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HISTORICAL STUDIES



UNITED STATES
SPACE FORCE

SOME ORIGINS OF THE IDEA
“WHOSE TIME HAS COME”

PRISCILLA DALE JONES

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COVER

“Whose time has come” quote from White House, “Remarks by Vice President Pence on the Future of the U.S. Military in Space,” issued on 9 Aug 2018, 11:17–11:41 a.m. EDT, The Pentagon, Arlington, Va. [<https://www.whitehouse.gov/briefings-statements/remarks-vice-president-pence-future-u-s-military-space/>, accessed 30 Apr 2019].

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U.S. Air Force Historical Support Division
Washington, D.C.

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2020

Creating a new military service. ... 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.”

Senator Bob Smith (R-N.H.)
Chairman, Senate Armed Services Subcommittee on Strategic Forces
18 November 1998¹

A Space Corps within the Department of the Air Force may be an appropriate model in its own right or a useful way station in the evolution toward a Space Department. ... [it] might be modeled after the relationship of the Marine Corps to the Department of the Navy.

Report of the 2001 Space Commission, 11 January 2001²

The long-term vision of the DoD is to create a new Military Department for space. The DoD first proposes establishing a new Military Service ... within the Department of the Air Force. ... Allowing the Space Force to mature before proposing a new Department of the Space Force would set the conditions for a smooth transition in the future.

In this construct, the U.S. Space Force (USSF) and the U.S. Air Force (USAF) would exist within one Military Department. ... This model is similar to how the U.S. Navy and U.S. Marine Corps exist within the Department of the Navy.

Department of Defense report on United States Space Force, February 2019³

I believe we need the Space Force. In fact, in my opinion, a domain-specific service to organize, train, and equip space forces is overdue.

Barbara M. Barrett
Secretary of the Air Force-nominee, 12 September 2019⁴

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United States Space Force

Some Origins of the Idea “Whose Time Has Come”⁵

Introduction

In 2019, the United States faced challenges to national prosperity and security and an increasingly complex and volatile threat environment. No longer dominant or unchallenged in every domain of warfare—air, land, sea, space, and cyberspace—the country had entered a period marked by a return to major power competition as the primary U.S. national security concern.⁶

Throughout the year, national security space issues were a major focus for senior U.S. Air Force leaders. Many had long recognized the centrality of space to U.S. national defense and security, including, increasingly, the effectiveness of the country’s military operations and the success of its commercial interests. America’s rivals, especially adversaries China and Russia, continued to develop space and cyber warfare capabilities that could threaten the U.S. electric power grid and critical military and commercial satellites, damaging or destroying U.S. intelligence, navigation, and communications capabilities. Many civilian and military leaders believed that developments such as the anti-satellite missile tests conducted by China and Russia, and China’s landing on the “dark side” of the Moon in January 2019, signaled the end of U.S. preeminence in space and were additional evidence that space was evolving from a formerly benign environment to a warfighting domain.

The creation of the United States Space Force in December 2019 was, in part, a response to these challenges. But the idea of a space corps or a space force was not a new one.

At a ceremony held at Joint Base Andrews, Maryland, on 20 December 2019, President Donald J. Trump signed into law the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2020. The act marked the official inauguration of United States Space Force (USSF), the sixth branch of the U.S. armed forces, within the U.S. Air Force. The President set the day firmly in historical context, noting the passage of approximately fifty years from the Wright brothers’ first flight at Kitty Hawk in 1903 to

the establishment of the U.S. Air Force in 1947, and from Apollo 11's Moon mission in 1969 to the NDAA for FY 2020 signing ceremony. With the signing, the President appointed Gen. John W. "Jay" Raymond as the first chief of space operations. The general would become "the very first member of the Space Force" and would be a member of the now-expanded Joint Chiefs of Staff.⁷

Late in the evening of 20 December, the President signed into law the Consolidated Appropriations Act, 2020.⁸ The USSF was now authorized and funded for FY 2020.

In a letter dated 20 December 2019 and circulated that morning to all U.S. Air Force (USAF) and USSF members, Air Force secretary Barbara M. Barrett announced President Trump's signature of the National Defense Authorization Act for Fiscal Year 2020. The letter described the new U.S. Space Force as "an independent service" and noted that it launched "the nation into a new era."⁹

On the afternoon of 20 December, during the first Space Force press briefing, Secretary Barrett described the launch of the new service as "an historic moment." Gen. John W. "Jay" Raymond, the commander of U.S. Space Command and of Air Force Space Command (AFSPC), told reporters "[the] establishment of the Space Force truly launches us into a new era."¹⁰

That new era, and Space Force, had been a long time coming. The NDAA for FY 2020 itself was the result of "an arduous two years" of effort by and negotiation between senior Air Force, Department of Defense (DoD), administration, and congressional leaders, particularly members of the House and Senate armed services and appropriations committees.¹¹ And a space corps or space force within the Department of the Air Force, or a separate, independent space force within the Defense Department, were not new concepts. As RAND Corporation analyst Dr. Benjamin S. Lambeth pointed out in 2003,

Their advocates had for years believed one or more of the following to be true: first, the Air Force, "de facto custodian" of space, had not given that subject its proper due; second, improvements were needed in Air Force mechanisms for space organization and funding; third, the U.S. "military space program ... [was] mature enough to strike out on its own toward mastering the fourth medium of warfare, either partly or completely detached from direct Air Force control."¹²

Many members of Congress on both sides of the aisle were concerned about the country's increasing dependence on space. They included,

notably, by November 1998, Senate Armed Services Subcommittee on Strategic Forces chairman Senator Bob (Robert) Smith (R-N.H.), and, by the spring of 2017, Representatives Mike Rogers (R-Ala.) and Jim Cooper (D-Tenn.) of the House Armed Services Subcommittee on Strategic Forces. Space was seen as vital to the nation's security, military, economy, and way of life. Related worries included the organization and management of national security space programs for which the Air Force was responsible; the vulnerability of U.S. satellites and other space systems; and the expanding ambitions and increasing capabilities of U.S. adversaries, particularly Russia and China. Both countries established space-specific military branches in 2015.¹³ They and other potential adversaries were seeking ways to deny the United States the use of space in a conflict or crisis. In June 2017, Cooper and Rogers proposed the creation of a Space Corps. The full House passed their military space reorganization language, only to remove it later in conference.¹⁴

The Department of Defense, but particularly the Air Force, had long come under particular and bipartisan scrutiny by major congressional overseers. Defense space issues, notably the organization and management of space acquisitions and oversight and the evolving nature of space, were an abiding interest and growing source of concern for Congress. Some Senate and House members criticized what they believed were "managerial deficits" in space acquisition. Viewing the space environment as an increasingly adversarial domain, members worried that the Defense Department and the Air Force were too slow to address the threats to U.S. national security in space posed by Russia, China, North Korea, and Iran.¹⁵ Well aware of this "new environment" and "ever-changing threat picture," legislators of both parties worried about the capabilities of the current space enterprise; the fragmentation of DoD space leadership responsibilities, notably those connected with acquisition, oversight, and program requirements; funding for procurement and research and development; and the scarcity of career space professionals.¹⁶

These were not new concerns. For almost twenty-five years, government and independent commissions and reports had investigated, and made recommendations for improving, the planning, acquisition, management, and organization of national security space programs.

President Trump first mentioned the possible creation of a space force during remarks on 13 March 2018 at Marine Corps Air Station Miramar in San Diego, California. He pointed out that the country's National Security Strategy recognized space as "a war-fighting domain, just like the land, air and sea." He went on to reveal he was considering a new force, on par with the Air Force, Army, and Navy.

You know, I was saying it the other day—because we are doing a tremendous amount of work in space—I said: “Maybe we need a new force. We’ll call it ‘Space Force.’” And I was not really serious. Then I said: “What a great idea.” Maybe we’ll have to do that. That could happen. That could be the big breaking story.¹⁷

President Trump began to formalize his Space Force notion publicly on 18 June 2018. Speaking in the East Room of the White House at a meeting of the National Space Council, the President declared that space was “not only a matter of national identity, but a matter of national security”: “American dominance in space” was required to defend the country, “not merely...an American presence in space.” To this end, he stated the following:

... I’m here by [sic] directing the Department of Defense and Pentagon to immediately begin the process necessary to establish a space force as the sixth branch of the armed forces....

We are going to have the Air Force and we are going to have the Space Force—separate but equal.¹⁸

On 19 February 2019, the President signed Space Policy Directive-4 (SPD-4) and charged the Defense Department with developing “a legislative proposal to establish a United States Space Force as a sixth branch of the United States Armed Forces.” This was “an important step toward a future military department for space” that would be called the Department of the Space Force and would be placed within the Department of Defense. But for now, the USSF was “to be initially placed by statute within the Department of the Air Force.” At some point in the future, the Department of the Space Force would “be responsible for organizing, training, and equipping the United States Space Force.”¹⁹

President Trump’s comments at Miramar energized members of the House of Representatives such as Mike Rogers, the chairman of the Strategic Forces Subcommittee of the House Armed Services Committee (HASC), and that committee’s chairman, Mac Thornberry (R-Tex.).²⁰ Trump’s remarks also energized his own critics and Space Force skeptics. Within hours of his appearance at Miramar, a *Huffington Post* article ridiculed him as “The Laughingstock Of The [sic] Galaxy” for his Space Force idea.²¹

In the months leading up to the signing of the NDAA for FY 2020, more thoughtful analysts, including members of the Senate and House, weighed in. There were the inevitable jokes, too, notably about what members of the new force would be called, a subject that interested serious writers

as well.²² A satirical response to President Trump’s proposal came on 16 January 2019, when Netflix announced that Steve Carell would again be joining with Greg Daniels, creator of the NBC sitcom “The Office,” to create and star in a new workplace comedy, “Space Force.” Carell was to play the commander of the new force. A Netflix promotional video revealed that

The goal of the new branch is “to defend satellites from attack” and “perform other space-related tasks.” Or something. This is the story of the men and women who have to figure it out.²³

Speaking in a webinar on 6 May 2020, General Raymond—who, as Space Force’s first chief of space operations, was the real-life commander of those men and women—took this all in good humor: he advised Carell to get a haircut and said he had hoped Bruce Willis would play the lead character.²⁴

On a more serious note, however, Raymond had voiced concerns as early as 20 December 2019, at the first Space Force press briefing, that the media and the public might not realize the importance of the new service to the nation’s national security. He knew that skeptics mocked the Space Force and called it a “Space Farce.” Responding to a question from a Bloomberg reporter, Raymond said:

This is not a farce. This is nationally critical—nationally critical. If you look at the National Defense Authorization Act and you look at the challenges that we face today—and those challenges extend into the space domain—this is really important for our nation. I cannot foot stomp that enough.²⁵

Serious-minded critics saw the space force idea as, among other things, a needless and expensive layer of bureaucracy; a threat to Air Force stewardship of space; and a militarily unsound separation of air and space, which was, in their view, a single “aerospace” continuum. Serious-minded advocates saw space as an increasingly adversarial domain and viewed a space force as essential for U.S. national security in a dangerous world again dominated by great-power competition; as a key element in protecting U.S. space dominance and space assets critical to the country’s military, economy, and way of life; and at least part of a solution to longstanding problems surrounding the management and organization of national security space.

But few critics or advocates, serious-minded or otherwise, placed the President’s Space Force proposal in historical context. It was not a

new idea, despite what he himself, and some of his detractors, implied or said explicitly.

