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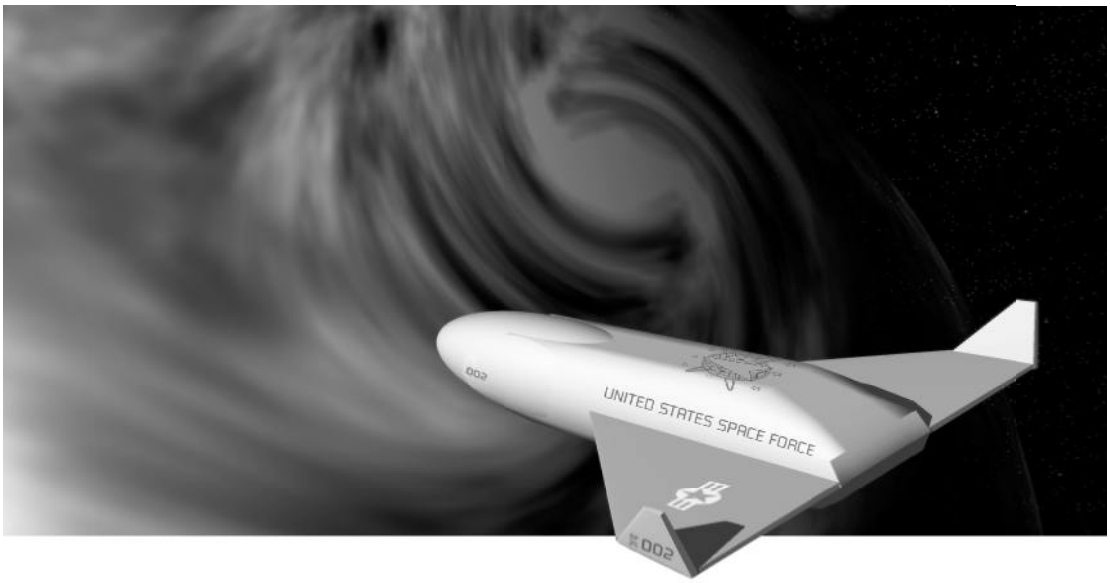

The Challenge of Space Power*

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THANKS TO *STAR TREK*, space is often called the "final frontier." I call it the "permanent frontier." It is without end, forever, and limitless. It is truly a realm about which the more you learn, the more you realize just how much more there is left to learn.

My education in aerospace has occurred in Congress. I came to the House of Representatives in 1985 and served on the Space Subcommittee of the Science and Technology Committee until my election to the Senate in 1990. During that period, President Ronald Reagan reinvigorated America's awareness of the possibilities of space with his Strategic Defense Initiative. I participated in the twists and turns of some very difficult issues—the Hubble telescope, expendable launch vehicles versus the space shuttle, the *Challenger* disaster, and the space station.

I became a staunch supporter of space programs during those turbulent years, and my interest in space has deepened since then. As chairman of the Strategic Forces Subcommittee on Armed Services, my focus is now more on the national security applications of space—but I have never lost my fascination with the sheer mystery of it all. I hope my on-

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the-job education in Congress has taught me a few things.

My approach to space has come to rest on three assertions: (1) America's future security and prosperity depend on our constant supremacy in space; (2) although we are ahead of any potential rival in exploiting space, we are not unchallenged, and our future dominance is by no means assured; and (3) to achieve true dominance, we must combine expansive thinking with a sustained and substantial commitment of resources and vest them in a dedicated, politically powerful, independent advocate for space power.

Strategic Overview

With our hardware and our brainpower, the United States has unchallenged mastery of air, sea, and land. Except for our government's failure to defend us from ballistic missiles—a glaring, reprehensible exception—no one can seriously threaten us with conventional forces.

Experts on such things say that this is a period of "strategic pause," a rare opportunity to catch our breath and rethink our strategy and force structure. Although the cold war required us to follow a course of incremental advances in doctrine and procurement just to keep pace with the Kremlin, nothing of the scope and scale of that technological competition exists today. As they say at the war colleges, we have no "peer competitor."

Although I vigorously oppose those people who use this fortunate circumstance to justify reckless cuts in defense spending or to rationalize their refusal to support an effective ballistic missile defense, I do see an opportunity for us to exploit this period of unchallenged conventional superiority on Earth to shift substantial resources to space. I believe we can and must do this, and, if we do, we will buy generations of security that all the ships, tanks, and airplanes in the world will not provide. This would be a real "peace dividend"—it would actually help keep the peace.

