False proxies, black and false flags, and Trojan horses may be just as much a part of future asymmetric and terrorist conflict as real opponents.

The Limitations of the Afghan Conflict, and Lessons for the Iraq Option. All of these factors add up to a warning about the differences between defeating an extremely weak opponent like the Taliban and fighting an opponent like Saddam Hussein's Iraq. There is no doubt that the Iraqi regime has its vulnerabilities. Nonetheless, it is a far better organized, stronger, and in some ways a more popular tyranny than was the Taliban. It is also a power capable of serious war fighting, with 2,200 tanks, other heavy forces, nearly four hundred aircraft, and weapons of mass destruction. If one considers the unique conditions of the

Afghan conflict, it should be clear that Afghanistan is not Iraq and that the military lessons of Afghanistan may at best have only limited applicability elsewhere.

At the same time, Afghanistan provides a warning of the dangers of putting too much emphasis on numerical force strength, military history, and the outcome of military analysis, while ignoring how "intangibles" can suddenly and unexpectedly change the outcome of wars. Military strength and the past performance of local forces proved to be poor predictors of actual war-fighting capability and endurance. The catalytic collapse of the Taliban and al-Qa'ida was indeed possible, but it was not probable; the United States and Britain had considerable luck with several key intangibles. Likewise, in Kosovo in 1999 one could do no more than guess how long Serbian forces would resist Nato's air campaign, or how the Serbs would react politically, given the military targets destroyed, industrial and infrastructure facilities damaged, and Kosovar refugees who had fled. Iraq's performance in the final battles of the Iran-Iraq War was far more impressive than its performance during the Gulf War, and in 1990 there had been no way to be sure Iraqi forces would sit passively in Kuwait while coalition forces acquired decisive defensive strength and then dominant offensive capability.

While the U.S. military experience in Afghanistan may not translate directly into war-fighting experience in Iraq or any other case, factors like political and military leadership, morale, adaptability, and other intangibles could again lead to a far more rapid Iraqi collapse than the numbers would indicate. They could just as well produce the opposite effect in terms of Iraqi nationalism, resolve, and hostility. The uncertainties in such intangibles can swing either way. For all the success in the past months, it is important to note that the United States and Britain have not won a war; they have won a major victory in a single theater. The two key leaders of the opposition—Sheik Omar of the Taliban and Usama Bin Laden of al-Qa'ida—remain (at this writing) unaccounted for. This is not complete victory in a war fought at least as much for political symbols as to defeat military and paramilitary enemies.

Civilian Cover, Collateral Damage, and Human Rights as Weapons of War

The enemy use of civilian cover and the possibilities for manipulation of civilian casualties and collateral damage may be an equally important lesson. The Gulf War, the fight against Iraq since that time, Kosovo, and the Afghan war all saw efforts to use civilians and civilian facilities as shields against U.S. and allied attacks. Distributed terrorist networks and state-sponsored asymmetric forces can be expected to make more use of civilians as shields and of civilian areas as hiding places. Extremist groups like Hezbollah and Hamas have long gone farther, as have Kurdish terrorist organizations in Turkey. They deliberately blur the lines

between terrorist and combat elements; religious elements and functions; educational, humanitarian, and medical elements and functions; and "peaceful" political elements and belligerent actions.

In the process, terrorist organizations like al-Qa'ida and states like Iraq have found that well-organized political and media campaigns can make responsibility for terrorist and military acts unclear; conversely, they can use collateral damage and human suffering as political weapons. Wrapping movements in the cloak of democratic values, exaggerating civilian casualties and suffering, and exploiting human rights and international law are becoming parts of an ever more sophisticated mode of modern terrorism and asymmetric warfare.

So, for that matter, are religion and ethnicity and the willingness to exploit the causes and sufferings of others. al-Qa'ida and Saddam Hussein, for example, have systematically exploited Islam, their identity as Arabs, and the second Intifada. Slobodan Milosevic and his elite did something very similar in Bosnia and Kosovo, exploiting Christianity and Slavic identity with Russia. The Taliban misrepresented the Afghan situation by producing grossly exaggerated claims of civilian casualties. While an independent estimate by the Associated Press put the figure at some five or six hundred, the Taliban ambassador alleged that fifteen hundred civilians had been killed, the Arab press service Al-Jazeera gave estimates as high as six thousand, and one economist at the University of New Hampshire produced estimates of five thousand (and then 3,100–3,800). In some cases the Taliban is known to have reported civilian casualties when there were no such casualties at all.[3]

The United States faces a broad challenge in dealing with such issues in part because, as the fighting in Afghanistan has shown, pilots and unmanned aerial vehicles cannot always distinguish enemy forces and facilities from civilians in asymmetric wars, either in built-up areas or in the open. The same seems to be true even of special warfare teams on the ground. Independent teams, working with local allies, cannot get the full background on suspicious movements and behavior patterns; they often are fed misinformation or deliberate lies. The Afghan war demonstrated that such groups can sometimes get much better information on unconventional combatants than any sensor or airborne platform, but not even "fusion" of their reports with data from combat aircraft, satellites, UAVs, signals-intelligence aircraft, and other human intelligence can fully characterize many targets or reliably distinguish combatants from civilians.[4]

Further, the United States has no clear methodology for detecting collateral damage or estimating its scale. While certainly seeking to minimize collateral damage in broad terms, like other military powers the United States does not announce estimates of either loss of life or the indirect costs, particularly cultural and economic, of military strikes. Since Vietnam it has avoided public "body

counts" of troops or civilians killed. This reluctance allowed Iraq, Serbia, and the Taliban some propaganda successes with grossly inflated claims of civilian casualties and collateral damage. While many human rights groups have been careful to examine such claims, others have swallowed them whole, and hostile countries and political factions have done the same.

The United States was able largely to avoid the political backlash from civilian casualties and collateral damage during the Gulf War, although exaggerated casualty claims—particularly on the "highway of death" during the final Iraqi escape from Kuwait City—contributed to the early termination of the coalition advance and the declaration of a cease-fire. Washington has been less successful since that time in countering Iraqi claims on a strike-by-strike basis.

In 1999, both the United States and Nato had to address civilian casualties and collateral damage in Kosovo on a daily basis, and spokesmen often made mistaken claims or had to admit inability to confirm or deny Serbian charges. This often gave Serbia a propaganda advantage during the fighting. After the campaign, the Department of Defense largely dodged the domestic political fallout by issuing its after-action report to Congress only after the issue had lost major media impact, and by defining collateral damage so narrowly as to exclude many incidents.[5] Nevertheless, the problem is real, and there is little reason to suspect that it will not be even more serious whenever the United States must deal with more formidable threats or more intense asymmetric wars.

Designing Weapons to Deal with Collateral Damage
The other side of this coin is that properly designed weapons and systems for reconnaissance and targeting can now greatly reduce the problem of collateral damage and civilian casualties. The global reaction to the fighting in Afghanistan shows that the United States does not always have to yield to the kind of extreme media and human rights criticism that attempts to preclude all use of military force by making any civilian or friendly fire casualties or collateral damage unacceptable. If the world accepts the need for military action, it also accepts the inevitability of such losses. The United States does, however, have to demonstrate that it has made a good-faith effort to minimize collateral damage and civilian casualties. Ever since Vietnam, each improvement in military capability has been matched by demands for higher standards of performance in that respect. The U.S. effort to develop smaller precision-guided weapons, like 250-pound versions of the JDAM,* is one example. Another is the series of major improvements in

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* JDAM—Joint Direct Attack Munition, a "tail kit" that converts a variety of conventional, free-fall air-to-surface ordnance into "smart" weapons, with extended-range, all-weather, autonomous, and precision-guidance capability.

target selection and review made after the inadvertent strike on the Chinese embassy in Belgrade.