The major part of this study focuses on several early discussions, beginning in April 1983 and continuing through July 2008, about the need for either a space corps within the Department of the Air Force or a space department within the Department of Defense. In so doing, the study describes the evolving views and recommendations of leaders inside and outside the Air Force as expressed in formal government reports and elsewhere. Some of the recommendations in these reports, and in other commentary, would be echoed in the provisions of the National Defense Authorization Act for Fiscal Year 2020, most notably those dealing with the establishment of the Space Force within the Department of the Air Force. Finally, an addendum at the end of the study includes information on some of the budgetary, legislative, and Air Force milestones before and immediately after the creation of the Space Force.

12 April 1983: A Government Accounting Office Report for Congress discusses space-based laser missile defense and suggests establishment of an Aerospace Force or a separate Space Force

Almost a year before President Ronald Reagan announced his Strategic Defense Initiative on 23 March 1983, the authors of a report by the then-called Government Accounting Office (GAO) were early advocates of the possible creation, by Congress, of an Aerospace Force or a separate Space Force. This “management structure” would be tasked with, among other things, overseeing a space-based laser program.²⁶

The GAO report of 12 April 1982 recommended the acceleration of U.S. laser development efforts, to counter Soviet advances in laser technology, and an early in-orbit feasibility demonstration of a space-based laser weapon. The demonstration was seen as a necessary prelude to “an integrated system of space-based laser battle stations with the capability to defend the country against a Soviet ballistic missile attack.”²⁷

Recognizing the “military potential of a space-based laser program,” the report’s authors advocated a “well structured, funded and managed program from the outset.” They doubted, however, that the Defense Department had such a program. And so, they argued, Congress might “be forced to create a new organization to manage the effort and carry out the program.” The GAO study offered several management-structure options, including “[e]stablishing an Aerospace Force” or “[c]reating a Space Force, a new branch of the military services.”²⁸

May 1995–November 1996: Air Force secretary and chief of staff create a new strategic vision of air and space power: evolving to a space and air force

By May 1995, Air Force chief of staff Gen. Ronald R. Fogleman and Air Force secretary Dr. Sheila E. Widnall had concluded that the Air Force needed a new strategic vision of air and space power to meet the challenges of a changing, unpredictable security environment and to respond to the “extraordinary developments in the post-Cold War era.”²⁹

In fact, Fogleman’s interest in taking a “fresh approach” was evident even earlier. On 30 November 1994, less than one month after his tenure as chief of staff began, he held a meeting at which he tasked his Staff Group to begin “working on a short, hard-hitting theme for the nineties to boil down *Global Reach—Global Power*,” the Air Force’s current strategic vision statement.³⁰

Air Staff members had leveled several criticisms against earlier *Global Reach* white papers. At the top of the list was that the past papers “Under emphasized space, information.”³¹

With a view to charting the service’s course into the first quarter of the twenty-first century, “as an Air Force team within a joint team,” Secretary Widnall and General Fogleman initiated a “rigorous, systematic” eighteen-month “examination of future demands on the Air Force as a member of America’s joint military force.”³² This “long-range planning effort,” in which Air Force leaders were deeply involved, represented “the most sweeping and ambitious self-examination” ever carried out by the service.³³

Senior military and civilian leaders, making up a board of directors chaired by the Air Force vice chief of staff, Gen. Thomas S. Moorman, Jr., oversaw the development of the new vision. Moorman later explained that “[e]ach command had its own action team contributing to the effort; as a result, the new vision had the ‘corporate buy-in’ of the entire Air Force as it was taking shape.” The Corona meeting of Air Force four-star generals at the Air Force Academy in October 1996 was the culmination of the process.³⁴

“This revolutionary effort” resulted in a white paper entitled *Global Engagement: A Vision for the 21st Century Air Force*, officially released in late November 1996 by Air Force secretary Widnall at a ceremony at the National Air and Space Museum in Washington, D.C. The study succeeded *Global Reach, Global Power*³⁵ as the service’s “defining statement of missions and ‘core competencies.’”³⁶ Shaped by the warfighting concepts

and new guidance set out in *Joint Vision 2010*, published by the Joint Chiefs of Staff chairman, Gen. John M. Shalikashvili, USA, in July 1996,³⁷ the *Global Engagement* study “defined the path from the Air and Space force of ... [1996] to the Space and Air Force of the next century.”³⁸

Global Engagement made clear the importance of space to the Air Force and to the country. The white paper listed the service’s core competencies; the first, “a critical enabler for the Joint Force,” was “Air and Space Superiority.”

The threats to Americans and American forces from the use of space by adversaries are rising while our dependence on space assets is also increasing. 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.

The control of air and space—“freedom *from* attack and freedom *to* attack”—was an operational and strategic imperative. Space was “already inextricably linked to military operations on land, sea and in the air.” In addition, “several key military functions ... [were] migrating to space.” In the future, space would be even more important: operations currently focused “on air, land and sea ... [would] ultimately evolve into space.”³⁹

The Fogleman-Widnall vision set out in *Global Engagement* embodied their view that air and space power would be “the strategic instrument of choice” in the new century. But the Air Force would have to go “through a transition of enormous importance,” as it sustained its “stewardship of space,” to ensure that air and space power continued “to make its unique contributions to the nation’s Joint Team.” This transition entailed an evolution: from an air force into an air and space force and then into a space and air force.

Ensuring that air and space power continues to make its unique contributions to the nation’s Joint Team will take the Air Force through a transition of enormous importance. We are now transitioning from an *air* force into an *air and space* force on an evolutionary path to a *space and air* force.⁴⁰

By two years after the publication of *Global Engagement*, the Fogleman-Widnall vision of the Air Force as a “space and air force” had been left behind. That document’s description of the Air Force as transitioning to an “air and space force” or, eventually, to a “space and air force” was infrequently, if ever, used. The acting Air Force secretary,

F. Whitten Peters, and other senior Air Force leaders now referred to the service as an “aerospace” force.⁴¹

2 February 1998: The Department of Defense tells the President and the Congress that “Space power has become as important to the nation as land, sea, and air power”⁴²

Secretary of Defense William S. Cohen released details of President William J. Clinton’s FY 1999 defense budget to Congress and to the public on 2 February 1998.⁴³ As part of the budgetary process, Cohen sent his 1998 *Annual Report* to President Clinton and to the Congress. He recalled that, in 1997, his department had conducted the Quadrennial Defense Review (QDR). It reviewed the “defense posture, policy, and programs” of the United States in light of “the national security threats, risks, and opportunities” the country faced at present and was expected to encounter through 2015. Cohen devoted chapter 7 of his report to “Space Forces.”⁴⁴

Cohen made several assumptions about that seventeen-year-long security environment. First, he believed it would be a dangerous, complex, dynamic, and uncertain one. Second, and nevertheless, as the millennium approached, the United States was “in a period of strategic opportunity.” As currently “the world’s only superpower,” the country was in “a unique position”: alone amongst the nations of the world, the United States could “project overwhelming military power worldwide to conduct large-scale, effective joint military operations far beyond its borders.” U.S. alliances were strong; Russia and other former adversaries were increasingly cooperative, especially on security issues; and many countries embraced “representative democracy and market economics.” Third, it was “likely” that the security environment through 2015 would “be marked by the absence of a global peer competitor able to challenge the United States militarily around the world.” Fourth, the military potential of the United States and its allies, if fully mobilized and deployed, would likely be sufficient to defeat any regional power or coalition.⁴⁵

After 2015, however, the situation might be different: “there is the possibility that a regional great power or global peer competitor may emerge.” China and Russia were at the top of the list, though they had domestic, including economic, challenges. And even at present, the United States—by virtue of its conventional military dominance and “technologically superior capabilities”—was vulnerable to a wide variety of asymmetric attacks from adversaries seeking to avoid direct armed confrontation. On a long list of concerns were possible attacks on DoD infrastructure, including space systems and space-based assets.⁴⁶

Vital U.S. national security and economic interests were many but included “[e]nsuring freedom of the seas, airways, and space.” Indeed, space superiority was one of the “critical enablers”—those “capabilities and assets that enable the worldwide application of U.S. military power”—that allowed the U.S. military to execute effectively the country’s defense strategy. U.S. space assets were critical to “[g]lobal command, control, communications, computers, intelligence, surveillance, and reconnaissance (C⁴ISR), navigation support, and meteorological forecasting.” The United States faced competition from other nations developing space capabilities and access. To preserve its “current ... advantage in space,” the country had to “focus sufficient intelligence efforts on monitoring foreign use of space-based assets and develop the capabilities required to protect U.S. systems and prevent hostile use of space by an adversary.”⁴⁷

Space power was now “as important to the nation as land, sea, and air power.” Space forces were an integral part of the efforts of U.S. and allied armed forces to deter and detect hostile actions and to carry out operations during crises and conflict. They were also key to protecting the free flow of information throughout the global market, so critical to the economic prosperity of the United States and its allies.⁴⁸

Report of the Secretary of the Air Force

Included in defense secretary Cohen’s annual report were the services’ statutory reports. In his report, Acting Secretary of the Air Force F. Whitten Peters stated that the service was continuing to shape its “destiny—the evolution of today’s air and space force to the space and air force of tomorrow.” The ability of the United States to maintain air and space superiority, “the freedom to operate, free from attack and free to attack,” was “the key to winning wars on America’s terms—quickly and with fewer friendly casualties.” As one of “[t]he six core competencies of air and space power,” air and space superiority helped to determine Air Force investment and modernization decisions.⁴⁹

November 1998: The Scientific Advisory Board distributes its report, *A Space Roadmap for the 21st Century Aerospace Force*

Another milestone in the “overall Air Force investigation of its future in space” was a study by the U.S. Air Force Scientific Advisory Board (SAB), released in November 1998. It involved consultation “with commercial industry and with other agencies involved in space, including NASA [National Aeronautics and Space Administration], the Army

and Navy, the NRO [National Reconnaissance Office], and Air Force organizations involved in plans, technology development, acquisition, and operations.”⁵⁰

The SAB study, requested and approved by Air Force chief of staff Gen. Michael E. Ryan and Air Force acting secretary F. Whitten Peters, recommended steps the Air Force should take—a “roadmap and program strategy”—to use space most effectively to accomplish “its assigned operational tasks in a rapidly changing world.”⁵¹

Aerospace and defense expert Dr. John M. Borky chaired the study team; his senior advisor was a former vice chief of staff and, previously, commander of Air Force Space Command, Gen. Thomas S. Moorman, Jr., USAF (Ret.). They worked with a seven-panel study team that included SAB members, a number of subject-matter experts, “and a broad cross section of Government personnel from the Air Staff and several major commands.” General officer participants were Lt. Gen. Roger G. DeKok, Lt. Gen. George K. Muellner, and Maj. Gen. H. Marshal Ward. The study’s initial distribution list included dozens of offices and organizations inside and outside the Air Force, including the other services, the Joint Staff, and think tanks.⁵²

The SAB study took a rather sobering look at the “sharply limited abilities” of the United States and the Air Force to conduct space operations or to prevent those of an adversary, “in any sense that approximates aerial missions.” The country had no anti-satellite system available and deployed, despite the support of every presidential administration in recent times for anti-satellite and other capabilities. International treaties prohibited weapons of mass destruction in space, but current U.S. policy went well beyond that, forbidding “the stationing of any weapons in orbit.” In addition, the ability of the United States even “to track and identify objects in orbit, especially debris, ... [was] less than desired.” The country was able to “fly satellites for a variety of support functions such as communications, sensing, and navigation, and replace them, with long lead times, when they fail.” However, the nation could not, with its current resources, “fight, even defensively, in space.”⁵³

The SAB study team was clearly disturbed by the nation’s limited, static capabilities in space, particularly given the increasing U.S. economic and military dependence on space and the vulnerability of U.S. space systems to attack.