None of us can truly imagine the opportunities that space may one day offer. But for now I think we can agree that space offers us the prospect of seeing and communicating throughout the world; of defending ourselves, our deployed forces, and our allies; and, if necessary, of inflicting violence—all with great precision and nearly instantaneously and often more cheaply. With credible offensive and defensive space control, we will deter and dissuade our adversaries, reassure our allies, and guard our nation's growing reliance on global commerce. Without it, we will become vulnerable beyond our worst fears.

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Shortchanging Space

In their rhetoric, both the Department of Defense (DOD) and the Air Force have acknowledged the importance and promise of space power. In his report to Congress in 1998, Secretary of Defense William Cohen stated that "spacepower has become as important to the nation as land, sea, and air power."[1] In 1995 the Air Force made clear in *Global Engagement* that "the medium of space is one which cannot be ceded to our nation's adversaries. The Air Force must plan to prevail in the use of space."[2]

Expanding and refining our ability to gather and transmit information has been DOD's principal focus in space. The Air Force's space budget is dedicated almost entirely to the maintenance and improvement of information systems as a means of increasing the effectiveness of existing forces here on Earth. But as important as early warning, intelligence, navigation, weather, and communications systems may be, today they are

basically dedicated to supporting nonspace forms of power projection. Even the Air Force's Space Warfare Center and Space Battlelab are focused primarily on figuring out how to use space systems to put information into the cockpit in order to drop *bombs* from *aircraft* more accurately.

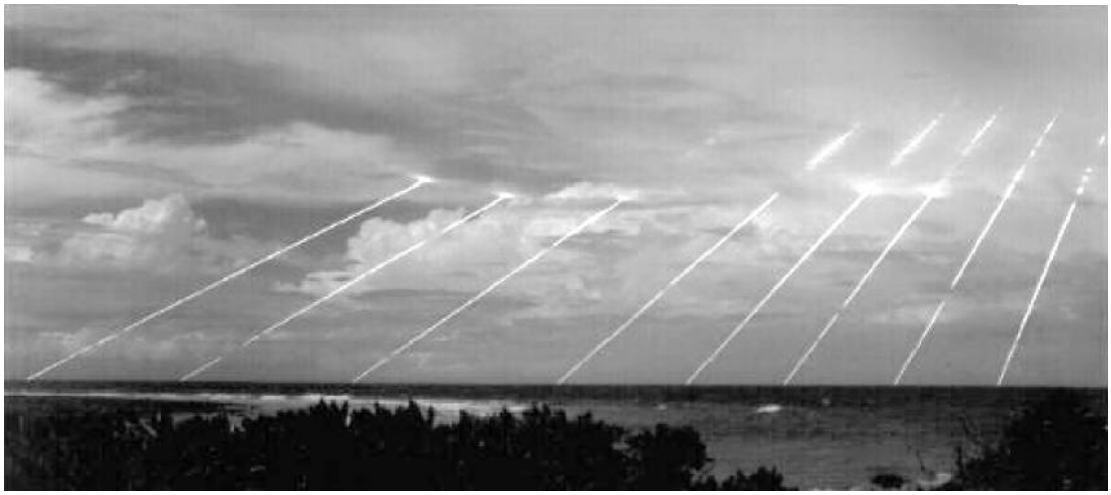
This is not space warfare. It is using space to support air warfare. It is essentially the space component of "information superiority." Given the degree of importance that *Joint Vision 2010* and other recent statements of policy and doctrine give to information superiority, it is understandable that the Air Force and DOD have tried so hard to fully exploit the information revolution. But if we limit our approach to space just to information superiority, we will not have fully utilized space power.

Four years ago the secretary of the Air Force and the chief of staff challenged the Air Force Scientific Advisory Board to "search the world for the most advanced aerospace ideas and project them into the future."[3] Among the many valuable findings in the resulting *New World Vistas* report was the following conclusion: "For the U.S. to sustain its superpower status it will become necessary not only to show global awareness through space based information, but also to be able to project power from space directly to the earth's surface or to airborne targets with kinetic or directed energy weapons."[4]

But as I look at the way the Air Force is organized, trained, and equipped, I do not see it building the material, cultural, and organizational foundations of a service dedicated to space power. Indeed, in some respects it is moving backward. *Global Engagement* spoke of a transition "from an *air* force to an *air and space* force on an evolutionary path into a *space and air* force" (emphasis in original).[5] This language, heavily influenced by the revolutionary vision in the *New World Vistas* report, was consistent with the kind of leap into space power that I believe is necessary.

But the Air Force uniformed leadership has recently replaced the vision laid out in *Global Engagement* with the concept of an "aerospace force." Although this new approach is not necessarily inconsistent with the development of space power, it appears to reflect the view that space is fundamentally an information medium to be integrated into existing air, land, and sea forces.

