Chapter Six

CONCLUSIONS AND IMPLICATIONS FOR THE U.S. AIR FORCE OF 2025

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In this report, we have tried to illuminate the rough outlines of what the future might hold for the United States and for its armed forces, particularly the Air Force. We have identified key drivers that will shape the future security environment, combined them into alternative strategic worlds, and pointed out some wild cards that could affect the world of 2025.

The analyses in this volume point to three important conclusions.

First, the range of challenges that the nation must prepare for is larger and less predictable than during the Cold War, especially if we want to maintain our position of global leadership. These challenges include not only major regional wars and smaller conflicts but also the possibility of a new global rival and a new Cold War.

Second, protecting the U.S. homeland against a variety of threats such as terrorism, missiles, and information operations is likely to become more prominent in guiding U.S. defense planning. Many traditional distinctions between theaters are eroding because of the spread of missile technologies. More states are likely to acquire the capability to attack the United States with missiles in the next 25 years. Those states that cannot take on the U.S. military directly might use terror as an asymmetric strategy against, among other things, the U.S. homeland. The information revolution and increased international connectivity and networking may well lead to new opportunities and threats. The armed forces might well be in-

structed to take on new missions as a result of technical changes such as these.

Third, as the world's preeminent power, the United States plays a central role in shaping the future security environment. Our relative position is a key organizing factor in the calculations of many other state and nonstate actors. To maintain our military preeminence in the face of other major trends—such as the diffusion of technology and the change in the relative distribution of power—will be a daunting task.

Assuming continued American global leadership, what kind of Air Force will the nation need to protect and advance its interests through the first years of the next millennium? In our judgment, four qualities will be critical to that Air Force:[1]

- Global awareness
- Global reach
- Rapid reaction
- Appropriate force.

GLOBAL AWARENESS

The future U.S. Air Force will increasingly find itself in the information business. At the strategic level, the Air Force will be a provider of both collection assets and interpretation expertise, as the intelligence community tracks and evaluates all of the manifold variables that will determine the global security situation. On the operational and tactical planes, the U.S. Air Force will encounter enormous challenges in fulfilling the intelligence support requirements that will be levied by new generations of weapons and new generations of commanders.

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[1]These qualities seem relatively robust to a reasonable range of variance in the future security context. The threat of NBC weapons, whether or not insurgents actually have access to such weapons, will be sufficiently pervasive across the board that the U.S. Air Force will need the ability to operate in the face of them.

As the primary operator of U.S. military space systems and as the likely operator of the most-capable airborne surveillance platforms (including unmanned aerial vehicles), the U.S. Air Force will be responsible for sustaining the situational awareness not only of its own leaders and operators but also of its sister services and of American allies. Failure to prepare adequately for these missions and execute them will have consequences as disastrous as would shortfalls in other, more traditional "ordnance-on-target" operations. It is a burden the U.S. Air Force must take most seriously.

As an information service, the U.S. Air Force will also need to deal with the increasing "global awareness" of its likely adversaries. With the advent of on-demand commercial remote sensing, for example, the United States will no longer be able to rely on its staple techniques to deny its enemies information about American deployments and intent. Countering enemy information operations and learning to operate in a world of greater overall transparency will be a challenge to the U.S. Air Force.

Finally, the continuing advances in computer technology and the ever-increasing reliance of military organizations on data flows mean that, in the next century, information itself will become a weapon rather than an enabler of weapons, as it is today. The U.S. Air Force may be the most voracious consumer of information in the world, and its appetite—and those of its joint partners and the national leadership—seem certain to grow in the coming years. As the U.S. Air Force works to satisfy those appetites, it must not neglect to protect those information sources and flows from the manifold threats that could confront them. Especially, it must not forget that "defensive information warfare" must deal with both "hard" and "soft" threats; after all, a mortar shell that disables a satellite terminal is just as much an "information weapon" as a computer virus inserted into a network.

GLOBAL REACH

The conflicts of the early 21st century will break out all over the world, and they will provoke varied levels of U.S. military response. It does not seem at all unlikely that the United States could confront

several of them at once.[2] The environment will be one in which forward basing and access may be limited in peacetime and after war breaks out as well. Finally, complex operations dependent on networks of staging and transit bases will become increasingly liable to disruption or outright attack by opponents whose NBC and/or unconventional warfare forces have sufficient reach.

In addition to helping protect forward-deployed forces and friendly territory against such threats—by shooting down ballistic and cruise missiles, destroying even deeply buried NBC storage sites and production facilities, enhancing its ability to protect bases from unconventional warfare attacks, and so forth—the U.S. Air Force should also seek to exploit the reach of air power to minimize the numbers of people and machines it must move into the forward area and into the range of enemy offensive capabilities.

Effective response in these cases will demand true multidimensional global reach. One contingency may require that the U.S. military fight a sizable war without extensive forward deployments for fear of presenting an irresistible target for the enemy's nuclear-armed missiles; another may demand the movement and sustainment of thousands of personnel who are responding to a rapidly evolving humanitarian crisis in a distant and primitive area. Both types of contingency could, in fact, present themselves at the same time. Assets capable of striking hard across the globe, or of providing succor at similar ranges, will be at a premium, while "short-legged" platforms, or systems dependent on platforms based in the theater, may find limited use.[3]

A particularly difficult class of contingency may be one that involves supplying humanitarian relief to areas where opposition is expected. Such operations could involve the need to secure airports, maintain clear flight paths into and out of airports, and provide secure refuel-

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[2]In recent months, the United States has had to support concurrent operations in Haiti, Bosnia, and over Iraq.