This situation [limited U.S. capabilities] stands in stark contrast to the rapidly growing dependence of the nation on space for vital economic purposes. ... space is becoming, if it is not already, an economic center of gravity, the loss of which would cripple

commerce, finance, and numerous other private and public activities. Space systems therefore present an irresistible target to many who wish us harm.⁵⁴

Military operations in space were inevitable and would be carried out sooner rather than later.

History teaches that where such threats to national economic interests arise, military force will be used to defend those interests. A requirement to conduct offensive and defensive operations in space, lethally or nonlethally, will inevitably become a reality, and sooner more likely than later. Given that many potential space targets are commercial, indeed multinational, property, it is likely that such actions will involve information warfare far more often than physical damage or destruction.⁵⁵

In his foreword, study chairman Dr. John M. Borky noted that the Air Force faced “enormous challenges in evolving to an integrated aerospace force that has the capabilities needed to cope with the military challenges of the next century.”⁵⁶ One such challenge was the fragmentation and dispersal of space-related activities across Air Staff organizations. These should, the SAB study team argued, should “be brought together under a central focal point.”⁵⁷

The initial title of the team’s study was *Going to Space: A Roadmap for Air Force Investment*.

This [title] reflected the thought, which has been prevalent in recent years, that *the U.S. Air Force is migrating from an air and space force to a space and air force, perhaps even ultimately to a space force*. Very early in our deliberations, the study leadership realized that this initial focus was inappropriate. The Air Force is *already* an aerospace force; we are not going to space, we are already there.⁵⁸

Despite this unequivocal statement, study team members were, in fact, not certain that the Air Force was a fully “integrated aerospace force.” Today, the Air Force was an air and space force. Its “core competencies”—as detailed in *Global Engagement: A Vision for the 21st Century Air Force*⁵⁹—entailed “the integrated employment of weapon and support systems across the physical media of air and space.” However, the Air Force remained “largely a legacy of the Cold War.” The service continued,

often, to treat “air and space operations as separate activities” and would have to evolve “to deal with the very different world of the 21st century.” If the service did not learn “to conduct functionally seamless operations”—thereby becoming a truly “integrated aerospace force”—then, the study team feared, irrelevance and failure lay ahead, and the Air Force would no longer be “a preferred instrument of national power in this complex and uncertain emerging world.”⁶⁰

Team members realized progress on the road to an integrated aerospace force would be slow, and achieving their vision with respect to “force structure, missions, processes, and technology” would take years. Costs could be reduced and operations could be integrated significantly “over the next 5 to 10 years.” But “achieving the full power of ... [the team’s] vision of 21st century aerospace power ... [would] take at least 20 years.”⁶¹

Autumn 1998–Autumn 1999

Background to the establishment of a congressional commission to examine national security space organization and management

18 November 1998: Senator Bob Smith advocates for space weapons and perhaps even a separate space force

The chairman of the Senate Armed Services Subcommittee on Strategic Forces, Senator Bob (Robert) Smith (R-N.H.), gave a major speech on 18 November 1998 at the Fletcher School of Law and Diplomacy, Tufts University. Then-Lt. Col. John E. Hyten later recalled that several Air Force generals were in the audience, including Gen. Richard B. Myers, then the commander in chief of the North American Aerospace Defense Command (NORAD) and U.S. Space Command and the commander of Air Force Space Command.⁶² Smith’s presentation appeared in an adapted form as an article published in the spring 1999 issue of *Airpower Journal*.⁶³

Many of Smith’s ideas and proposals, including the space force he advocated for, would be echoed in the 2001 Space Commission report and in the National Defense Authorization Act for Fiscal Year 2020.

Smith opened his article by arguing that the United States had “unchallenged mastery of air, sea, and land,” no serious threats from hostile conventional forces,⁶⁴ and “no ‘peer competitor.’” In this “period of ‘strategic pause,’” he believed, the country should “shift substantial resources to space.”⁶⁵

During his time in the House of Representatives, beginning in 1985, and then in the Senate, Smith became keenly interested in space—the “permanent frontier,” as he described it—and “a staunch supporter of space

programs.” As the chairman of the Senate Armed Services Subcommittee on Strategic Forces, Smith now, in 1998, focused “more on the national security applications of space.”⁶⁶

His approach to space rested on three assertions. First, U.S. national security and economic prosperity would in the future “depend on our constant supremacy in space.” Second, the United States was ahead of, but not unchallenged by, “potential rival[s] in exploiting space,” and U.S. dominance going forward was “by no means assured.” Third,

...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.⁶⁷

Smith believed the Air Force and the Defense Department were “[s]hortchanging [s]pace.” He noted that both the Air Force and DoD had “acknowledged the importance of space power.”⁶⁸ He recalled that *Global Engagement* had made clear, in 1997, the Air Force view that the service must “prevail in the use of space.”⁶⁹ And, he noted further, defense secretary Cohen had placed equal importance on land, sea, air, and space power in his 1998 report to Congress.⁷⁰ But both the Air Force space budget and the Defense Department’s “principal focus in space” had been dedicated to maintaining and improving information systems, enhancing U.S. capability to “gather and transmit information,” as a way to increase “the effectiveness of existing forces here on Earth.”⁷¹ Enormous technical challenges were involved in the types of militarily valuable programs needed to “build a future space-power projection capability,” but “the investments being made by the Air Force in these areas ... [were] paltry. In some cases, ... [Smith had] had to personally earmark funds to get the Air Force to move forward at all.”⁷²

Smith argued that while “early warning, intelligence, navigation, weather, and communications systems” were important, they did not constitute “space warfare.” Rather, they supported “non-space forms of power projection.” This was merely “using space to support air warfare. It ... [was] essentially the space component of ‘information superiority.’” This approach, he feared, would not fully utilize space power.⁷³

Smith recalled the *New World Vistas* report of 1995, undertaken by the Air Force Scientific Advisory Board at the direction of Air Force secretary Dr. Widnall and chief of staff General Fogleman. The report noted the importance, to U.S. global superpower status, of “global awareness through space based information.” However, it was equally important “to

be able to project power from space directly to the earth's surface or to airborne targets with kinetic or directed energy weapons." These types of operations, in Smith's view, more fully utilized space power.⁷⁴

But the senator was concerned that current Air Force organization, training, and equipment would not enable it to establish "the material, cultural, and organizational foundations of a service dedicated to space power." He feared, in fact, that the Air Force was "moving backward." Uniformed leadership had recently replaced Widnall-Fogleman's *Global Engagement* vision—of an air force evolving into an air and space force and then to a space and air force—with another concept, an "aerospace force." This concept seemed to view space merely as "an information medium to be integrated into existing air, land, and sea forces." While this "aerospace" integration was important, "it ... [was] not space power." If this integration was all that service leadership meant by "aerospace force," then it was, Smith maintained, "a woefully deficient concept."⁷⁵

Smith suggested several ways the Air Force and the Defense Department could "create the conditions necessary for the emergence of space power." These included fostering "a space-power culture" by creating "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." The Air Force and DoD should cooperate more closely with the commercial sector and with other users of space, such as the NRO and NASA, and should also devote increased funding to developing and fielding space-power systems.⁷⁶

Smith devoted the last portion of his speech to laying out two options he believed would "dramatically restructure our institutional approach to ... [space, the] ultimate strategic theater." The policy foundations for such a transition had already been laid. President Bill Clinton's October 1998 national security strategy had set a policy of promoting the "development of the full range of space-based capabilities" to protect "our vital national security interests." And the Air Force itself had, "[w]ith its Global Engagement strategy, ... established the vision of a space and air force—in that order."⁷⁷

Smith discussed his first suggested option only briefly. He recommended U.S. Space Command be vested "with authority similar to that held by US Special Operations Command—the Major Force Program (MFP) structure." This structure gave the head of Special Operations Command "substantial control over development, acquisition, promotions, and assignments in this unique mission area." U.S. Space Command, possibly the only Defense Department entity "developing both the theory and practical plans for space power," needed the power "to compete for—

and dispense—DOD resources.” Smith, “a conservative Republican, ... opposed ... unnecessary bureaucracy.” Nevertheless, he believed space power was “as important as special operations,” and should perhaps “have its own MFP and even its own assistant secretary of defense.”⁷⁸

Smith discussed at significant length his second option, the possible creation, by Congress, of a new “Space Force.” He believed this development would be necessary if the special operations-MFP model did not work and if the Air Force could not or would not “embrace space power.” He and his colleagues wanted the United States “to dominate space” and were increasingly “less concerned with which service ... [did] it than ... [they were] committed to getting it done.”

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.⁷⁹

The senator noted that “[c]reating a new military service to exploit a new medium ... [was] not without precedent.” Setting his proposal in historical context, he recalled the developments leading up to Congress’s creation of the Army Air Corps and, two decades later, the U.S. Air Force. He clearly believed that the present circumstances of space power and space advocates within the Air Force paralleled those of air power and Army aviators at the end of World War I.⁸⁰

For fourteen years a member of Congress, Smith understood the U.S. political system: organized advocacy equaled political power, which, in turn, equaled funding. He was sure that in a Defense Department composed of “four service departments ... a Space Force would get a fair share [of resources].” Establishing a Space Force would have several benefits, notably in terms of funding, training and promotion, and efficiency.

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 spacepower 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 missileery and space—so that this specialized knowledge could be applied more effectively.⁸¹

Smith acknowledged that establishing a Space Force entailed risks, as did “any other major change.” These included a possibly ponderous new layer of bureaucracy, valuing unanimity and “a single ‘vision’” over competition and new ideas; and coordination issues with the other services and their space concerns. Costs associated with the new bureaucracy “would be offset somewhat by the consolidation of existing functions and commands within the new service.”⁸²

Establishing a separate space service would be, Smith admitted, a “dramatic” change, and so creating a space corps might be a good first step. It was possible, too, that the Air Force would make both unnecessary by becoming a true space and air force.

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 Smith intended to continue his efforts to “make true space power and space dominance a reality” for the country.

...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.⁸³

April 2000: A future commander of Air Force Space Command (and of U.S. Strategic Command and, subsequently, vice chairman of the Joint Chief of Staff) comments on the importance of Senator Smith’s Fletcher School speech

In an April 2000 scholarly paper, undertaken while a National Defense Fellow at the University of Illinois at Urbana–Champaign, then-Lt. Col. John E. Hyten described Senator Smith’s presentation as “a major speech” and his strongly worded proposals “for space weapons and perhaps even

... for a separate space force to develop and operate those weapons” as “radical and bold.” Hyten, then on a Joint assignment as operations officer and the space branch chief, Defense and Space Operations Division, Deputy Director for Operations (Current Readiness and Capabilities), recalled the “loud and vigorous” debate in the 1970s and 1980s about the military use and development of space. This debate, extensively covered by the national media, involved “not only leading military officers, presidents, and congressmen, but many from the scientific and academic community as well.” But now, the country’s future in space was “being debated [only] within limited political and military circles, ... [and was] not being addressed in any real depth on a national level.”⁸⁴

Hyten argued that a prime example of this lack of “national attention and committed involvement” was the media’s “almost non-existent” response to Smith’s November 1998 speech. Coverage in the following weeks was limited to “primarily defense-related periodicals.” An editorial on 11 January 1999 in the *Washington Times* was the first mention of the speech in a “mainstream U.S. newspaper.”⁸⁵

Hyten, and Smith and others on Capitol Hill, recognized that funding was a major issue. The Defense Department and particularly the Air Force had defined future space program requirements, but many members of Congress believed the Air Force did not adequately and effectively support space by budgeting “the resources necessary to fund it.” Critics viewed, as evidence of this failure, the service’s decision in early 1999 to delay for two years “both the high and low portions of the Space Based Infrared System (SBIRS), the new missile warning satellite programs.”⁸⁶ According to an article in the newsletter *Inside the Air Force*, important members of Congress were worried “about the Air Force’s practice of using the SBIRS program ... to pay its bills.”⁸⁷ Smith and his colleague, Senate Armed Services Committee (SASC) chairman Senator John Warner (R-Va.), both voiced their concerns, and Smith said, “If the Air Force is not interested in the space program, maybe another branch of service is.”⁸⁸