There remain, however, a number of areas where the United States can do more. The British, for instance, are experimenting with devices that inactivate the warhead when systems malfunction or lose their targeting lock. The U.S. military needs to come to grips with the long-standing problem of cluster munitions and "dumb" bombs that effectively turn into land mines if they do not explode on impact. Improved release systems, navigation and targeting aids, and wind correction can help up to a point; but the 1,150 cluster bombs that U.S. aircraft dropped on 188 locations in Afghanistan as of early February had many of the same defects as the weapons dropped in Vietnam and the Gulf War, which often produced duds that could be lethal if handled.[6] This is not a problem that should take three decades to solve.

More generally, the United States needs to examine ways in which it can design sensor, intelligence, and targeting systems specifically to minimize collateral damage and civilian casualties and to provide some form of near-real-time warning or imagery to allow rapid confirmation of whether or not mistakes have occurred. This does not mean paralyzing operations; it does mean changing design criteria and methods to allow operations to be sustained with minimal cost to the innocent and with minimal political backlash.

A longer-run need is for some mix of methods and technology that can produce meaningful "body counts," at least over time. Vietnam—with its endless phony casualties and pressure to take risks in attacking civilian targets—is scarcely an example to follow. But as we have seen, if the United States does not produce reasonable and well-founded estimates of its own, others will produce unreasonable and politicized ones. Beyond that, minimizing casualties requires an understanding of what "casualties" really are. Physical collateral damage can always be fixed, or structures replaced. People cannot.

POWER PROJECTION AND FORCE TRANSFORMATION

The Afghan war has again demonstrated the necessity to be able to project land and air power rapidly over very long distances. It has demonstrated the value of strategic airlift, long-range strike, and the ability to operate with limited forward bases. At the same time, it has confirmed the value of light forces like special warfare units for counterterrorism and some forms of asymmetric warfare. Major regional contingencies and wars involving armor and heavily defended airspace constitute only one point along a changing spectrum of conflict.

It is unwise to generalize without detailed data on the forces engaged in a given conflict and on the course of battles and engagements. It is dangerous, as we have seen, to generalize at all from the Afghan conflict, given its unique

character. Nevertheless, certain insights about force transformation and power projection do seem clear.

The Changing Nature of Joint Warfare and Combined-Arms Mix

Virtually every major recent war has shown the growing value of joint operations and of the integration of land-air-sea operations in ways adapted to the needs of a given conflict. Like Kosovo, however, the Afghan conflict has shown that a combination of precision air and missile strike capability, coupled with greatly improved intelligence and targeting systems, can sometimes supply much of the heavy firepower that previously had to be provided by artillery and armor.

The shift toward precision weaponry continues. Some 6,700 of the twelve thousand air weapons the United States dropped in Afghanistan by 7 December 2001—56 percent of all weapons dropped—were precision guided. By early February 2002, roughly ten thousand weapons out of a total of eighteen thousand dropped were precision munitions—still 56 percent. This compares with 35 percent of the twenty-four thousand weapons dropped during the Kosovo campaign in 1999.[7] Also, a new ability to correct for dispersal by wind, as well as greatly improved navigation and targeting capabilities, made the delivery of unguided weapons far more precise than it had been.

Granted, in both Afghanistan and Kosovo the U.S. and allied forces enjoyed nearly complete air supremacy and thus were able to engage enemy ground forces in ways that allowed those forces to make only limited, if any, use of their armor or artillery—aside from battles against local American allies and proxies. Nevertheless, the nature of the air-land battle seems today to have evolved significantly even in comparison to as recent a conflict as Kosovo.[8]

Still, U.S. and British forces in Afghanistan would have had the time, had the opponent possessed more serious military capabilities, to win air superiority and suppress air defenses. They could have committed more attack helicopters and gunships to the battle, and possibly lighter and more mobile artillery and armor. (Granted, this would have presented equipment, lift, and mobility problems for both the Army and Marine Corps. The Army lacks sufficient light armored and all-terrain vehicles for its special forces, and Marine Corps light mechanized forces are still too tied to amphibious missions as opposed to projection by airlift.)

The United States and Britain could also have added more highly trained special warfare elements, forward air controllers, and experts in the local languages and culture. Such personnel obviously cannot in many contingencies substitute for heavy ground forces; it is important to note that the Afghan war per se is not an argument for lighter tanks and artillery, nor for lighter and more

"projectable" mechanized ground forces. This heavy-lift quandary complicates the restructuring of the Marine Corps for operations in the Middle East, and possibly also the relative roles of the Marine Corps and the Army.

Closing the "Sensor to Shooter Loop" in Near Real Time
Recent wars have also demonstrated the value of coalition warfare in every aspect of operations, from power projection to combat. The Afghan conflict, however, is particularly interesting because light allied forces like the British Special Air Service are proving highly effective without expensive high-technology equipment, standardization, or interoperability. Similarly, relatively primitive local ground forces have substituted effectively for American ground forces when supported by U.S. special forces and advisers, and by air and missile strikes. The Kosovar Liberation Army and other Kosovar forces played quite different roles in 1999.

Once again, there are clear limits to the applicability of this lesson. However, the American and British experience in Afghanistan may indicate that the United States and Nato have overstressed the high-technology and high-investment aspects of coalition warfare and interoperability and have paid too little attention to highly trained, lighter forces like the SAS and its Australian, Canadian, German, and other equivalents. Even small numbers of highly trained advisers, forward air controllers, and targeteers on the ground, supplemented by rapid transfers of low and medium-technology arms, may usefully strengthen local forces. It seems fair to say that the United States has been more prone to seek high-technology partners or to go it alone than to use its specialized strengths in ways that help it operate with less-well-equipped Western and regional allies. This may have been too narrow an approach, if not the wrong one, to coalition warfare and interoperability in many mission areas.

That said, no one can dismiss the major impact that new technologies—in the areas of improved intelligence, targeting, precision strike, assessment and re-strike capabilities—have had in Afghanistan, particularly because they were employed with new tactics and as part of new systems.[9] According to General Tommy Franks, commander of U.S. Central Command forces, the United States flew an average of two hundred sorties a day in Afghanistan by early February 2002, versus three thousand a day in DESERT STORM. It was, however, able to hit roughly the same number of targets per day as in DESERT STORM.[10] General Franks stated that whereas the United States needed an average of ten aircraft to take out a target in DESERT STORM, a single aircraft could often take out two targets in Afghanistan. It also was much more able to bring large numbers of precision weapons rapidly to bear against a wide array of targets. In one case, U.S. forces fired roughly a hundred JDAMs in a twenty-minute period.[11]

All this was made possible by added reliance on precision-guided weapons and by many advances in tactics and technology. U.S. forces could draw on greatly enhanced real-time satellite, U-2, JSTARS, RIVET JOINT,* and UAV data on the movements of enemy and friendly forces. It became possible to target enemy forces with high precision in real time, even as they were engaged by Afghan ground forces; to communicate this targeting data to U.S. bombers and strike fighters; to conduct precision strikes with both precision-guided weapons and area ordnance; and then at least partially to assess damage and, as necessary, retarget and restrike almost immediately. The United States was able to "close the loop," conducting air and missile strikes in near real time. It was an impressive advance in techniques that had their origins in the spotter aircraft and "kill boxes" of the Gulf War and that had been significantly developed in Kosovo. At least some of the data links used to provide real-time retargeting data to aircraft were still relatively crude and had poor human-interface design features; also, avionics and air munitions were not fully optimized to use such data. It is also clear, nonetheless, that the level of U.S. success in the Afghan conflict suggests the advantages that can be realized by "closing the loop" in the future.