Once again, I believe that fully integrating space-based information capabilities into existing concepts and organizations is an important near-term goal. Both the Air Force and the National Reconnaissance Office (NRO) have done a good job of advancing this cause. But if



Unarmed reentry vehicles from a Peacekeeper missile impact in the Kwajalein Missile Range in the South Pacific.

this is all there is to aerospace, then it is a woefully deficient concept. It is not space power.

Where are the science-and-technology investments and the technology demonstrations that the Air Force is currently pursuing in order to build a future space-power projection capability? Where is the Air Force's space-based missile-defense development program? (A space-based laser program that does not envision a technology demonstration for 15 years or an operational capability for 35 years is not serious.) Where is the Air Force's military space-plane program? Does the Air Force really want to stand idle while the National Aeronautics and Space Administration (NASA) develops a follow-on to the space shuttle that may contribute only marginally to meeting the requirements of military space power? Compared to the magnitude of the technical challenges involved—and these programs' potential military value—the investments being made by the Air Force in these areas are paltry. In some cases—programs involving the space plane, kinetic-energy antisatellites, and Clementine II asteroid-intercept mission—I have had to personally earmark funds to get the Air Force to move forward at all.

Personnel investments are also inadequate. Many of the institutions of space power have been established within DOD, including joint and service space commands and the Fourteenth Air Force, but I still do not see the emergence of a war-fighting community within the Air Force that in any way rivals the air and missile organizations. Having one or two space generals rise to the senior levels of Air Force leadership is not enough. Similarly, a service that promotes only one space officer at a time to brigadier general is not showing much commitment to space power.

Right now, Air Force Space Command includes 11 general officers. None are career space officers—although two have had three space assignments, and three have had two space assignments (including their current jobs). The other generals are serving for the first time in space jobs. A further breakout shows that five of the 11 are command pilots, five are command missileers, and one has a command and control background. To put this in context, consider how many general officers at Air Combat Command are not command pilots.

Nor has the Air Force taken steps to build a dedicated space-warfare cadre of younger officers. The attempt to combine space and missile personnel and the tendency to assign nonspace officers to lead space organizations may actually undermine the development of a true space-power culture. Although I strongly support flexibility in the career paths among different war-fighting communities throughout our military services, it has gone too far when most of the Air Force's space institutions and commands are led by officers who are not space specialists.

Embracing Space Power

To ask if the Air Force is serious about space is to ask the wrong question. The Air Force has played the dominant role in military space matters for decades. A significant portion of its budget has gone toward developing and operating the nation's military space systems. So no one should question the Air Force's proud space legacy. But an honored past does not automatically mean that the Air Force is correctly poised for the future.

What do DOD and the Air Force need to do in order to create the conditions necessary for the emergence of space power? Let me offer the following recommendations as intellectual fodder, if not as an actual road map forward. Some of these suggestions are specifically directed toward the Air Force, while others are directed more generally toward DOD.

First, we must foster a space-power culture. We must create an environment in which revolutionary thinking about space power is not only accepted but also rewarded. We should strive to re-create for space power the type of intellectual environment that Gen Henry "Hap" Arnold created for airpower in the wake of World War II. We simply cannot allow a blanket of political correctness and bureaucratic inertia

Depiction of the airborne laser (ABL) engaging theater ballistic missiles in the boost phase of flight. "[One cannot] see the Air Force building the material, cultural, and organizational foundations of a service dedicated to space power." Do Air Force plans and programs reflect cultural bias or realistic solutions to technical, fiscal, and political constraints?

to smother those people who would offer us the most innovative and revolutionary visions for exploiting space. The emergence of a real space-power force will require the creation of a highly skilled, dedicated cadre of space warriors clearly focused on space-power applications—not merely on helping air, sea, and ground units do their job better.

Second, we should be more creative in maximizing the cooperation between military, civil, and commercial space practitioners. We need to work aggressively with the commercial sector to find a new equilibrium in which private profit and government cost reduction meet both commercial and military needs more cheaply. DOD must also cooperate more with other users of space, such as NASA, NRO, and the commercial sector. Partnering on a range of technology demonstrations is one way to leverage our investments. We must also carefully consider the potential for privatization and commercial partnering in certain elements of DOD's space infrastructure—for example, in the creation and maintenance of multipurpose spaceports. DOD's existing willingness to enter into public-private partnerships in the area of depot maintenance, for example, might also be applied to the space-launch arena. In this regard, however, we must exercise great cau-

tion to ensure that government control of war-fighting capabilities is not jeopardized.