But, as Hyten pointed out, the Air Force was “in an almost impossible situation” and “has to meet the threats and obligations that face the military today.”⁸⁹ Gen. Charles A. Horner, a retired commander in chief of North American Aerospace Defense Command and U.S. Space Command and commander of Air Force Space Command, told the *Air Force Times* in 1999 that “Right now, space is sick.”⁹⁰ Hyten believed that the service knew this, and also that it had to fulfill current missions. In his *Air Force Times* interview, Horner expanded on the predicament the Air Force faced: “The problem is not that the Air Force ignores space. The crisis is one of money, and robbing the space budget to make up for

drastic shortfalls in the air budget.”⁹¹ Horner believed, Hyten stated, that “the problem could not be solved without some drastic changes,” and “he agreed with many of Senator Smith’s criticisms.” Summarizing Horner’s comments, Hyten wrote that “The ‘sickness’ of space in the Air Force, the way the budget process currently works can only be made at the expense of air programs.”⁹²

It was “difficult, if not impossible,” for the Air Force to decide which was more important: developing “systems to deal with the inevitable conflict in space” or dealing “with the continuing inevitable conflicts on earth.”⁹³ The Air Force could not alone provide a solution. In that regard, Hyten recalled Gen. Richard B. Myers’s comment in a February 1999 speech: “We must energize space funding at a national level. It’s more than we can do in the Air Force.”⁹⁴

The current fragmented organization was also a widely and long-recognized problem, and Hyten pointed out that Smith had “looked at the entire space organization and found it lacking.” Hyten quoted Smith’s belief that the Air Force could not build “the material, cultural, and organizational foundations of a service dedicated to space power.”⁹⁵

No single organization or individual was responsible for the U.S. military space program. Space responsibilities, including in acquisition, were scattered, divided between DoD organizations and the services. Reform was necessary, DoD-wide; without it, “the Air Force could only implement change internally.” Hyten listed some of the U.S. government organizations then having some military-space responsibilities:

U.S. Space Command and the component commands of the Air Force, Navy, and Army

National Reconnaissance Office (NRO)

National Oceanic and Atmospheric Administration (NOAA)

Central Intelligence Agency (CIA) Office of Development and Engineering

Central Imagery Office (CIO)

National Imagery and Mapping Agency (NIMA)

National Aeronautics and Space Administration (NASA)

The White House Office of Science and Technology Policy

Defense Advanced Research Projects Agency (DARPA)

Ballistic Missile Defense Organization (BMDO)

FAA's Office of Commercial Space Transportation

National Security Agency (NSA)

Defense Information Systems Agency (DISA)

Numerous staff agencies in the Department of Defense and the Services⁹⁶

As Smith had done in his speech, Hyten in his paper pointed out the “numerous parallels” between the experiences of Army Air Corps aviators in the interwar period and those of “Space Command planners today.” Both groups were frustrated in their attempts to achieve “the full military advantages of a new medium.” Both faced interservice rivalries and declining defense budgets. Hyten noted the similarities, and that Smith and many others were “beginning to make this case.”⁹⁷

In September 1996, almost two years before Smith was making his case, General Horner had stated the following:

The Air Force needs to take a step back and ask itself, “Are we like the Army was in the 1920s?” If we continue to hang onto space, are we going to smother it? The Army knew it was time to let go of the Air Force in 1920, but we didn’t get a separate service until 27 years later. People are reluctant to let go. Space is growing by leaps and bounds. It’s probably the fastest growing area in our military arsenal. We have to ask ourselves if space stewardship would be better off as a separate space force. We shouldn’t be afraid of that.⁹⁸

Hyten set Horner’s words into a broad spectrum of criticism of military space organization. His fellow critics lodged a variety of charges:

- Space responsibilities were too dispersed
- Proper planning for “information age warfare” was impossible
- The Air Force was not an effective steward of military space

- A new military service devoted to space might be needed “in the next century.”

Critics had different approaches, Hyten acknowledged, but they all tended to “agree that the current military plan for space ... [could] not be effectively implemented by the current military organization.”⁹⁹

Hyten went on to note that critics, including “many scientists, scholars, and political figures” such as Smith and others in Congress, found fault with the Air Force position that space and air constituted a single and inseparable medium. In the view of these critics, “Space ... [was] still in the early stages of its development as a frontier, and that frontier ... [was] inherently different from the frontier of the air.”¹⁰⁰

Hyten then analyzed the views of one of those critics, John Pike of the Federation for American Scientists. In a November 1998 essay entitled “American Control of Outer Space in the Third Millennium,” Pike suggested that space missions, systems, capabilities, and doctrine were more akin to those of information warfare than to those of air power. This perspective would support the establishment of a “new separate Space Force.”

... Information Warfare provides a rather more useful doctrinal point of departure for conceptualizing military space operations than the tenets of Air Power. Recognition of this fact, however, would also provide an equally useful point of departure of the military space role from the Air Force into a new separate Space Force.¹⁰¹

Pike and Smith and others in Congress argued, in somewhat different ways, that “the Air Force ... [had] promulgated the doctrine of aerospace power only to advance its position as the space force for America.” But Hyten believed their argument failed to consider the “similarity of missions between air and space doctrine.” For his part, Hyten stood with Air Force leaders—including chief of staff Gen. Michael E. Ryan—who, while understanding that air and space were different physically, nevertheless believed “the doctrinal similarities demand[ed] they be treated as a single entity.” Aerospace was “an inseparable domain”; splitting it made, in Ryan’s view, “no sense militarily.”¹⁰²

In 2002, a revised and updated version of the article, by recently promoted Colonel Hyten, became available to a wider audience when it was published in that year’s fall issue of the *Air and Space Power Journal*, the editors of which describe it as “the professional flagship publication of the United States Air Force.”¹⁰³ (Please see below, Autumn 2002.)

9 July 1999: Updated Department of Defense space policy views space as “a medium like the air, land, and sea”

By at least as early as mid-1999, the Defense Department had determined that its space policy, which had last undergone major revision in 1987 during the Cold War, had to be updated “to reflect new priorities and the nation’s evolving space policies and guidance.” The “increasing importance” of space activities to U.S. security and defense required “a comprehensive and coherent space policy. ... to maintain the nation’s leadership role in space into the next century and achieve U.S. national security objectives.”¹⁰⁴

On 9 July 1999, Secretary of Defense William Cohen updated DoD space policy by way of a widely circulated memorandum and the issuance of DoD Directive 3100.10. While those documents did not mention a need for a “space force,” they certainly commented at length on the role and importance of “space forces,” and their overall themes would have been familiar to any supporter of a new space force.

Space is a medium like the land, sea, and air within which military activities will be conducted to achieve U.S. national security objectives.

...

Space power is as important to the nation as land, sea, and air power. It is a strategic enabler of the National Military Strategy and Joint Vision 2010.

...

An integrated national security space architecture will minimize unnecessary duplication, achieve efficiencies in acquisition and future operations, and thereby improve support to military operations.

The ability to access and utilize space was a vital U.S. national security and economic interest. Space was a “[s]trategic [e]nabler”; space forces, ensuring freedom of space, provided information superiority, deterrence, and defense capabilities “essential to the exercise of U.S. power.” Those and other space-related capabilities would be fully integrated into U.S. military force “strategy, doctrines, ... education, training, exercises, and operations and contingency plans” and would coordinate—and integrate, where appropriate—with intelligence community space activities.¹⁰⁵

National Defense Authorization Act for Fiscal Year 2000: Senator Bob Smith inserts “a requirement for a commission to examine the organization and management of national security space”

The origins of the 2001 Commission to Assess United States National Security Space Management and Organization lay in legislation Senator Bob Smith sponsored in the autumn of 1999. The New Hampshire Republican and some of his colleagues, like many others outside of Congress, “had become increasingly concerned that the Department of Defense (DoD), and the US Air Force in particular, were not well organized to manage the national security dimensions of space.” As a result, Smith became especially interested in creating “a military ‘Space Service,’ the core mission of which would be to conduct operations to, in and from space.” Senior Air Force leaders “had given thought to an ‘aerospace force’ or an ‘air and space force,’”¹⁰⁶ but Smith was not convinced that USAF proposals were sufficient. After garnering “modest bipartisan support,” Smith inserted into the National Defense Authorization Act for Fiscal Year 2000 “a requirement for a commission to examine the organization and management of national security space.”¹⁰⁷

That body, commonly known as the 2001 Space Commission, received from Congress “a broad charter to assess the role of space assets in military operations.” Space had been the subject of several previous commissions. What set the Space Commission apart was the “direct” congressional interest in the way U.S. “national security institutions were organized to manage the frontier of space.” This interest informed the commission’s main goal: “to assess the costs and benefits of establishing an ‘independent military department and service dedicated to the national security space mission.’”¹⁰⁸

2000: Headquarters USAF Aerospace Integration Task Force white paper on aerospace integration

Meanwhile, as the Space Commission was beginning its work, the Air Force published a white paper on aerospace integration entitled *The Aerospace Force: Defending America in the 21st Century*. The study began with an opening quote from the Air Force chief of staff, Gen. Michael E. Ryan, asserting that the Air Force was “moving forward into the 21st Century as a seamless, integrated aerospace force.” In their foreword, Ryan and Air Force secretary F. Whitten Peters described the white paper as “a key pillar to the new Air Force Vision.” As such, the document presented “the Air Force view of the future of aerospace power” and provided “the

conceptual foundation for the full spectrum aerospace force.” Ryan and Peters challenged all Air Force personnel, but “primarily” those who would lead the service in the twenty-first century, “to continue molding our air and space capabilities into a seamless [full spectrum aerospace] force.”¹⁰⁹

By integrating air and space capabilities, the Air Force—the “21st Century aerospace force”—would best “fulfill our warfighting responsibilities to the joint team and the nation.” The Air Force viewed air and space as one “seamless operational medium.” Air and space were different environments, but those differences did “not separate the employment of aerospace power within them.” Though the service did not make an “exclusive claim to the aerospace continuum,” its leaders asserted that “The United States is an aerospace nation, and the Air Force is its aerospace force.”¹¹⁰

The Air Force was “bringing air and space closer together,” but “[t]he merger of air and space capabilities ... [was] an ongoing effort.” Indeed, the integration process might “never be finished because integration is not an end state.” It evolved as new platforms were developed and planned, and then entered the inventory. Air Force culture and identity had to similarly evolve.¹¹¹

11 January 2001: The Space Commission reports on the advisability of establishing an independent Space Department or a Space Corps within the Air Force

Perhaps the most important of the reports considering a possible space force was that produced by the Commission to Assess United States National Security Space Management and Organization, commonly known as the 2001 Space Commission or the Rumsfeld Commission, established pursuant to the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2000 (Public Law 106–65). Many of the Space Commission’s recommendations would also be echoed in the provisions of the National Defense Authorization Act for Fiscal Year 2020, most notably those dealing with the establishment of Space Force within the Department of the Air Force.