Unmanned aerial vehicles have been the focus of most of the attention paid to technology during the Afghan conflict, but initially the United States possessed few of the key types of UAVs involved, and many of the "twenty-four hours a day/seven days a week" improvements planned in imagery and electronic intelligence satellites were not yet deployed. The Predator UAV, for example, remains a deeply troubled system. It largely failed operational testing before the Afghan war, with some eight crashes in the six months before the conflict. It cannot take off in severe rain, snow, ice, or fog; its imagery lacks the resolution needed to find and characterize some types of targets; it is a slow flier (ninety miles per hour) and operates best at ten thousand feet, which puts it within range of many forms of light antiaircraft weapons, leading to losses in Afghanistan and Iraq; it has awkward control systems and ergonomics; and each unit (four planes and a ground station) costs about twenty-five million dollars.[12]

Little detail is available on the current strengths and weakness of the AWACS,† JSTARS, U-2, RIVET JOINT, P-3, satellite, and other sensor platforms that ultimately did most of the work. It is clear from the fiscal year (FY) 2003 defense budget submission, however, that funds are being provided to improve virtually every system and that serious attention is being given to new sensors for aircraft

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* JSTARS—Joint Surveillance/Target Attack Radar System, an Air Force/Army system, based on the E-8C aircraft, that provides ground-situation intelligence to tactical commanders; RIVET JOINT—a U.S. Air Force system, based on the RC-135 aircraft, that collects, analyzes, and disseminates near-real-time intelligence to theater and national-level commanders.

† AWACS—Airborne Warning and Control System, based on the E-3 Sentry aircraft.

like tankers and for more sophisticated sensors to other aircraft. The idea of combining the functions of AWACS and JSTARS in a single platform is also being explored.

The number of special warfare teams deployed in Afghanistan to provide on-the-ground intelligence and targeting designation was very small, probably only a fraction of the number that will be found useful in the future.[13] Many of the data links, targeting systems, and communications systems provided to special forces and rear-area intelligence and targeting analysts lacked the desired range and reliability and can still be greatly improved.[14] Other needed improvements include lighter and longer-range laser designators, and light all-terrain vehicles that are more mobile and less detectable than systems like the "Humvee."[15]

Furthermore, virtually all of the assets involved can be improved in ways that enhance the tactical impact of strikes, increase their lethality, and reduce the risks of friendly fire and collateral damage.

Targeting, Intelligence, and Battle-Damage Assessment
Technology, however, is only part of the challenge. During the Gulf War, in the December 1998 air and cruise-missiles strikes against Iraqi weapons-of-mass-destruction facilities, and again in Afghanistan, the United States faced several major problems in using its strike power effectively, problems that will not be solved with better sensors and C4I* systems. These difficulties have already been touched upon—targeting terrorist and asymmetric forces, and estimating collateral damage and civilian casualties.

Such problems are virtually certain to be just as serious in other types of conflict. Most Middle Eastern wars will not be "mud hut" conflicts; the United States may well face fairly large-scale conventional contingencies in which powers like Iraq choose to fight inside cities and urban areas rather than in the open desert. It may also have to strike at CBRN facilities and forces dispersed in populated areas. Furthermore, it may find that attempts by factions to manipulate or mislead the United States in its strike operations can be just as much of a problem in nations like Iraq as in Afghanistan.

The U.S. ability to locate some kinds of targets is far better than its ability to characterize them, judge their importance, or assess the level of damage done to their functional capabilities once they have been struck. The United States did not demonstrate during the Gulf War, in subsequent attacks on Iraq, or in Afghanistan that it had a valid doctrine for striking at leadership, infrastructure, civilian command and control or intelligence facilities, lines of communications, or other

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* C4I—command, control, communications, computers, and intelligence; C3I (below)—command, control, communications, and intelligence.

strategic rear-area targets. It essentially guessed at their importance and "bombed for effect."

As General Franks testified, while the United States needed an average of ten aircraft to take out a target in DESERT STORM, a single aircraft could often take out two targets in Afghanistan.[16] It seems virtually certain that these figures will ultimately prove as unconnected to reality as the initial battle-damage claims made in the Gulf War, later strikes on Iraq, and Kosovo.

The ability of the U.S. military services and intelligence community to perform effective battle damage assessment remains a weak link even for conventional military targets like armor, major weapons, depots, and infantry—let alone in dealing with proliferation of weapons by Iran, Iraq, and Syria. To be blunt, they simply do not have a credible battle-damage assessment capability. They have, rather, an ever-changing set of rules that transform vague and inadequate damage indicators into detailed estimates by category and type. These rules and methods have only the crudest analytic controls and cannot survive even such simple review methods as blind testing. They rely heavily on imagery that can assess physical damage to buildings and shelters on the surface but cannot look inside them; such imagery is essentially worthless in estimating personnel casualties. Analysts often cannot tell whether a target was already inactive when struck or had previously been damaged by other kinds of fire. In general, the American ability to assess functional damage to complex systems like land-based air defense systems and the resulting degree of degradation in their operational capabilities is weak. The United States had major problems in these areas in the Gulf War, Kosovo, and in ten years of strikes against the Iraqi air defense system. It had, and still has, major problems in locating key targets such as national leaders and the facilities and forces related to weapons of mass destruction.

The U.S. ability to characterize damage to (and strike) sheltered, hardened, and close-in targets also remains modest. This constitutes a major problem in the case of nations that make extensive use of such facilities, like Iraq and Iran, but it is important to note that U.S. sensors and teams on the ground never succeeded even in characterizing many much simpler Taliban and al-Qa'ida facilities, like caves. For example, the Navy SEAL team that explored the cave complex at Zhawar Kili in February 2002 did not anticipate that it would turn out to be the largest complex yet uncovered; it had to go inside to determine that the air strikes had had little or no effect and had left large stocks of supplies intact.[17]

In short, Afghanistan is yet another warning that "closing the loop" and many other potential advantages of the "revolution in military affairs" require far better strategic-assessment and intelligence capabilities for determining the nature and importance of targets, better ways to assess their strategic value and the

impact of striking them, and an honest admission by the U.S. military and intelligence community that their battle-damage assessment methods are crude and inadequate, if not intellectually dishonest.

Intelligence, Indications, and Warning. Afghanistan again showed the need to maintain a large cadre of experts in languages and area affairs in order to conduct coalition warfare, support ground and air operations, and deal with the complexities of targeting and battle-damage assessment. In the spring of 2001 the United States concentrated on China; after 11 September it was suddenly concerned with Afghanistan and some sixty-seven other countries. Clearly, developing a suitable pool of field capabilities and analysis capabilities cannot be based solely on prior predictions about threats and scenarios.