[3]Threats to the United States itself will require an increased emphasis on protecting homeland-based installations and facilities critical to power projection regardless of precisely how "global reach" is achieved. Satellite control stations, computer complexes and networks, air bases, and other key infrastructure items will be likely targets for future enemies. For the first time, the U.S. Air Force and its sister services will need to be prepared to counter unconventional warfare operations on American soil.

ing and crew rest facilities. Developing concepts to accomplish these tasks reliably and without the deployment of a large number of U.S. personnel on the ground (and, presumably, in harm's way) will be an important part of achieving the kind of mobility posture that will be needed.

RAPID REACTION

In the future, clear and direct warning—a commodity that planning exercises always assume but that reality rarely provides—will remain elusive. For that reason, force elements configured to respond quickly will remain at a premium, and their value can only grow as forward basing continues to contract.

Air and space power are inherently well-suited for quick response. Assuming bases are available, U.S. Air Force squadrons can rapidly deploy to the remotest corners of the world and begin operations almost immediately. In the absence of extensive prepositioned supplies and infrastructure, however, sustainment must follow close on the heels of the fighters and bombers if the force is to continue operating at an efficient tempo.

One way of increasing the Air Force's ability to react quickly to an emerging crisis is a posture that allows it to take concrete yet easily reversible steps to increase readiness when a situation becomes threatening yet remains too ambiguous to permit highly visible and concrete reactions. Such concepts as the composite wing—a self-contained micro–air force explicitly dedicated to rapid deployment—are valuable in this regard. Other steps could include the following:

- Shifting of responsibilities between the active and reserve components to ensure the instant availability of all critical skills.
- New approaches and systems to allow rapid adaptive planning and to provide flexible command, control, communications, and intelligence (C^3I) capabilities.
- Innovations that reduce the sheer weight and volume of equipment and supplies needed to sustain operations; for example, using advanced explosives to allow the use of much smaller bombs for many targets.

- Development of systems that can provide rapid firepower application at global ranges. Ongoing efforts to enhance the capabilities of the bomber fleet with precision munitions and stand-off weapons are valuable in this regard. Future initiatives could include such systems as the proposed transatmospheric vehicle.

APPROPRIATE FORCE

The Gulf War demonstrated that air power no longer needs to deliver immense explosive power to have a strategic impact on a war's outcome. Although contemporary precision munitions suffer from many limitations, they have greatly enhanced the ability to strike fixed, hard targets and certain classes of mobile targets, such as tanks.

Future scenarios are likely to require attacks not only against massed arrays of armor, industrial facilities, and so forth but also against light infantry units and small, fleeting mobile targets, such as surface-to-surface missile (SSM) launchers. The latter kinds of targets will likely remain difficult to engage even when the next generation of munitions—the Joint Direct Attack Munition (JDAM) family, Joint Stand-off Weapon, Brilliant Anti-Tank, and so forth—comes on line around the turn of the century.

The U.S. Air Force should evaluate whether it can field a surveillance-strike architecture, or family of architectures, capable of supporting operations across the whole gamut of possible contingencies. Just as one does not swat mosquitoes with a sledgehammer, so an enemy's light infantry battalion occupying an oil refinery might not be an appropriate target for one-ton laser-guided bombs. A Joint Surveillance and Tracking Radar System (JSTARS) aircraft—or a JSTARS-like capability on an unmanned aerial vehicle or in earth orbit—may have marvelous capabilities against a column of enemy armor moving down a road, but it may fall short of determining whether three trucks moving along another highway are full of enemy troops or schoolchildren. New concepts for, and improvements in, every aspect of the detect-identify-track-target-and-engage cycle may be needed if the world is as unruly—and messy—as our analyses suggest.

Ongoing evaluation of air-deliverable less-than-lethal weapons should continue; recent interest in developing smaller, highly accurate munitions is also an encouraging sign. Similar improvements in surveillance capabilities against small, mobile targets, including groups of people, are also needed, as is a command and control system designed to facilitate rapid engagement of targets that can disappear as quickly as they pop up.

SUMMING UP

The U.S. Air Force that will operate successfully in defense of the United States will face real challenges and difficult tradeoffs. At first blush, it appears to us that this U.S. Air Force will emphasize quality and agility over quantity and mass.[4] The relative balance between long- and short-range systems will need to be carefully addressed, as will the relative weight given to preparing for the less likely but very stressful contingency of major war versus the day-to-day requirements of peace operations, humanitarian crises, and the other activities that characterize what will pass for peacetime over the next decades. Quick, decisive responses to rapidly changing demands will be the hallmark of a successful 21st century Air Force, and flexible adaptive planning and execution will be the keystones.

To have such an Air Force on the ramp in 2025, the U.S. Air Force leadership must make careful and informed decisions today. We hope that this report and the larger analyses upon which it is based contribute to thought and debate toward that end.

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[4]Building and maintaining a high-quality force has always been a prime U.S. Air Force objective. However, during the Cold War—and into the current era—tradeoffs between the size of the force and its caliber were often painful; the sheer magnitude of the Soviet armed forces required that the U.S. Air Force maintain a comparatively large force structure. Our point here is that not only is this driver gone, but no other similar power (or coalition of powers) seems likely to emerge in the near future. If this turns out to be the case and the other demands we have outlined here do in fact manifest themselves, the quality-versus-quantity equation should be weighted increasingly in favor of the former.