The thirteen-man commission, chaired by member Donald H. Rumsfeld until 28 December 2000,¹¹² included space, intelligence, and military professionals. The last group included four retired Air Force four-stars, Generals Howell M. Estes, III and Charles A. Horner, both former commanders in chief of U.S. Space Command; Ronald R. Fogleman, a former Air Force chief of staff; and Thomas S. Moorman, Jr., a former

commander of Air Force Space Command and, later, Air Force vice chief of staff.¹¹³ These men, Rumsfeld would later note, “brought extensive US Air Force experience in operations and management at both command and headquarters levels.”¹¹⁴

During the course of its work, the commission met on twenty-four occasions with eighty-nine witnesses, beginning 11 July 2000 and ending 5 December 2000. Twenty-one of those individuals were current or retired Air Force senior civilians or general officers, including a former secretary and current assistant secretaries; a former and the current chief of staff; the current National Security Agency director; and the current Joint Chiefs of Staff vice chairman.¹¹⁵

The twelve members remaining after Rumsfeld’s departure submitted their unanimous report to the chairmen and ranking minority members of the House and Senate Committees on Armed Services on 11 January 2001. Those senators and representatives, together with the secretary of defense, had appointed them, in consultation with the director of central intelligence.¹¹⁶

Just over a decade later, Rumsfeld and Dr. Stephen A. Cambone, the former commission staff director, would write that “the central goal of the commission ... [was] to assess the costs and benefits of establishing an ‘independent military department and service dedicated to the national security space mission.’”¹¹⁷

The commission’s unanimous report detailed a number of Air-Force specific recommendations to improve the organization and management of U.S. national security space. The report made clear that any realignments or other changes made in the near term should not preclude the creation of a Space Corps within the Air Force in the mid term and the establishment of an independent Space Department in the long term. In fact, commissioners believed that, “over the next five to ten years,”¹¹⁸ their recommended realignments would likely, and logically, transition into a Space Corps and then evolve into a Space Department, and they so stated, multiple times, in their report.

In the view of the commissioners, the United States was “more dependent on space than any other nation.” U.S. economic well-being and national security relied on “four sectors of space activity: civil, commercial, defense and intelligence.” But with the proliferation of space-based technology and services—“the new commercial revolution in space”—U.S. dominance in these sectors was no longer a given.¹¹⁹

The most telling feature of the new space age is that the commercial revolution in space has eliminated the exclusive

control of space once enjoyed by [U.S.] national defense, intelligence and government agencies.¹²⁰

This revolution was helping a growing list of countries to conduct space programs or to engage in collaborative space efforts. These international competitors, both friendly allies and hostile adversaries, were, increasingly, testing the United States. But, commissioners observed, the federal government was not paying sufficient attention to these matters. In light of this circumstance, and recognizing that the United States would in future “conduct [military and commercial] operations to, from, in and through space,” commissioners concluded a Space Corps or a Space Department might be needed to help defend U.S. space interests against attack.¹²¹

The nation’s vital interests depend increasingly on the capability of its military professionals to develop, acquire and operate systems capable of sustained space combat operations. The proliferation of technology and the ease with which hostile entities can gain access to space increase the need for a concentrated effort to deter and defend against such attacks.

Such efforts are not being pursued with the vision and attention needed. U.S. interests in space may well ultimately call for the creation of a Space Corps or a Space Department to organize, train and equip forces for sustained operations in space.¹²²

The Space Commission report: overview

The National Defense Authorization Act for Fiscal Year 2000 charged the commission with assessing the current organization and management of nation security space activities, and possible alternative organizational approaches the Defense Department might implement in the near, medium, and long term to strengthen U.S. national security. Commissioners unanimously concluded that change, “a new and more comprehensive approach,” was required to advance U.S. security interests in space.¹²³

The United States was, in the view of the commission, “an attractive candidate for a ‘Space Pearl Harbor.’” Its national security and its economy, already “more dependent on space than another nation,” were becoming increasingly so, but U.S. space systems were vulnerable. Commissioners believed that the U.S. government had to consider seriously the possibility of threats and physical and cyber attacks “in and from space” against those

assets, and those of its allies, by one or more hostile foreign nations or non-state entities during a crisis or conflict.¹²⁴

Heading the list of worrisome countries was China. The commission's report included, as a specific "warning ... [sign] of U.S. vulnerability," a July 2000 article from the Xinhua news agency. This, the official state-run press agency of the People's Republic of China, "reported that China's military ... [was] developing methods and strategies for defeating the U.S. military in a high-tech and space-based future war."¹²⁵

Commission members knew well that warning signs were often ignored. The strange, the unfamiliar, were thought to be improbable; the improbable was not taken seriously; and bureaucracies were slow to act and resistant to change under the best of circumstances.¹²⁶

History is replete with instances in which warning signs were ignored and change resisted until an external, "improbable" event forced resistant bureaucracies to take action. The question is whether the U.S. will be wise enough to act responsibly and soon enough to reduce U.S. space vulnerability. Or whether, as in the past, a disabling attack against the country and its people—a "Space Pearl Harbor"—will be the only event able to galvanize the nation and cause the U.S. Government to act.

We are on notice, but we have not noticed.¹²⁷

Space had become "a dominant factor in the outcome of future military conflict and in the protection of vital national security interests." But space-related matters did not receive sufficient priority, focus, funding, and emphasis, "starting at the highest levels of government." Presidential leadership was called for, and the commission unanimously recommended that "The President should consider establishing space as a national security priority."¹²⁸

The current organization and management of national security space, flawed, fragmented, and unfocused, failed "to reflect the growing importance of space to U.S. interests." Indeed, the faulty policies and multiplicity of space activities and communication lines, notably those of the Defense Department and the intelligence community, showed that the current institutional arrangements across the U.S. government were unable to meet twenty-first-century national security space challenges.¹²⁹

The commission's report discussed the space programs and responsibilities of the various military services but devoted significant space to the responsibilities and capabilities of the Air Force, the lead service for space. No one service had "been assigned statutory responsibility to 'organize, train and equip' for space operations." However, 85 percent of

DoD space-related budget activity, totaling about \$7 billion annually, was the responsibility of the Air Force.¹³⁰

Commissioners expected space would in the future “play an expanded role in transforming U.S. military forces.” But few of the commission’s witnesses were confident that the current USAF organization would enable the service to conduct new space-surveillance, capabilities-protection, and power-projection missions successfully. There was, also, little confidence that the Air Force would “fully address the requirement to provide space capabilities for the other Services.” Many witnesses maintained that

... the Air Force treats space solely as a supporting capability that enhances the primary mission of the Air Force to conduct offensive and defensive air operations. Despite official doctrine that calls for the integration of space and air capabilities, the Air Force does not treat the two equally. As with air operations, the Air Force must take steps to create a culture within the Service dedicated to developing new space system concepts, doctrine and operational capabilities.¹³¹

The Space Commission report: pros and cons of a Space Corps or a Space Department

Commission members had a long list of statutory charter-mandated tasks. Fifth on the list was a congressional direction to evaluate the potential costs and benefits of establishing “two oft-proposed alternatives for U.S. military space exploitation”:¹³²

(A) An independent military department and service dedicated to the national security space mission.

(B) A corps within the Air Force dedicated to the national security space mission.¹³³

Commissioners determined that a new military department for space might be needed in the future, depending upon how space was used to defend U.S. interests. A Space Department offered significant advantages; these, however, were at present outweighed by its disadvantages. On the one hand, the new department “would provide strong advocacy for space and a single organization with the primary mission of providing forces for conducting both military and intelligence space operations.” On the other hand, the new department, if established immediately, would be handicapped by the absence of “a critical mass of qualified personnel,

budget, requirements or missions.” Nevertheless, the report makes clear that commissioners were not closing the door on a possible future Space Department: “Meanwhile, near- and mid-term organizational adjustments should be fashioned so as to not preclude eventual evolution toward a Space Department if that proves desirable.”¹³⁴

Commissioners also argued that “[a] Space Corps within the Department of the Air Force ... [might] be an appropriate model in its own right or a useful way station in the evolution toward a Space Department.” Recalling the relationship during World War II between the Army Air Force and the Army, the report suggested that, under one approach,

Existing Air Force space forces, facilities, units and personnel, and military space missions could be transferred to a Corps. A Space Corps could have authority for acquisition and operation of space systems, perhaps to include both DoD and Intelligence Community systems, while leveraging existing Air Force logistics and support functions.

Another approach would be to model Space Corps “after the relationship of the Marine Corps to the Department of the Navy.”¹³⁵

A Space Corps and a Space Department “would have many of the same advantages and disadvantages.” However, a Space Corps had two drawbacks a Space Department did not:

... a Corps within the Air Force would not eliminate the competition for resources between air and space platforms that exists within the Air Force today. Nor would it by itself alleviate the concerns of other Services and agencies over Air Force space resource allocations.¹³⁶

The Space Commission report: Air Force realignment and evolution to a Space Department

Congress also directed the Space Commission to consider other options and to decide if “any other changes to national security space organization and management” were required. Commissioners determined that “a new and more comprehensive approach ... [was] needed to further the nation’s security interests in space.”¹³⁷

The commission made several unanimous recommendations in this regard, including in response to the DoD requirement for “space systems that can be employed in independent operations or in support of air, land

and sea forces to deter and defend” the United States and its interests. Commissioners again stressed that “In the mid term, a Space Corps within the Air Force may be appropriate to meet this requirement; in the longer term, it may be met by a military department for space.” In the near term, however, an organizational adjustment was needed: commissioners advocated for a “realigned, rechartered Air Force.” The realigned service would be not only “best suited to organize, train and equip space forces... for prompt and sustained space operations” but would also provide the foundation for a later Space Corps or Space Department.¹³⁸

Commissioners identified three major steps in this realignment. First, Air Force Space Command, commanded by a four-star general, would have the central role. It should be responsible “for providing the resources to execute space research, development, acquisition and operations” except for requirements, development, and deployment of space systems unique to the Army and Navy.¹³⁹ Space and Missile Systems Center would be reassigned to AFSPC, whose commander would also “have authority to program funds and direct” the Air Force laboratory system’s research and development programs. Such consolidation of space functions would make AFSPC the center of space advocacy and the center for developing a cadre of space professionals “charged with developing doctrine, concepts of operations and new systems to achieve national space goals and objectives.” The AFSPC commander would be responsible for managing the space career field. These arrangements, the commission argued, would meet operational requirements more effectively by increasing “the role of the uniformed military in research, development and acquisition of space systems.”¹⁴⁰

As the second step in the proposed realignment, the commission recommended Congress give the Air Force “statutory responsibility under Title 10 U.S.C. to ‘organize, train and equip’ for space.” The title’s current wording stated the Air Force “shall be organized, trained, and equipped primarily for prompt and sustained offensive and defensive air operations.” The end of this passage should be revised, commissioners maintained, to read “air and space operations.”¹⁴¹

As the third step in the proposed realignment, the defense secretary “should designate the Air Force as Executive Agent [EA] for Space within the Department of Defense.” The incumbent would be responsible for “planning, programming and acquisition of space systems” across the Defense Department.¹⁴²

After the realignment was accomplished, commissioners believed “a logical step toward a Space Department could be to transition from the new Air Force Space Command to a Space Corps within the Air Force.” This transition would be quite similar to the evolution of “the Army’s air

forces from the Army Air Corps, into the Army Air Forces and eventually into the Department of the Air Force.” It was impossible to predict the timetable for the transition, but commissioners believed it “would be dictated by circumstances over the next five to ten years.” It might even be possible for the Department of Defense “to transition directly to a Space Department if future conditions support[ed] that step more quickly” than present circumstances suggested.¹⁴³

The AFSPC commander would lead Space Corps. Commissioners made no mention of the Space Corps/AFSPC commander becoming a member of the Joint Chiefs of Staff (JCS). However, that individual “could join” JCS discussions when agendas included “space-related issues.”¹⁴⁴

Space Corps would be responsible “for planning, programming and budgeting for space systems” and “could develop forces, doctrine and concepts of operation for space systems for use as a functional component of a theater commander’s order of battle.” Space forces could “either perform independent operations unique to their medium or capabilities or be used as part of a joint force.”¹⁴⁵

As a final thought on the Air Force realignment, commissioners noted that the transition to a Space Corps or a Space Department “could involve” integrating Air Force and NRO space-systems “acquisition and operations activities.” This effort would result in one organization responsible for developing, acquiring, and operating U.S. “space-based defense and intelligence systems.” Commissioners noted that “[t]his integration could be achieved either by merging the two organizations in one step or through a series of steps in an evolution to a Space Corps or a Space Department.” They advised that the latter course would “likely prove to be the most appropriate.”¹⁴⁶

1997–2002: Before and after the Space Commission report: Air Force reaction to the idea of a space force

Senior research associate at the RAND Corporation Dr. Benjamin S. Lambeth, writing soon after the release of the Space Commission’s report, maintained that the Air Force “cooperated both willingly and seriously” with the commission. Nevertheless, the Air Force “viewed itself as having been essentially targeted by the Space Commission and accordingly awaited its findings and recommendations with more than a little trepidation.”¹⁴⁷

Reactions from senior Air Force leaders to the establishment and work of the commission, shortly before and immediately after the commission’s report, were varied. It is illuminating also to look back even further, as

early as late 1997, to explore views of then-serving and retired leaders on the inseparability of air power and space power, on the need to accept space as an integral part of the Air Force and the national military forces, and on how to respond to proponents of a separate space force.