Human intelligence is one aspect of such capabilities, but its importance and value have often been exaggerated. It takes an average of two years to recruit, validate, and train a foreign source. The British found in dealing with Northern Ireland that it could take seven years to penetrate tightly organized networks.

Afghanistan is yet another proof that most human sources are unreliable or have only limited access to collection targets. Their information has little value or credibility unless it can be corroborated by data from technical intelligence sources. In short, human intelligence can help in some areas, but it will contribute little, or even make matters worse, unless there are major improvements in the ability to focus and fuse all-source collection.

Similarly, "data mining"—software processes that locate items possibly related to subjects of interest in digital databases and fuse them into predictively useful insights—can automate some aspects of intelligence collection and enable the intelligence community to make far better use of unclassified media and certain other sources. It can also help recognize patterns in terms of indications and warning. Data mining, however, is no substitute for analysis or for large analytic staffs. At present, it impresses the contractors and data systems experts that promote it more than it assists intelligence analysts and military users. Data-mining programs must be highly adaptable, easy to use, and constantly tailored by experienced analysts to specific needs if they are really to help in the transition from collection to analysis.

There is also a major disconnect that must be bridged between operations and either collection or analysis. Afghanistan again showed that virtually all low-intensity and asymmetric wars require both intelligence and military personnel on the ground to support targeting directly and to gain in real time information that can contribute to operations. The United States was fortunate in having recent special operations experience in Afghanistan, but it had only a

very limited pool of other military and Central Intelligence Agency personnel with such backgrounds; it almost certainly would have done better with more.

In short, improved intelligence performance requires improvements in five areas: technical collection, processing and fusion, human intelligence, signals intelligence, and clandestine operations. To improve any given area in isolation, particularly at the expense of analysis, is no lesson of this war. It would be a recipe for almost certain failure.

However, it seems highly doubtful that improvements in intelligence can markedly improve the prospect for warnings of future wars or major terrorist attacks over what was possible before 11 September. The United States had long seen al-Qaʻida as an enemy and had blocked several previous attacks. The 11 September attacks succeeded because al-Qaʻida changed its methods, produced an unusually expert group of attackers, and was lucky. As has been noted previously, it seems likely that future attackers will also innovate and that some will be highly professional, or at least lucky.

Ever since the beginning of the Cold War, the United States has conducted postcrisis indications-and-warning reviews. Some have produced scapegoats, and some have led to significant improvements in "I&W" capabilities. In general, however, indications and warning analysis has simply kept pace with the evolution of threat techniques. The probability that any post-Afghanistan improvement in indications and warning will be enough to prevent all future attacks from succeeding is probably near zero.

Mission Effectiveness versus Mission Intensity: Offense versus Defense

"Closing the loop" in near-real-time intelligence, targeting, precision strike, assessment and restrike may significantly improve U.S. military effectiveness in ways that reduce the need for sheer numbers and limit the scale of most attacks. Not only did airpower substitute in many ways for heavy ground forces, armor, and artillery, but precision attacks and far better targeting produced results that once required many more aircraft. This indicates that deploying even more effective real-time intelligence, targeting, and damage-assessment systems can either make a given force more effective in battle or allow a reduction in force size and mission intensity.[18]

There are potential countermeasures to such advances, however, and some of them are all too familiar to enemies in the Middle East:

• A shift to more distributed forms of warfare, by which terrorists and other opponents seek to present smaller targets

• Collocation of targets with civilians, to hide or shield operations, and constant movement of assets to make them harder to target "by function"— that is, to find them where they "would normally be"

- Dispersion of assets before or during a conflict without giving normal indications of the imminence of combat operations

- Distribution and combination of highly advanced surface-to-air missiles like the SA-10 or SA-11, shorter-range systems, sensors, and command and control links to make effective long-range air strike more difficult, and

- Creation of retaliatory forces with weapons of mass destruction that can be launched on warning or under attack.

Even so, there are practical limits to the adaptiveness of enemy forces. Large masses of armor, artillery, and combat aviation can scarcely be distributed; indeed, moving them may simply make them easier targets. Distributed forces are weaker forces, and hiding among civilians is a two-edged sword—it may alienate those among whom one hides. Also, highly sophisticated (and very expensive) air defense systems can be countered with new targeting and strike technologies. Finally, CBRN weapons are a credible deterrent only if they cannot be targeted and it is clear that they would be used.

THE CHALLENGE OF FORCE TRANSFORMATION

Force transformation is still very much a work in process. The report of the Quadrennial Defense Review was issued in the late fall of 2001, before there was time to react to the fighting in Afghanistan. It set six major goals for force transformation: protect the U.S. homeland and critical bases of operation; deny sanctuary to enemies; project and sustain power in areas to which opponents had attempted to deny access; leverage information technology; improve and protect information operations; and enhance space operations. Planning and budgeting documents since that time reflect both the department's view of the initial lessons of Afghanistan and its conclusion that the U.S. experience in fighting terrorism has validated many of the prescriptions of its transformation studies.

At the same time, the U.S. military posture in the Middle East must adapt to one of the paradoxes inherent in President Bush's fiscal 2003 budget request and the new FY 2003–2007 Future Year Defense Program. Short of a major regional war, the request probably represents the practical maximum that U.S. military forces can expect for the foreseeable future—and the Congress may not fully fund it. No service, however, has a viable modernization plan that can be carried out within the planned funding level; military aviation in particular is heading for a major crash.

Far too many expensive new programs are to be deployed in far too small a time. The effects are critical for every service. The Navy's shipbuilding program continues a trend that, if pursued, will ultimately leave the United States with a 150-ship fleet. The Army has canceled eighteen programs for existing ("legacy")

forces; it has developed a family of light armored vehicles for its new light brigade and thereby made that brigade too heavy to move by air; and it has produced no credible plan to fund and develop future combat systems. The Marine Corps has given up firepower to keep three active divisions and lacks air and amphibious modernization plans for current funding levels. The Air Force is adamant about the need for the F-22 air-superiority fighter while also needing to buy the Joint Strike Fighter (F-35), replacement airlifters and tankers, and new UAVs.

If politics is the art of the possible, force planning is the art of the fundable. No chief of staff, head of planning, or director of programming and budgeting for any service has shown competence in this art. For all the past and current successes of U.S. forces, and for all of the opportunities now available, any observations on force transformation should be prefaced with the caveat that in one key dimension, U.S. military forces have not yet adapted to the evolving challenges in the Middle East.