Above all, we must give our space warriors the tools they need. Let me be clear—if the potential savings I've described here are not sufficient, DOD must simply begin to dedicate a larger portion of its budget to the development and fielding of space-power systems. We cannot simply walk away from core missions or legacy systems. But we also cannot continue an investment strategy that continually consigns space-power systems to the "out" or even the "way-out" years—especially when space power may provide faster, better, and cheaper offense and defense.

Two Options

We will need more than a better space-power culture—and more than money—if we hope to dominate the permanent frontier. We must be willing to dramatically restructure our institutional approach to this ultimate strategic theater. As a baseball fan and coach, I am fond of Yogi Berra, especially his advice "When you get to a fork in the road, take it." Well, today the Air Force is at a fork in the road. It must truly step up to the space-power mission or cede it to another organization. In plain English, the Air Force is going to have to change.

The National Command Authorities have established the policy foundations for such a transition. According to the president's national security strategy of October 1998, "our policy is to promote development of the full range of space-based capabilities in a manner that protects our vital national security interests."[6] With its Global Engagement strategy, the Air Force itself established the vision of a space and air force—in that order. Now the Air Force must decide whether it is willing to make the internal choice to embrace space power fully.

Changing the Air Force?

Let's not sugarcoat this problem. We will have to shed big chunks of today's Air Force to pay for tomorrow's, and that will be very painful. Congress could help by allowing the Air Force to keep any savings from this divestiture and allocate them directly to space programs. If such a change proves impossible, then we in Congress must consider another alternative.

Ultimately—if the Air Force cannot or will not embrace space power and if the Special Operations Command model does not translate—we in Congress will have to establish an entirely new service.

The notion that the Air Force should have primary responsibility for space is not sacred. For the most part, space is well outside the "wild blue yonder." Just because space hardware and signals move about over our heads, must space be the exclusive domain of the Air Force?

This is not a new question. In 1995 the commander in chief of US Space Command found "no compelling arguments" to make the Air Force solely responsible for the design, launch, and operation of space systems.[7] In 1997 retired Air Force general Charles Horner told *Space News* that "if the Air Force clings to its ownership of space, then tradeoffs will be made between air and space, when in fact the tradeoff should be made elsewhere."[8] Furthermore, Gen Charles Krulak, commandant of the Marine Corps, stated that "between 2015 and 2025, we have an opportunity to put a fleet on another sea. And that sea is space. Now the Air Force people in the audience are saying, 'Hey that's mine!' And I'm saying, 'You're not taking it.'"[9]

These officers express legitimate frustrations, but I see a risk that their concerns could lead to a Balkanization of space power. This

would be a setback. A better approach to explore might be to vest US Space Command with authority similar to that held by US Special Operations Command—the Major Force Program (MFP) structure. MFP-11 gives the commander of Special Operations Command substantial control over development, acquisition, promotions, and assignments in this unique mission area.

US Space Command is perhaps the only institution within DOD that is developing both the theory and practical plans for space power. But the commander in chief of US Space Command needs the teeth and claws to compete for—and dispense—DOD resources. As a conservative Republican, I am opposed to unnecessary bureaucracy. But space power is every bit as important as special operations—perhaps, like special ops, space power should have its own MFP and even its own assistant secretary of defense.

Or Creating a New "Space Force"?

Ultimately—if the Air Force cannot or will not embrace space power and if the Special Operations Command model does not translate—we in Congress will have to establish an entirely new service. This may sound dramatic, but it is an increasingly real option. As I have tried to convey, I want us to dominate space—and frankly, I am less concerned with which service does it than I am committed to getting it done. This view is increasingly shared by my colleagues.

Creating a new military service to exploit a new medium is not without precedent. At the close of World War I, the Army General Staff viewed military aviation as a servant of ground forces and opposed the development of a new service that would conduct a new set of roles and missions. Senior officers with little or no operational experience were chosen to guide the development of the new aviation technologies, roles, and missions. Ground officers controlled promotion of aviation officers. The General Staff refused to fund acquisition at levels needed by aviators. The vast majority of Army officers were ignorant of—and indifferent to—disparities between US and foreign development of airpower. The Army exiled or forced into retirement its internal critics. By any measure, aviation had an inferior status within the Army. As a result, advocates of new roles and missions for aviation, such as Billy Mitchell, sought organizational independence to implement their ideas. The result was the creation by Congress of the Army Air Corps (1926) and, later, the United States Air Force (1947).