14 November 1997: Air Force Association National Symposium, “National Security – The Space Dimension”

Gen. Howell M. Estes, III, the commander in chief of U.S. Space Command, addressed several of these themes during his “Air Force at a Crossroad” presentation at an Air Force Association (AFA) national symposium in Los Angeles, California, on 14 November 1997. General Estes noted that his “friendly audience” included AFA members who were also members of the U.S. space industry. Here, there was “no wringing of hands regarding the developing dilemma of priorities between ‘air forces and space forces.’” His overall subject, the shift from an air and space force to a space and air force, was an evolutionary one that would, eventually, require an integrated doctrine. Estes opposed the creation of a separate space force, at least for the foreseeable future.

There are some key questions. How do we write that doctrine in a seamless fashion? How does it support Air Force doctrine? How do we integrate all of these core competencies that we talk about? How do we use air and space [together, not separately] to accomplish these core competencies? ...

It is really important that we keep that mind set. Because when we make that separation, we might as well do what some people are proposing today and that is to create a separate space force. We are not ready to do that and we will not be ready for a long time to do that, in my opinion.

Estes set his subject firmly in historical context and pointed out that “the Air and Space Forces of today find themselves ... in somewhat similar circumstances” as did the U.S. Army and the Army Air Corps of the 1940s. The Air Force, as leader and steward of most of the U.S. military space capability, had reached a “crossroad in history”:

Today we recognize the importance of space and have labeled space superiority as one of our core competencies, but as of yet, we have very little means of ensuring space superiority. We don’t even know how to define it yet. But we are working on it.

Space had “limitless potential” for the United States and the international community. To recognize this potential, however, the Air Force had to change its culture.

... we [must] begin as an Air Force to change our culture to fully accept the responsibility for the role of space and its importance to the future national security interests of our country. This has been a problem in the past, we’ve never really embraced space in the Air Force. That’s the crossroad.

The Air Force faced two immediate challenges, however.

... our first, immediate challenge must be to adapt our Air Force culture to come to grips with the ever-changing nature of war and its implications for our ever-expanding use of space as an equal and vital member of the joint air, land, sea, and space warfighting team.

Our second immediate challenge must be to act on this understanding so that we can begin to seriously consider changing the status quo.

The success of the service’s Space and Air Force, and of the Air Force’s “adaptation to the world’s future security environment,” depended on decisions made today and actions taken in the future regarding space. A balance had to be struck between conservative and radical assessments of the future, but fear of change had to be overcome. The service must not be “intimidated by our immediate threats and daily operational problems at the expense of our future systems.” Space and its funding had to expand: every year, more Air Force dollars had to be devoted “to key space[-] enabling technologies[;] ... to support new satellite program starts[;] ... to building new communications infrastructures connecting all of our forces via space; ... [to] new launch capabilities.”

If the Air Force did not follow the above course, then the service might lose its leadership of space to another, possibly new, organization.

... if your view is that the migration of air dollars to space to create a “Space and Air Force” will only serve to undermine the critical nature of air to which we are all committed, then there is a very realistic path we could go down.

The Air Force can choose not to step up to the plate on the conflicting demands between Air Forces and Space Forces. The Air Force can choose to relinquish its leadership of space in favor

of another organization, perhaps a new organization, that will lead our nation into space.

In Estes's view, this should not, and was not going to, happen. Air and space power were inseparable. The development and evolution of the Air Force "as a Space and Air Force" had to "proceed unimpeded." The service had decided to continue to

... claim space as an Air Force domain. We are planning the migration of air and space missions, where affordable and technologically feasible. And, we say we are evolving toward becoming a Space and Air Force because spacepower and airpower are inextricably linked as components of the vertical dimension of warfare.¹⁴⁸

Gen. Michael E. Ryan, the Air Force chief of staff, also spoke about the inseparability of air and space power; about the need for "a fundamental cultural change ... across a wide spectrum of the Air Force"; and about the service's development, indeed its "destiny." Ryan described the service's evolutionary goal as follows: "Our goal is to eventually evolve from an Air and Space Force, which we call ourselves now, into a Space and Air Force." He made no mention of the possibility of a separate space force, and he maintained that the Air Force had always been, and would continue to be, a responsible steward of space.

The Air Force has always responded responsibly to its role as the steward of space and will continue to take the lead in organizing, training and equipping our space forces. Of the services, we have the most expertise, and we have made the most investment.

The Air Force now provides over 90% of the military space budget and 93% of space personnel.

Air and space superiority were essential. Air Force capabilities were increasingly dependent on space, and threats to those capabilities were growing, as many more countries had "access to sophisticated space remote sensing, communications, and navigation capabilities." Potential adversaries, aware of "the vital role" of space in successful Air Force operations, sought "to find ways to deny the US unimpeded access to space."¹⁴⁹

4–5 February 1999: Air Force Association Air Warfare Symposium

By early 1999, some senior Air Force leaders were clearly concerned that some policymakers were questioning the extent and nature of the

service's stewardship of space and discussing the possible creation of a separate space force.

Speaking in Orlando, Florida, at an Air Force Association National Symposium on 4 February 1999, Air Force chief of staff General Ryan described the three major responsibilities of the Air Force of the twenty-first century: to provide, first, freedom from attack; second, freedom to maneuver "not just forces, but information through space"; and third, freedom to attack. He clearly stated, "We are a space force." He argued that the Air Force had already achieved total integration of air and space, and that separating the two made no operational, tactical, or strategic sense. To a question from Gen. John A. Shaud, retired Supreme Headquarters Allied Powers Europe chief of staff, about the status of the Air Force "effort to integrate air and space," Ryan responded, "We are there, and we declare victory." Shaud followed up, asking "It is done?" Ryan elaborated:

We are here. That is what we do. We are an aerospace force so interlocked that you cannot pull it apart. Separating air and space is like separating mountains from valleys. It just does not make any operational sense. And it certainly does not make any tactical sense. And I do not think that it makes any strategic sense.¹⁵⁰

Gen. Richard B. Myers, who at that point had been the commander in chief of U.S. Space Command for about six months, also spoke at the symposium on 4 February. He described the Air Force as "a fully integrated aerospace force achieving the full promise of space" and went on to detail the service's "space action plan." Most notably, he responded to those who believed a separate space service was necessary. He acknowledged that the nation's economy and military—its "standard of living ... and national survival"—depended on space, without which the United States could not "function ... at work, at home, or at war." This circumstance created vulnerabilities and

... also leads to questions about the stewardship of space. Some wonder if the Air Force is stepping up to its responsibilities, and others leap to the conclusion that we need a separate space service. In my view, this mostly stems from a misperception of the inherent conflict between air and space....

Myers did not believe stewardship and organization were the main issues. And so, he maintained, the service should "focus on the real enemies, funding, technology, and ... policies that hold space power back. It is simply time to get on with it. And continue on ... with [the Air Force's] superb stewardship of space."¹⁵¹

In addressing the general topic of the current and future Air Force, Gen. Michael J. Dugan, retired Air Force chief of staff, emphasized quality of thought over quantity of funding in determining the future development of aerospace power. General Dugan mentioned neither the service's stewardship of U.S. national security space specifically nor those individuals, to whom General Myers had referred, who had concluded a separate space force was needed. Dugan spoke instead, more generally, about America's twenty-first-century aerospace force. Air power and space power were clearly inseparable in his view, and he repeatedly used the phrase "aerospace power," as General Ryan had done in his speech.

But Dugan was a great supporter of "lively debate" and acknowledged that challenging "the conventional order" was not easy. Most clearly amongst the presenters, he pointedly and frequently condemned traditional thinking, "conventional wisdom," and blind support of the status quo. His most commonly used major words or phrases, "Air Force," "aerospace," "thinking," and "future," illuminate not only his theme but his personal perspective. The latter seems well encapsulated by the penultimate sentence of his prepared remarks: "The future is what the Air Force is all about and has been all about."

At the time of his presentation, heading into the new century, and "[i]n terms of the breadth and depth and ... scope of its capabilities," the U.S. Air Force, Dugan said, had "no peers." It was "the only air force thinking about global engagement operations." This was "an invaluable position," but it was one the country could "keep or lose as a matter of choice." Dugan predicted that "No nation will drive the United States from its position of aerospace preeminence in the lifetime of" any of his listeners, but, he warned, the country could lose this position if its leaders lacked the necessary vision and made the wrong policy choices. "The only way for us to be surpassed is through ill-advised policy, ill-considered options, careless decisions, and half-baked and short-range thinking about air and space power."

Dugan believed "the golden age" of aerospace power lay in the future. The potential for "[t]he conceptual, technical, and operational progress" of aerospace power was "virtually unlimited." At present, limits on its development were, primarily, intellectual, "the failure of our thinking," not "economic, programmatic, political, or budgetary." Indeed, in his view, "aerospace power ... [was] more about thinking and ideas, than about technology or hardware or systems or platforms."

Conventional wisdom, traditional and parochial thinking, uninformed by "lessons from history ... [and] scientific discoveries," promoted the status quo.

Conventional wisdom is not known for pushing the limits. Conventional wisdom is not known for advancing the flow of history. Conventional wisdom is not known for promoting the kinds of progress that you've witnessed in air and space in your lifetime. Conventional wisdom is known for promoting the status quo, for protecting rice bowls, for upholding traditional cultures. Conventional wisdom frequently supports cherished professional preferences, and even job security interests.

This type of “[c]onventional wisdom” was diametrically opposed to creative, unconventional, careful thinking informed by “lively debate” and characterized by a willingness “to accept the consequences of rigorous scientific and historical analyses.” This “quality of ... thinking” was needed to expand and broaden the progress of aerospace power and to make “new and difficult choices” necessitated by “world events, the pace of change, [and] the evolution of technology.” In these endeavors, the U.S. aerospace industry—with its “knowledge, ... experience, ... expertise, ... historical perspective. ... [and] long-range thinkers”—was a great ally, “an essential element of aerospace power,” and one of the country’s “principal lifelines.”