The "Force Transformation PDM"

There are many positive trends and areas where action is taking place. While the plans for many aspects of the force-transformation effort are not yet complete, press reports indicate that Program Decision Memorandum 4 (the "Transformation PDM," incorporated in the fiscal 2003 budget request) has called for:[19]

- Some two billion dollars for improved satellite communications, and modifications and improvements, including security and survivability, to the satellite-based Global Positioning System, and improvements in space-based radars and imagery systems

- A major acceleration of unmanned combat vehicle programs and serious examination of new programs to supplement or replace manned combat aircraft; an AGM-114 Hellfire missile capability for the RQ-1 Predator; examination of the option of arming UAVs with smaller (250–500 pound) versions of the JDAM

- Many more RQ-1 Predators, RQ-4A Global Hawks, and unmanned aerial vehicle-based intelligence and targeting systems, including possible conversion of retired manned aircraft or older target drones to UAVs[20]

- Major improvements to the endurance, payload capability, sensors (including electro-optics, infrared, and synthetic aperture radar), downlinks, survivability, and launch/recovery systems of UAVs; possible addition of UAVs to future maritime patrol aircraft[21]

- Procurement and improvement of Tomahawk cruise missile systems

- Conversion of at least four more C-130s to gunships and improvements to AC-130 special operations aircraft and other special warfare variants of the C-130, including countermeasures to air defenses; improvement of their video and infrared targeting and surveillance systems and fire control capability; refinement of datalink systems between the AC-130 and Predators and Global Hawks rushed into the field[22]

- Procurement and improvement of portable and theater-deployable intelligence and targeting systems and of rear-echelon and national capabilities

- Improvements in communications, secure data links, displays, weapons dispensers, and precision weapons to make near-real-time targeting and restrike capabilities more effective

- Acceleration of an airborne laser theater missile defense system

- Upgrade of North American Aerospace Defense Command computers and radars

- Acceleration of hard-target and underground-facility-penetration weapons

- Acceleration of the development of unattended ground sensors and "long-loiter" collection platforms to characterize and monitor activities inside facilities.

The new weapons for use against hard and underground targets would replace or enhance the five-thousand-pound GBU-28 "bunker buster" bombs and the AGM-130s used during the Afghan war. The Department of Defense estimates that there are some ten thousand hard or buried targets (most twenty meters or less underground) in the world, of which some one thousand are critical, and that their number will advance steadily as improved tunneling equipment becomes available. The United States is also examining ways to make its cruise missiles capable of attacking hard targets. There are unconfirmed reports that one such missile, the AGM-86D, was used in Afghanistan. Other options include thermobaric weapons, the FMU-157 hard-target smart fuse, and the BLU-116B advanced unitary penetrator warhead.[23]

The Force-Transformation Impact of the Fiscal Year 2003 Budget
The president's FY 2003 budget request set forth a list of "force transformation efforts" that affect U.S. military capabilities in the Middle East. They included:

- Conversion of four Trident submarines to cruise missile carriers

- Initial development of the DD(X) surface warfare ship, a test bed for future Navy systems

- Spending a billion dollars on research and procurement of unmanned aerial vehicles and associated equipment, including seventy more Global Hawks for the Air Force and twenty-eight for the Navy[24]

- Accelerating funding of research on the Global Hawk and the Navy's Fire Scout UAV, and on unmanned combat aerial vehicles; the request also increases funding for the Defense Advanced Research Projects Agency's future UCAV program, with a deployment goal of 2015, and for unmanned underwater vehicles

- Transformation of the old strategic nuclear triad—land-based intercontinental ballistic missiles, manned aircraft, and submarine-launched ballistic missiles; the new triad includes a scaled-down nuclear deterrent, a more deadly and responsive conventional deterrent, and missile defense

- An overall procurement budget of about seventy-two billion; the Army is set for $13.8 billion, the Navy/Marine Corps for $24.9 billion, the Air Force for $27.3 billion; there is also $2.8 billion for Defense headquarters and agency buys and a $3.2 billion Defense Emergency Response Fund

- Raising the budget for research, development, testing and evaluation to $53.9 billion in fiscal 2003, up from $48.4 billion in 2002, and increasing science and technology funding by a billion dollars to $9.9 billion, or 2.7 percent of the Defense budget

- Canceling the Navy DD 21 destroyer and Theater Area Missile Defense, the Air Force Peacekeeper missile and, as noted, eighteen Army "legacy" programs and retiring F-14 Tomcats, Vietnam-era UH-1 helicopters, and *Spruance*-class destroyers unsuited to the transformation strategy, while shifting almost ten billion dollars to other projects

- Providing for the Army's Future Combat System, in addition to money for Interim Armored Vehicles and continued development of the RAH-66 Comanche helicopter

- Funding two *Arleigh Burke*–class guided-missile destroyers, a *Virginia*-class attack submarine, a *San Antonio*–class amphibious transport dock ship, a *Lewis and Clark*–class auxiliary ship, fifteen MH-60S helicopters, five E-2C Hawkeye aircraft, and forty-four F/A-18E/F Hornet fighters, and continuing to modernize the EA-6B Prowler electronic warfare aircraft

- Buying twelve more C-17 airlifters, one E-8C JSTARS aircraft, and twenty-three F-22 Raptor fighters, and modernizing the B-2 Spirit bomber, F-16 fighter-bomber, and the F-15E multimission fighter.

Other Advances in Tactics and Technology

The United States also apparently intends to conduct a number of efforts in other areas relevant to the Afghan-war experience:[25]

- Shortening the delay between real-time intelligence collection and targeting by the "shooter" to no more than ten minutes

- Improving central planning and data-transfer facilities like the American Joint Analysis Center at the Royal Air Force base at Molesworth to ensure that the United States does not become overly dependent on regional facilities like the Combined Air Operations Center in Saudi Arabia[26]

- Accelerating the development of systems to detect and characterize biological and chemical weapons attacks

- Accelerating development of sea-based, wide-area missile defenses, and selecting a suitable replacement for the EA-6B electronic warfare aircraft, as part of a joint airborne electronic attack program

- Reexamining the value of weapons like the fifteen-thousand-pound BLU-82 GSX-jellied "slurry" bomb in terms of hard-target kill and psychological impact, or reweaponizing fuel-air explosive weapons like the BLU-72

- Upgrading the communications, display, and munitions systems on bombers and strike fighters to improve the ability to retarget and restrike during the same mission

- Improving subsystems on the RC-135V RIVET JOINT signals intelligence aircraft and the U-2[27]

- Improving the JSTARS targeting software[28]

- Developing advanced targeting pods for existing aircraft, and built-in systems for the Joint Strike Fighter

- Installing electronic and infrared intelligence sensors and other surveillance systems on aircraft such as tankers

- Replenishing stocks of the GPS-guided Joint Direct Attack Munition (approximately 4,600 JDAMs were used out of an inventory of ten thousand by December 2001)[29]

- Enhancing use of the wind-corrected munitions system, which was used in the Afghan war to dispense combined-effects munitions like the CBU-130 more accurately

- Completing development of the sensor-fused submunition with a smart infrared-homing capability for antiarmor and antivehicle use, and giving submunitions fail-safe options so that they do not remain "live" for extended periods[30]

- Deploying a dedicated multisensor command and control aircraft by 2009 to support advanced closed-loop missions, especially involving stealth aircraft like the F-22 and B-2A[31]

- Improving three-dimensional mapping and imagery to improve the accuracy of GPS-guided weapons and determine proper angles of attack[32]

- Beginning development of an advanced, next-generation manned or unmanned bomber capable of surviving extremely advanced developmental surface-to-air defenses like the Russian S-400 Triumf (SA-20)

- Revising the defense communications satellite system to handle far greater traffic densities, integrate information systems, and standardize terminals and downlinks at different echelons of access and security[33]

- Increasing communications, imagery, and targeting support to small, scattered U.S. and allied ground units

- Improving the integration and user-friendliness of the National Reconnaissance Office and National Security Agency data and systems used to support operations, targeting, and surveillance.[34]

The United States does, however, face the practical problem of shaping these transformation programs to reflect fully the experience of Afghanistan. It is necessary not only to redefine missions and war plans but also to ensure that force transformation does not ignore the war's lessons regarding coalition warfare, interoperability, basing and forward presence requirements, and power projection.