A Space Force would put the same bureaucratic and political muscle behind space missions that the Army, Navy, and Air Force flex in theirs today. A separate service would allow space power to compete for funding within the entire defense budget, lessening the somewhat unfair pressure on the Air Force to make most of the trade-offs and protecting space-power programs from being raided by more popular and well-established programs. A separate service would create an incentive for people to develop needed new skills to operate in space and a promotion pathway to retain those people. Further, a separate service would rationalize the division of labor among the services—and consolidate those tasks that require specialized knowledge, such as missilery and space—so that this specialized knowledge could be applied more effectively.

I have been a member of Congress for 14 years—long enough to learn that, very often, an organized advocate equals political power and that political power gets the resources. We may not like this—and any handful of us might be able to sit down and divide things up better—but that is not how the American political system works. I'd bet that—in a DOD comprised of four service departments—a Space Force would get a fair share. This is a crude method, but it is one way to ensure that space power gets resources.

As with any other major change, there are risks. A separate service would not be immune to bureaucratic stagnation and the suppression of new ideas as leaders seek to achieve a single "vision" and unanimity behind it. Unfortunately, unity of bureaucratic effort often seeks to avoid competition of ideas—the very competition we need if we are to learn how to

make new things and how to do new things. There is no guarantee that the initial vision—whichever one wins in bureaucratic competition—would be the most effective in real combat against a wide range of adversaries.

A separate service will face coordination problems with the existing services as it seeks to integrate space concerns into the Army, Navy, Marine Corps, and Air Force operational concepts, although the Goldwater-Nichols Department of Defense Reorganization Act should help reduce the magnitude of this problem. A separate service would surely add a level of bureaucracy and associated costs—although this would be offset somewhat by the consolidation of existing functions and commands within the new service. Of course, there would be decisions to make about which commands and functions to place under a new space service. I would personally struggle, for example, with the question of which ballistic missile defense programs to include.

This would be a dramatic step. Perhaps a "Space Corps" (like the Marine Corps, a separate service but without a secretariat) would be a step toward a Space Force. Maybe the Air Force will preempt these dramatic changes by truly becoming the "Space and Air Force." But space dominance is simply too important to allow any bureaucracy, military department, service mafia, or parochial concern to stand in the way. I intend to muster all of the political support I can to take any step necessary to make true space power and space dominance a reality for the United States of America.

Conclusion

America has always been a nation of discoverers and explorers. It suits our national character to pursue the permanent frontier of space. Like Columbus, we must dare to move away from the "old world"—old vision, old strategy, and old institutions—if we are to truly enter the "new world" of space.

As the senior senator from New Hampshire, I am proud to represent the state that sent astronaut Alan Shepard and teacher Christa McAuliffe to participate in the national space program. As you recall, Christa perished with her brave comrades aboard the *Challenger* one awful morning in January 1986. Christa said, "I touch the future—I teach." Christa touched the future in our children, and she sought to touch the future as an astronaut. Like President Reagan, she helped create a wave of enthusiasm for space exploration.

We must renew this enthusiasm. The American people are ready. Look at the popularity of space and science-fiction films—*Apollo 13, Independence Day, Armageddon,* and eight *Star Trek* movies. Look at the public's fascination with the recent journey back to space of John Glenn, my Armed Services Committee colleague.

We are nearing the end of mankind's bloodiest century. Through enormous sacrifice, America has preserved its own freedom and has freed millions around the world. As leaders, we must seek an Apollo-like commitment from the American people. We must ask them to reach into space again with gusto—for its science, its mystery, and the security it can offer us. Control of space is more than a new mission area—it is our moral legacy, our next Manifest Destiny, our chance to create security for centuries to come. □

Notes

1. Secretary of Defense William Cohen, *Annual Report to the President and the Congress* (Washington, D.C.: Department of Defense, 1998), 7-1.

2. *Global Engagement: A Vision for the 21st Century Air Force* (Washington, D.C.: Department of the Air Force, 1997), 7.

3. Secretary of the Air Force Sheila E. Widnall, "The Challenge," in *New World Vistas: Air and Space Power for the 21st Century (Ancillary Volume)* (Washington, D.C.: USAF Scientific Advisory Board, 1995), 7.

4. *New World Vistas: Air and Space Power for the 21st Century (Space Applications Volume)* (Washington, D.C.: USAF Scientific Advisory Board, 1995), v.

5. *Global Engagement*, 7.

6. *A National Security Strategy for a New Century* (Washington, D.C.: The White House, Office of the President of the United States, 1998), 25.

7. "CINCSPACE Finds No Compelling Reason to Give USAF Control of Satellites," *Inside the Navy*, 3 July 1995.

8. "Air Force Space System Control Questioned," *Space News*, 8 September 1997, 2.

9. Gen Charles Krulak, commandant of the Marine Corps, speech delivered at the Fletcher School of Law and Diplomacy, Tufts University, 10 November 1997.