Dugan was also concerned that many Air Force leaders, indeed airmen across the service, “thought of themselves ... as heavy equipment operators.... and had an equipment orientation, rather than a national or a Service or an institutional orientation.” This was, in Dugan’s view, “a cultural issue ... [that affected] the whole institution” and would “over a long period of time ... diminish the capacity of the institution to think about and to prepare for the longer term future.” He worried, too, that “equipment loyalty ... [was] short term and easier to lose focus on” in the face of a demanding life in the service. Building on “a different set of values, values of service” was preferable and would enable a more enduring, “more vibrant and more persistent loyalty to the organization, to the institution, to the nation.”¹⁵²

19 November 1999: Air Force Association National Symposium, “A Space Partnership for the 21st Century—Military, Civilian and Commercial”

In the mid-autumn of 1999, senior Air Force leaders continued to extol the service’s stewardship and integration of space; expressed concern about the durability of U.S. space superiority in the face of the proliferation of space technology and the growing capabilities of adversaries; and

responded to policymakers who raised the possible creation of a separate space force.

Speaking on 19 November 1999 in Los Angeles, California, at an Air Force Association National Symposium entitled “A Space Partnership for the 21st Century—Military, Civilian and Commercial,” Air Force chief of staff General Ryan noted the increasing “interest and investment in aerospace,” in both the private and public sector. The ever-increasing share of the USAF budget spent on “space systems and space operations. . . [would] be both an opportunity and a challenge for the U.S. Air Force.” He went on to describe the nation’s growing dependence on space-based assets and the progress the Air Force had made in integrating its aerospace force, both as demonstrated by Operation Allied Force. The military, commercial, and civil sectors must be able to defend their space capabilities from attack and to deny adversaries’ the use of their space-based systems. “[E]ventually,” Ryan said, the nation must be able to “project power from space.” But space, as he described its use currently and in the recent past, was in a supporting role.

Ryan again argued pointedly against “those who would want to separate the aerospace domain.”

It is a reverse oxymoron but they would want to work space in a vacuum. But for me, that would be like separating the mountains from the valleys or the oceans from the seas. It makes no military sense, and for the foreseeable future, the aerospace realm will remain earth-centric.

He did not see *Star Trek*’s Jean-Luc Picard, or “commercialization or colonization” of “planets or other objects in our solar system,” anytime “in the next couple of generations.” Practically, then, Ryan believed that the aerospace domain demanded the attention of planners. The Air Force was “on a journey, combining and evolving aerospace competencies into a full-spectrum aerospace force.” For the service, “[a]erospace superiority always will be job one.”

At the end of Ryan’s remarks, retired Supreme Headquarters Allied Powers Europe chief of staff General Shaud noted that Capitol Hill and commissions “and everything like that” offered the Air Force “a lot of help.” This was a verbal sleight of hand, as made clear by Shaud’s follow-on question: he wondered, would Air Force aerospace integration efforts “help deflect . . . some of the criticism and actually calls sometimes for a separate space command?” Ryan did not know if those integration efforts

would deflect criticism, but he did wonder why anyone would want a separate space command.

If the answer is to garner more money for the space sector or provide more money for the aero sector, then why don't we just do that instead of adding another layer that dis-integrates those functions, rather than integrates them. I've never gotten a good answer to the question of why.¹⁵³

General Myers, the commander in chief of U.S. Space Command, began his comments on the topic of space control by noting that “space superiority is fleeting.” The United States had space superiority “by default” in Kosovo, he argued, “not because of superior technologies or strategies ... but because our adversaries simply didn't use space.” He warned his audience that “Fortune may not be so kind next time, for we are seeing worldwide proliferation of space-based capabilities.” Air and space superiority were necessary for the successful prosecution of wars. Air superiority was planned for, executed, and won. At present, the United States assumed and had space superiority, but that would not be true in the future. Tomorrow, Myers believed—“and tomorrow,” he thought, was “essentially right now”—“space superiority also must be planned for, executed, and won.”

Myers drew a parallel between the evolution of air power and that of space power. Air power had evolved from a support role to air combat and then “to strategically projecting force on the battlefield.” At present, “space power ... [was] in a support role but ... [was] rapidly moving toward developing the ability to directly impact our warfighting capability.” In the future—and Myers gave every indication he believed the future was now—the United States and the Air Force would face adversaries unlike the Serbs in Kosovo, who had “had little recourse against our space systems.” Those unnamed new adversaries, Myers argued,

... clearly understand the value of our activities in space and could use asymmetric methods to exploit our vulnerabilities. Make no mistake, we are vulnerable, because many of our space systems lack the basic self-defense measures like those integral to our air missions.

The vulnerability of U.S. satellites was a great, but not the sole, concern. Myers described several current and soon-to-be-realized threats from hostile nations, in addition to “natural and environmental threats” and “unintentional man-made threats.” It was a disturbing picture.¹⁵⁴

17 November 2000: Air Force Association National Symposium, “Space Partnership—Achieving the Vision”

At an Air Force Association National Symposium in Los Angeles on 17 November 2000, a number of senior Air Force leaders again praised the service’s stewardship and integration of space. They also discussed the possible creation of a separate space force and commented on the work of, and questioned the need for, the Space Commission.

At the symposium, entitled “Space Partnership—Achieving the Vision,” Air Force chief of staff General Ryan noted that the Space Commission was meeting at that very time and stated “Some of us in the room have met with the ... commission.” Members of that body were “working very diligently to come up with rational kinds of adjustments that we need to make to ensure that our nation remains the pre-eminent aerospace power.” Their “congressionally mandated” report was expected in January 2001. No matter what adjustments commissioners might recommend in their report, however, Ryan did not believe a space corps or a space force was needed. The Air Force needed only sufficient funding to make a reality its vision of being “an aerospace force that ... [controlled] the vertical dimension.” Ryan told the symposium attendees the following:

I don’t think we need a space corps or a space force. I think our strength is in our capability to meld all the vertical dimension together to produce the effects we need in the defense of this country. What we need is a national commitment in funding to make the vision a reality. Our vision for the future is one of an aerospace force that controls the vertical dimension.

Despite the current “decade of drawdown,” the Air Force had “been great stewards of the space force.” The service had, “throughout the drawdown,” kept space-program funding “at a fairly constant level.”

Of all our programs, our most re-capitalized force is our space force because it must be. We cannot let it fail because it not only supports the United States Air Force, but all the rest of our forces, indeed the national command authority.¹⁵⁵

In his speech, Gen. Ralph E. “Ed” Eberhart, the commander-in-chief of NORAD and U.S. Space Command and the commander of Air Force Space Command, did not opine on the issue of a possible space corps or

space force. He did reveal, however, that he had changed his mind about the Space Commission. Initially, he would not have wanted it, viewing it as akin to a trip to the dentist. He now thought that, even if the commission did not submit a report, it had made the Air Force better. It had been useful and had helped the Air Force to reflect on, and plan for, its future as an aerospace force.

Once again, I'll tell you that I was wrong about something in retrospect. If somebody were to ask me to vote last February or March, do you want a space commission, I would have said no. It is kind of like when they ask you, do you want to go to the dentist? We all know usually when we go and get back, we are better off. I am convinced that even if the space commission does not render a report, we will be better off because of the space commission. The introspection we have done as a service, as the other services have done, across the Department of Defense, the CINCs [commanders in chief], and particularly in Colorado Springs in all three of the commands. I think it has helped us refocus, to chart the path ahead and to truly realize what our destiny is in terms of an aerospace force. I think that is good.¹⁵⁶

Air Force secretary F. Whitten Peters told symposium attendees the United States had great technological advantages and was “in an enviable position in space.” But despite having devoted “the greatest resources ... to space” and being “the pre-eminent nation in space today,” the country needed to be concerned “about where we will be in the future.” Secretary Peters recalled that “the great seafaring nations—Portugal, Spain and Holland”—lost their advantages over time. In his view, the United States had “to be ever vigilant about what we are doing in space and how we are managing space for the future.”

Peters pointed out several “critical challenges that we must meet as we think about space.” The first was “the impact, positive and negative, of the space commission” that was then deliberating. He could not predict what the commission’s decisions might be. But he did “know that the solutions that ... [were] being offered by many to the space commission seem[ed] to be solutions in search of a problem.”

Peters also questioned the need for a national commission like the Space Commission. He argued that despite budgetary constraints, the Air Force was a good steward of space. Indeed, the Air Force was responsible for virtually all of the people engaged in, and dollars spent on, national defense space.

At the risk of confirming that I am a Luddite when it comes to space, let me say that I really do not understand what the big problem is that justifies a national commission. The Air Force, I think, is doing a pretty darn good job of space stewardship within the constraints of the budget that we have been given. We spent 85 percent of the national defense space budget and have roughly the same number of men and women engaged in the trenches of national defense space. Add in the NRO, which is also heavily staffed by the Air Force and we you get to about 95 percent of both people and dollars. Add in NASA, with whom we have critical partnerships and you get to almost 100 percent. Add in commercial for which we are working hard with both Boeing and Lockheed on the EELV [evolved expendable launch vehicle] and with our partners on the other smaller launch vehicles and you round out that 100 percent.

Later in his speech, Peters turned to the subject of a national space service and its proponents. He questioned the need for such a service, especially when “the Air Force vision says we ought to be integrating air and space.” He laid out several “fundamental problems” with establishing a space service, problems that would “certainly make it more likely will not get more dollars.”

First, establishing and running a new service entailed costs, including “the overhead associated with the new headquarters.” He did not know how many people would be needed to run a space force. But “it has got to be some number and that is expensive.”

Second, the new service would presumably have a chief of staff and possibly a secretary. The chief of staff would still have to “answer to the conflicting dictates of several different offices within OSD [Office of the Secretary of Defense], NASA, NRO, several civilian agencies, not to mention the other space users in DoD, which would be the other four services.” Peters was not sure what that would achieve. He stated categorically that such a structure “would certainly fragment our effort to try to move air and space together into an integrated platform which is producing the kinds of results we want to produce for America with our defense dollars.”

Third, Peters did not believe “that the complexity of adding another player ... [was] worth the cost.” A new service would make the current “convoluted [space] decision making process” even worse. That process, in fact, was “part of the problem.” He suggested, as the primary solution, the creation of “a persistent national forum to try to deal with the very

serious problems of national security space, civilian space and all the other potential space users.” He hoped the Space Commission would recommend “such an organization.”

He also hoped the Space Commission would recommend that Congress “try to come up with a better way for integrating the space force in the budget.” At present, “space budgets ... [were] all over the place. They ... [were] in the DoD committees, they ... [were] in the Intel committees.”

Peters hoped the Space Commission would recommend “a national integrating organization,” not a new space service. He concluded his commentary on the Space Commission with the following remark:

In the best of all possible worlds the space commission would recommend a national integrating organization, would recommend that Congress also try to figure out a way to integrate what it wants to do with space with what we in the Administration want to do with space and then would let us try to go on with integrating space in the way that the Air Force vision for 2020 contemplates.¹⁵⁷

8 February 2001: The Air Force is ambivalent about the Space Commission report

The Air Force News Service reported on 8 February 2001 that the Air Force welcomed the commission’s report and was “enthusiastic about the observations and recommendations that determined a realigned and rechartered Air Force ... [was] best suited to organize, train and equip space forces.” Brig. Gen. Michael A. Hamel, space operations and integration director, and deputy chief of staff for air and space operations, considered this “a huge vote of confidence for the men and women in the Air Force.” Service leaders were currently analyzing commission recommendations for improving the organization and management of national security space activities; providing inputs to the Defense Department; and working on implementation plans. Hamel lauded the commission’s recommendations as having “the potential to bring about the most profound changes in military space operations and in the role and leadership of space by the Air Force that I have witnessed in my career.” Hamel suggested that the Air Force now had “a golden opportunity ... to create a strong center of advocacy and commitment to national security space efforts.” This would, he believed, “really enable bringing true integrated aerospace capabilities for the joint warfighter.” Neither Hamel nor the article itself mentioned the commission’s recommendations with respect to a space corps, a space force, or a space department.¹⁵⁸

A day after the publication of the Air Force News Service article, *Aerospace Daily* reported that Air Force chief of staff General Ryan had commented that “an independent Space Force or Corps was not warranted for at least another 50 years.”¹⁵⁹

15–16 February 2001: Air Force Association Air Warfare Symposium

General Ryan expanded on this subject in a speech on 15 February 2001 at the Air Force Association National Symposium in Orlando, Florida. When asked for his views on the Space Commission’s space corps and space force recommendations, Ryan replied, “I do not think we need to go there ... yet.” Air Force senior leaders did not expect that space capability as currently planned or “doable” in the foreseeable future, over the next two or three decades, would move “away from the terrestrial need that we have.” But this did not mean “combat in space” was an impossibility. Indeed, Ryan stated, “I think that is more probable than it is not,” and the Air Force and the nation “need[ed] to be prepared for that for the future.” Even then, however,

... our space force will continue to have an orbital piece to it. It will revolve around integration of what happens in the air and on the ground and at sea. And it will need to be an integral part of that. If there is combat in space, it has to be connected to where humans live.