LESSONS AND ISSUES

There are several other areas where important questions and answers seem to be emerging as to how the United States should reshape its forces to fight in the Middle East.

The Media and Psychological Operations

The Office of the Secretary of Defense feels that it did a much better job than in earlier campaigns of dealing with the media and psychological dimensions of the war in the West but that it was slow to focus on the regional media and deal with psychological operations in the theater. It is not yet clear how the United

States can improve its efforts to deal with regional media or strengthen and modernize its psychological operations capabilities, but this seems to be a significant lesson and one the department will act upon over time.

The aborted Office of Strategic Influence was a clear recognition of the strategic importance of psychological operations, although it is far from clear what now will happen in this area. Whether the State Department and activities like the Voice of America will carry out systematic "information" or propaganda efforts to deal with the U.S. and foreign media and public opinion must now be determined.[35]

U.S. Marine Corps, the Osprey, the AV-8B, and Nonlittoral Warfare
The Marine Corps faces a potential crisis over the reliability and cost of the Osprey, the readiness and effectiveness of the AV-8B Harrier, and the need to modernize many aspects of its transport helicopter, combat aviation, ground, and amphibious systems. In spite of the increase in defense spending under the fiscal 2003–2007 program, it is not clear that the Marine Corps will get the funding it needs to sustain air operations in a major regional contingency like Iraq. Some long-overdue improvements, like adding the Litening 2 infrared targeting pod to the AV-8B, will help in some ways—although they may not correct the aircraft's range, sustainability, and reliability problems.[36]

At the same time, Afghanistan raises the need to plan for more nonlittoral operations and involving special warfare units with language, area, and advisory expertise. The success of U.S. Special Forces, Ranger, and the Marine Corps units in Afghanistan may well show that the "lessons" of Task Force HAWK (the failed attempt to deploy AH-64 Apache attack helicopters for the Kosovo war in 1999) may not be lessons after all but rather functions of political decisions and unique training and readiness problems. Certainly, the Army's ability to airlift and drop more than two hundred Rangers and intelligence officers into Taliban-controlled territory in Operation RHINO on 19 October 2001 indicates that such assaults can be very effective. The same is true of the success of much larger U.S. ground forces in the fighting around Shah e-kot and Gardez in March 2002.

There seems to be a good case for examining how force transformation and a shift to longer-range strike and airmobile operations should affect the future of the Marine Corps. In particular, programs ought to call for modernization of attack helicopter and airmobile forces and for improvements in the ability of Marine units to conduct counterterrorism and asymmetric warfare missions—missions that seem likely to be key aspects of future combat in the Middle East.

Carrier Operations, Cheap Cruise Missiles, and Naval Strike Power
Successful as Navy carrier operations were during the fighting in Afghanistan, they were heavily dependent on Air Force aerial tanker assets based in Bahrain,

Qatar, the United Arab Emirates, and Oman. Even during the Gulf War, questions arose about the need for longer-range carrier strike/attack aircraft that could carry more weapons and deliver them with greater accuracy, thus reducing the burden on Air Force refueling assets and avoiding having to jettison unexpended munitions or to return to the carrier with them still on board.

The Navy and Marine Corps need to examine closely the anticipated performance of the Joint Strike Fighter in the light of this history, the mission requirements in the Middle East, and the possible reductions in the ability of the Air Force to base tankers and other support aircraft forward in the Middle East in their present numbers. Such a study is not likely to not cause radical changes in the role of the aircraft carrier per se, but it will mean rethinking how these aspects of sea-based strike capabilities can be improved over time.

Here, closing the loop in terms of targeting and the ability to use airpower to deliver precision-guided munitions effectively and with maximum strategic and tactical impact seems to have even more value in carrier than in other air operations. There are limits to carrier sortie rates; the fact that three carriers together sustained an average of fewer than seventy attack sorties per day during the peak of the Afghan fighting is an illustration of this point. So is the fact that the U.S. Navy flew 4,900 of the 6,500 strike sorties between 7 October and 17 December 2001, or 75 percent of the total, but delivered less than 30 percent of the ordnance. Comparisons of fighters to bombers may not be "fair," but the issue is mission capability, not aircraft type.

The fact remains that B-1s and "antique" B-52s from Diego Garcia flew only 10 percent of the missions but delivered 11,500 of the 17,500 weapons dropped—65 percent of all weapons delivered and 89 percent of those dropped by the Air Force. The bombers dropped the vast majority of the 6,500 five-hundred-pound "dumb" bombs used and roughly half of all the guided munitions.[37] It is far from clear that bombers could operate as easily in a less permissive air defense environment, but the same is true of carrier strike aircraft.

The present delays in replacing the EA-6B, and what may be serious engine-life problems for that aircraft, underline the need to rethink manned strike operations, if time over target and survivability rates achieved over Afghanistan are to be repeated over states that, like Iraq, have dense surface-to-air missile assets in at least certain areas or that, like Iran, may acquire such advanced systems as the SA-400. Certainly, the near-impunity the AC-130 enjoyed over Afghanistan may not exist in future contingencies in the Middle East.

Making individual sorties more effective is not only the most cost-effective way of dealing with these limitations, but it is also the best way to reduce civilian casualties and collateral damage, and to deal with steadily more complex asymmetric wars. At the same time, the Afghan war again raises questions about the

sheer cost of cruise missiles and, by extension, about the best way to arm the arsenal ship represented by the DDX. It is one of the ironies of the cruise missile that, though the Navy needs more long-range strike assets, relatively few targets merit strike systems that cost nearly a million dollars per round. The Navy would seem justified in giving a very high priority to a cruise missile that costs about one-fifth of that figure.

The Marine Corps, Army, and Maritime Prepositioning

Amphibious capability and maritime prepositioning may become even more important in the Middle East in the future if the United States cannot obtain the kind of support for coalition operations it needs from Egypt and the Gulf states. The United States also faces a potential legal problem with respect to continued British sovereignty over Diego Garcia. At the same time, as the Army lightens its power projection forces, questions arise about the future composition and role of the Marine Corps and the extent to which amphibious ships and preposition ships should support a given mix of Marine Corps and Army forces.

These are scarcely issues that affect the Middle East alone, but any regional force-planning exercise should examine transformation options for the overall mix of Marine Corps and Army land forces; the possibility of standardization between those two services in, for instance, light armored vehicles or artillery; and new combinations of amphibious and maritime prepositioning capability for the Mediterranean, Indian Ocean, and the Persian Gulf.

One case in point is the recent use of the carrier *Kitty Hawk* as a base for Army Special Forces. The Key West Agreement of 1948 between the first secretary of defense and the Joint Chiefs of Staff, defining the roles and missions of the services, has no functional meaning today. If Army forces can make better use of Navy platforms than the Marine Corps in any given contingency, they should do so. Conversely, the United States should not pay to convert U.S. Army units to light forces for missions that can be performed by restructured Marine Corps forces for longer periods and with heavier equipment. Force-transformation exercises seem to avoid fundamental questions about the overall Army–Marine Corps force mix. Afghanistan indicates that these questions need to be asked.

U.S. Army Light and Special Warfare Forces

Afghanistan also raises broad questions about the U.S. Army force mix and its suitability and capabilities for future conflicts in the Middle East. While the Afghan war is being used to justify the U.S. Army's effort to transform its present armored and mechanized power-projection forces into units that, with lighter armor and artillery, can be moved and deployed more rapidly, it is far from clear that the Afghan conflict really teaches this lesson or that even an increased level

of defense spending would allow the U.S. Army to accomplish such a transformation on a timely basis.

The fiscal 2003 budget request does, however, encourage some important programs and cancel others. It calls (as noted above) for procurement of 332 Interim Armored Vehicles and a new six-brigade force based upon twenty-ton wheeled vehicles. One brigade is to be able to deploy anywhere in the world by C-130 within four days; a four-brigade division is to be able to do so within thirty days. (These goals would seem more innovative had not a similar plan been discussed in the Army in 1974.)

The money the Army will spend on development of a Future Combat System is to create a far more advanced, rapidly deployable set of ground forces—evidently to be ready sometime after 2010. Other improvements will occur in medium tactical vehicles, although the experience in Afghanistan indicates that most of the 3,574 now in hand may be too heavy, too large, and lacking the needed all-terrain mobility. Improvements will also be made to the AH-64A/D attack helicopters.

At the same time, the endless "development" of the RAH-66 Comanche reconnaissance/attack helicopter continues, and the Army will still spend a great deal on older, heavy systems.[38] Of the eighteen programs canceled for fiscal 2003–2006, some are heavy systems unrelated to the need for the kind of more effective light forces demonstrated in Afghanistan. About half, however, are light systems or programs, like the Battlefield Combat Identification System, that do seem to mesh with the lessons of the conflict.[39] The end result is that the Army may well focus on a "future combat system" that is desirable but available too far in the future to meet the need for interim systems over the next decade.

In contrast, the success of the U.S. Army 10th Mountain Division, Special Forces, and Ranger units in Afghanistan argues a strong case for the expansion of these kinds of forces, modernizing their equipment, and tailoring attack helicopter and airmobile forces for counterterrorism and asymmetric-warfare missions. There seem to be good reasons as well for reexamining the role that the Central Intelligence Agency should play and the interface between the CIA and special warfare forces.

The same is true of how special operations forces are commanded and integrated into policy. At present, there appears to be a gap between the service commands, the military commanders of special operations force, civilians in the field of special operations and low-intensity conflict, and the policy offices under the secretary of defense. It is plain that special operations forces are primarily a tool for joint warfare, but someone needs to be put clearly in charge at the top. The last thing on Earth that special warfare troops need is an overcomplicated or overpoliticized chain of command.

GIVING NEW PRIORITY TO COUNTERPROLIFERATION

President Bush may have used remarkably awkward language in referring to Iran and Iraq as parts of an "axis of evil," but a poor word-choice does not mean that proliferation will not pose a growing challenge to military operations in the Middle East. Iran, Iraq, Israel, and Syria are all major proliferators; Algeria, Libya, Egypt, and the Sudan are proliferators to a lesser degree.

The Changing CBRN Threat

The United States still has not determined the source of the anthrax incidents that followed the attacks on the World Trade Center and the Pentagon. This raises the prospect that states or other terrorists may piggyback on a conflict in unpredictable ways and that future opponents may see a counterterrorism campaign or an asymmetric war not as a deterrent but rather as an opportunity to underscore vulnerability and to sow greater confusion.

It is now clear that al-Qaʻida was making a major effort to develop chemical and biological weapons and was examining nuclear terrorism—attacking nuclear power plants, or using radiological weapons, or even detonating crude atomic devices. It is possible that future terrorists will draw the lesson that if they can launch only one major series of attacks against the United States, it should be with weapons having the most horrific effects.

Middle Eastern states, on the other hand, may learn two lessons—the value of helping proxies develop such weapons, and the advantage of holding those weapons as deterrents in asymmetric wars. They may also judge that an ability to threaten to use such weapons in attacks on U.S. allies and friends or targets in the American homeland will either deter the United States or constrain its attacks and goals in war.

The Limits of Arms Controls and Export Controls

Such a threat raises major new questions about arms control and existing arms control agreements. It also points to the growing ability of Middle Eastern states and terrorist groups to conduct anonymous attacks with highly lethal or economically devastating CBRN weapons, like biological weapons. One lesson of Afghanistan may be that future opponents could use smallpox or its equivalent—which in turn raises the specter of dealing with anonymous attacks having only economic impacts, like those of the hoof-and-mouth outbreak in Britain or swine fever in Taiwan.

The discovery of a large-scale al-Qaʻida effort to develop CBRN weapons—aside from ongoing proliferation by nations like Iran, Iraq, and North Korea—underscores the steadily growing importance of offensive counterproliferation as well as of defense. The threat of biological warfare is particularly serious, but the United States and its allies need to rethink internal security for, public health responses

to, and defenses against the broad range of CBRN threats. The recent episodes of hoof-and-mouth disease and "mad cow" disease are almost models of how *not* to deal with such attacks and warnings of how much more effort is needed.

Iraq is the main nation-state proliferator in the Middle East and one that illustrates several aspects of the evolving threat. Iraq has shown that it will take acute risks, escalate without warning, and actually use weapons of mass destruction. It set up a crude launch-on-warning/launch-under-attack arrangement during the Gulf War. It converted a civilian pharmaceutical plant to the mass production of anthrax weapons in a matter of months. It was able to conceal many aspects of its CBRN and missile activities even when UN inspectors had relatively great freedom of action, and since then it has had sufficient time to hide and disperse its activities in ways that no future inspection effort is likely to find.

Much of the debate over chemical warfare, biological warfare, ballistic missile defense, and nuclear proliferation has failed to come to grips in a detailed way with the threat of asymmetric attacks and terrorism; such debates have a tradition of focusing on large-scale conventional war fighting. The same has been true of export controls. A joint and comprehensive review of how to change arms control agreements and export controls—looking at the CBRN and advanced technology threat as a whole—is needed to develop a more effective common strategy. While this is a global problem, it can only be solved one proliferator at a time, and most proliferators are in the Middle East.

The Need for a New Type of U.S. Military Response
To deal with these challenges in the Middle East and elsewhere, the United States must find approaches that recognize the new threats, offer new military options, and blend conventional options with the kind of extended theater nuclear deterrence implicit in the new U.S. nuclear military strategy set forth in the Bush administration's Nuclear Posture Review.

Proliferation does not challenge any one service more than others, and counterproliferation is inherently a joint mission. All of the U.S. military services must give deterring, countering, defending against, and responding to the threat of CBRN weapons a high and shared priority. As noted earlier, however, in areas like sea-based theaterwide ballistic missile defense, the U.S. Navy may well have unique capabilities. In other areas the Navy and Marine Corps may have unique vulnerabilities; the vulnerability of ships to terrorist attacks using biological warfare has been recognized since the early days of modern biological weapons, soon after the end of World War II.

Several challenges are clear. U.S. armed forces and American allies cannot plan on having the initiative. They must expect to cope with enemies who will

use first strikes, launch on warning, and launch under attack. They cannot count on declarations of war, or even on knowing immediately who is responsible for an attack. The method of attack may not be easy to discern; unconventional delivery systems are as likely as missiles.

Mixes or "cocktails" of biological agents may be particularly difficult to characterize and treat. Defense and force-protection measures must be based on the full range of direct and asymmetric threats. The U.S. Navy and Marine Corps must now face the challenge of advances in biotechnology and genetic engineering that may radically ease the use, and increase the lethality, of biological weapons in a region where many countries have or are seeking to acquire such weapons.

Improved targeting, real-time intelligence, attack characterization, and battle damage assessment pose ongoing challenges in conventional warfare; they are much more severe when chemical, biological, radiological, and nuclear weapons are involved. CBRN facilities, stockpiles, units, and delivery systems must be attacked differently than conventional military targets—with a greater level of intensity, in ways that minimize the risk of secondary effects, and with far greater ability to assess damage and manage restrikes.

The Navy may have to play a role in regional response to attacks on ports or land facilities. Rapid sea-based medical and emergency response may be the only way of deploying such facilities on the scale needed, or of containing biological threats. At the same time, detecting the presence of CBRN weapons on merchant ships or in the hands of potential terrorists is another problem, in terms of protecting allied ships and inspecting ship movements. Finally, homeland defense is not a luxury we can restrict to ourselves; we must be able to protect our allies.

U.S. military planners have long recognized most of these challenges in some form. They have already begun to address virtually all of the issues and options addressed in this article. There is no need to react to the challenges in the Middle East by reinventing the wheel. U.S. military forces must, however, "refine the wheel," tailoring their planning, procurement, and operations to the evolving challenges in the region and to the changing strategic priorities encountered there.

In this regard, the political complications of the new emphasis on terrorism and asymmetric warfare reinforce a lesson of seapower that is as old as history. The political, economic, and diplomatic dimensions of seapower are always as important in the long run as the military dimension may be in the short run. Seapower is a critical element of grand strategy in the broadest sense of the term, even more so in a world that mixes growing global economic interdependence with regional threats and tensions. It is most tempting to think of seapower largely in narrow war-fighting terms, but in the Middle East such an approach

would be a fine way to snatch defeat from the jaws of victory. Worse, if it leads to military unilateralism at the expense of partnership, it may be a powerful factor in turning alliance into alienation. A truly broad understanding of seapower reveals that it is a great unifying force among those who resist the isolationism and enmity of terrorism and similar weapons of the weak. The United States should use its seapower wisely to sustain friendships around the world.

NOTES

1. For a short unclassified overview, see "What's Become of al-Qa'ida?" *Time*, 21 January 2002, pp. 18–22.

2. *Sunday Telegraph*, 13 January 2002, p. 17.

3. See Laura Kind, "A Civilian Toll in Afghan War Likely Lower," *Philadelphia Inquirer*, 12 February 2002, p. 1. The Associated Press estimate of civilian deaths includes seventy in Kabul, eighty-one in Kandahar, fifty-five in Jalalabad, ten in Mazar e-Sharif, eighteen in Herat, twenty-five around Spin Boldak, fifty-five in Karam, and 167 in the Tora Bora region (155 in Kama, five in Agom, and seven in Pacair). Also see Barry Bearak, "Uncertain Toll in the Fog of War," *New York Times,* 10 February 2002, p. A1.

4. For a detailed description of the real world problems encountered on the ground, see Dana Priest, "In War, Mud Huts and Hard Calls," *Washington Post,* 20 February 2002, pp. A1, A8.

5. The counts of total weapons used at given periods are approximate. General Franks referred to eighteen to nineteen thousand in his testimony to the Senate Armed Services on 5 February 2002, on the World Wide Web at http://www.centcom.mil/news/transcripts/General%20Franks%20Testimony%205Feb02.htm.

6. *Chicago Tribune*, 6 February 2002.

7. General Franks testimony; Bryan Bender, Kim Burger, and Andrew Koch, "Afghanistan: First Lessons," *Jane's Defense Weekly*, 19 December 2001, p. 20; *New York Times,* 8 February 2002, p. A14; and *Philadelphia Inquirer*, 12 February 2002, p. 1.

8. For a more detailed assessment of these points and why the air environment in Afghanistan may not be relevant to fighting against countries like Iran, Iraq, and North Korea, see the presentation of General Hal Hornburg, commander of the Air Combat Command, and General Gregory Martin, commander of U.S. Air Forces Europe, before the Air Force Association Conference in Orlando, Florida, as reported on-line at Bloomberg.com, 20 February 2002.

9. For a good preliminary analysis of these lessons of war, see Bender, Burger, and Koch, "Afghanistan: First Lessons," pp. 18–21.

10. *Aerospace Daily*, 20 February 2002; and General Franks testimony.

11. *Aerospace Daily*, 20 February 2002; and General Franks testimony.

12. *Boston Globe*, 6 February 2002, p. 10.

13. Priest, "In War, Mud Huts and Hard Calls," pp. A1, A8

14. *Defense News*, 11–7 February 2002, p. 8.

15. Ibid. The "Humvee"—as the HMMWV, or High-Mobility Multipurpose Wheeled Vehicle, or M998 truck, in some eleven variants, is familiarly known—replaced the jeep.

16. *Aerospace Daily*, 20 February 2002; and General Franks testimony.

17. *Washington Post,* 16 February 2002, p. A27.

18. For a broader update on surveillance and digital warfare, see Vernon Loeb and Thomas E. Ricks, "1s and 0s Replacing Bullets in the United States Arsenal," *Washington Post*, 2 February 2002, p. A1.

19. *Defense News*, 14–20 January 2002, pp. 3, 28; and *Inside the Pentagon*, 31 January 2001, p. 1.

20. See Kim Burger and Andrew Koch, "Afghanistan: The Key Lessons," *Jane's Defense Weekly*, 2 January 2001, pp. 20–7.

21. *Financial Times*, 21 January 2002, p. 15.

22. Burger and Koch, "Afghanistan: The Key Lessons," p. 23.

23. Ibid., pp. 22–3.

24. *Defense News*, 11–7 February 2002, p. 3.

25. For a broader summary of U.S. force-transformation activity, see Hans Binnendijk and Richard Kugler, "Adapting Forces to a New Era: Ten Transforming Concepts," *Defense Horizons* 5 (Washington, D.C.: Center for Technology and National Security Policy, National Defense University, November 2001).

26. *London Times*, 23 January 2002; and *Los Angeles Times*, 10 February 2002.

27. Burger and Koch, "Afghanistan: The Key Lessons."

28. Ibid.

29. Bloomberg.com, 22 January 2002; and *Los Angeles Times*, 21 January 2002, p. 1.

30. *Los Angeles Times*, 21 January 2002, p. 1.

31. Burger and Koch, "Afghanistan: The Key Lessons."

32. *Defense News*, 11–7 February 2002, p. 28.

33. *Aviation Week and Space Technology*, January 21, 2002, p. 27.

34. Ibid.

35. *Inside the Pentagon*, 12 February 2002, p. 1; *Washington Times*, 21 February 2002, p. 4; *Washington Post*, 21 February 2002, p. 15; and *New York Times*, 21 February 2002, p. 1.

36. *Defense News*, 18–24 February 2002, p. 26.

37. *Los Angeles Times*, 10 February 2002; and General Franks testimony.

38. *Defense News*, 11–7 February 2002, p. 28.

39. *Defense News*, 18–24 February 2002, p. 6.