Ryan sought to avoid additional “stove pipes,” and he recalled the difficult work already done to “bring in all of our capabilities from all of our disparate parts and make them into a whole of one force, one family, a real Air Force.” He drew a distinction between the current orbital force and a future extra-orbital force; only in the latter circumstance should establishment of a space force be considered. He thought the Air Force would

... go into a new space force. ... when we go extra-orbital, that is, when commerce takes us or military need takes us away from the confines of gravity of this earth and allows us to go out interplanetary within the solar system or indeed beyond the solar system. It is then that we should look at breaking off part of the Air Force into a Space Force that is truly a space force and not just an orbital force.¹⁶⁰

The next day, Brig. Gen. David A. Deptula, the director of the Air Force Quadrennial Defense Review, thought it was still necessary to bring together elements of air and space but argued that “Air and space is one contiguous domain—aerospace.” Without mentioning the Space Commission by name, Deptula referred to an “underlying sentiment among some that we need to split up and develop a separate space force.” The U.S. Navy was responsible for “[a]n entire domain”: operations under the water were different from operations above the water, but no one was “calling for a separate submarine service.” Likewise, the U.S. Air Force needed to retain its responsibility for its entire aerospace domain—“air and space ... an indivisible medium”—even though “operations in the air and in space are very much different.”¹⁶¹

During his symposium remarks, Acting Secretary of the Air Force Dr. Lawrence J. Delaney commented on “the recently complete space commission study” but made no mention of a Space Force. Delaney believed that the commission’s report presented “a major challenge to the Air Force.” Nevertheless, he said, the service was able and ready to respond to the challenge, and to “work our way through responding to and implementing the Space Commission’s recommendations.” Indeed, the study presented “a fascinating opportunity to make great strides for the future Air Force stewardship of space.”

Our ability to adapt, respond to and assimilate change will help the Air Force greatly as we work our way through responding to and implementing the Space Commission’s recommendations. Certainly, we have to protect our access to space and our assets in space. We must structure the most efficient air and space mission organizations to assure U.S. supremacy in space as we have achieved in the skies.¹⁶²

Autumn 2002: Then-Col. John E. Hyten, in an academic paper on space, comments on the 2001 Space Commission and on congressional support for a space force or space corps

In the autumn of 2002, *Air and Space Journal* published an article entitled “A Sea of Peace or a Theater of War? Dealing with the Inevitable Conflict in Space,” written by then-Col. John E. Hyten, the chief of Space Control Division, Directorate for Space Operations and Integration, Deputy Chief of Staff for Air and Space Operations.¹⁶³ Twelve years later, then-General Hyten became the commander of Air Force Space Command and

would go on to serve as the commander of U.S. Strategic Command and subsequently as Joint Chiefs of Staff vice chairman.

Hyten's *Air and Space Journal* article was a revised and updated version of a scholarly paper of the same title, undertaken while he was a lieutenant colonel and a National Defense fellow at the University of Illinois at Urbana–Champaign. (Please see above, April 2000.) He began by again commenting briefly on Senator Bob Smith's "major speech" at the Fletcher School of Law and Diplomacy. (Please see above, 18 November 1998.) He then turned to a more extended discussion of the work and report of the 2001 Space Commission and other topics. Despite both of these milestones, Hyten wrote, "the general public has largely ignored the issue" of the management and organization of military space.¹⁶⁴

Toward the end of his article, in a section on funding the military space program, Hyten noted that "Senator Smith and others ... [had] proposed a separate space force or space corps to adequately support DOD's space efforts." The strong support for a space service would continue unless the Air Force took action. Hyten warned his readers that the Air Force had to show leadership in transforming the Defense Department's space endeavors, efforts that would require additional funding.

A strong push for such an organization [a space service] will continue unless the Air Force, as executive agent in conjunction with the other services and agencies, can meet both the actual *and perceived* need to be a good steward of military space. The Air Force must take the lead and help transform DOD's efforts in space, an initiative that will require an ever-increasing commitment—not only in terms of rhetoric but also a greater share of the overall DOD budget.

The Air Force, he advised, also had to "reestablish credibility with Congress" with respect to space programs and initiatives.

It must also reestablish credibility with Congress concerning a number of space programs, including SBIRS [Space-Based Infrared System]-High [portion], and increase its commitments to transformational initiatives (e.g., space-based radar and space control).

The Air Force and the Defense Department were at a crossroads. If they failed to respond effectively, then Congress might act precipitously and create a space force "well before its time."

If the Air Force and DOD fail to meet this challenge, Congress could legislate the creation of a space service well before its time and well before many of the critical policy and doctrine questions have even been addressed.¹⁶⁵

August 2011: A look back at the impact of the 2001 Space Commission report, including on the National Defense Authorization Act for Fiscal Year 2020

Writing in 2011, AFSPC commander Gen. William L. Shelton pointed out that the 2001 Space Commission’s “landmark study helped shape today’s national security space enterprise.” He continued:

The Space Commission’s recommendations sparked many changes, from the president establishing space as a national security priority, designating Air Force civilian leadership as Executive Agent for Space within the Department of Defense, eliminating multi-hat responsibilities by assigning an Air Force Space Command (AFSPC) commander singularly focused on the organization, aligning Space and Missile Systems Center under AFSPC, to establishing the National Security Space Institute.”¹⁶⁶

Many of the commission’s recommendations would also be echoed in the provisions of the National Defense Authorization Act for Fiscal Year 2020, most notably those dealing with the establishment of Space Force within the Department of the Air Force.

15 July 2008: The Independent Assessment Panel submits to Congress its report evaluating national security space organization and management options, including a space corps within the Department of the Air Force or a space department within the Department of Defense

On 15 July 2008, seven and a half years after the publication of the 2001 Space Commission’s report to Congress, the Independent Assessment Panel (IAP) submitted its unanimous report on the organization and management of national security space to the chairmen and ranking members of the Senate and House Committees on Armed Services, the secretary of defense, and the director of national intelligence. In accordance with the National Defense Authorization Act for FY 2007 (H.R. 5122), Congress had directed the Defense Department to commission the report.¹⁶⁷

The Institute for Defense Analyses formed the panel, sometimes called the Allard Commission for its sponsor, Senator Wayne Allard (R-Colo.), in October 2007, under the chairmanship of retired aerospace executive A. Thomas Young. Its six other members included retired Air Force generals Ronald R. Fogleman and Lester Lyles, and former Air Force secretary Dr. Hans Mark. The panel was tasked to evaluate DoD's organization and management over the near, medium, and long term, with a view to strengthening U.S. national security in space and DoD's ability to implement requirements and to carry out missions. It completed its fact-finding work in May 2008.¹⁶⁸

Panel members recalled the work of the 2001 Space Commission. They noted that the country's dependency on national security space assets had increased, but "comparatively little ... [had] been achieved to make them more secure." Authority and responsibility for national security space remained fragmented and unfocused. In addition, national security space assets now had to operate in a landscape changed by several national and international events.

Several threat-related developments have occurred: the September 11, 2001 ... attacks on the U.S. homeland and the resultant Global War on Terror; Operations Enduring Freedom and Iraqi Freedom; the rapid emergence of China as a space power, to include substantial development in the areas of anti-satellite weapons (ASAT) and anticyber technologies; as well as the growing potential for conflict in space.¹⁶⁹

Like the members of the 2001 Space Commission, those of the Independent Assessment Panel were concerned about "the potential vulnerability of U.S. space systems" and the increasing technical capabilities and intent of "potential adversaries" such as Russia and China "to intimidate, deter, and perhaps attack space-based systems." Of particular concern were "potential adversaries' growing cyber-attack capabilities, as well as the potential employment of land-based directed energy weapons that could attack satellites in low-earth-orbit."¹⁷⁰

Panel members opined that the Russians were, after the Americans, the "most capable space-faring people." Russia was not the enemy of the United States, and the two countries were cooperating on the International Space Station. Nevertheless, current Russian technology constituted "the most important potential threat" to U.S. space operations. "Over the years, ... [the Russians had] developed an extensive stable of capable launch

vehicles, and in 1977 they demonstrated their capability to shoot down Earth orbiting satellites.”¹⁷¹

Panel members believed that China was “clearly on the path to developing the capability to conduct sophisticated space operations.” They recounted a series of developments, beginning with China’s first nuclear weapon detonation¹⁷² and including that country’s ongoing missile and national navigation system advances, its first manned space flight,¹⁷³ its first satellite export sale,¹⁷⁴ and its first lunar probe.¹⁷⁵ Of concern also was China’s test of an anti-satellite weapon to destroy “one of its aging weather (Fengyun 1-C) satellites on January 11, 2007.”¹⁷⁶

The IAP did not “[a]t this time ... believe” either country posed “a major threat.” However, “[b]oth the Chinese and the Russians ... [had] an interest in common—to eventually remove the United States from its current dominant military and economic position in the world.” Panel members concluded that “Ultimately, the United States must be prepared to face challenges to our freedom of action in space, and perhaps actual conflict in space.”¹⁷⁷

In light of these and other negative circumstances, the panel advised, “[f]undamental change” was required. Members advocated “top-to-bottom reform to bring stronger leadership and improved [national security space] management.” The panel, believing that presidential leadership was essential, listed as its first recommendation that “The President should establish and lead the execution of a National Space Strategy.”¹⁷⁸

The panel’s National Security Space Authority (NSSA) and National Security Space Organization (NSSO) recommendations are discussed below. The panel’s report made clear that members looked favorably on the possible future establishment of either a space corps within the Department of the Air Force or a space department within the Department of Defense.

In arriving at its second recommendation, to establish a National Security Space Authority, the panel investigated several options, including “the establishment of a separate Space Corps within the Department of the Air Force and the creation of a new Space Department within the DoD.” But members believed that, at present, establishing the NSSA was “the logical next step”: it would focus “unifying efforts to provide space capabilities” and would avoid “the costs of establishing an entirely new Corps or Department.”¹⁷⁹

Nevertheless, the panel noted, the Space Corps and Space Department alternatives both had benefits. These would become more significant as space capabilities continued to advance, becoming widely

available, particularly to adversaries seeking to confront the United States in space.¹⁸⁰

The panel concluded, with respect to the National Security Space Authority, that its recommendations were “responsive to current needs and provide[d] a logical path to an even more focused organization in the future (such as a ‘Space Corps’) if deemed necessary.”¹⁸¹

The panel’s third recommendation, to set up a National Security Space Organization under a single director, would consolidate the operational, space capability, acquisition, and technology and science functions currently assigned to several Air Force and other organizations. The new organization would be responsible for “[s]pacecraft command, control, and data acquisition operations as well as launch operations.”¹⁸²

Panel members believed the NSSO should have “a strong Joint and interagency character.” But, they agreed, “solid linkages and identification with the Air Force ... [were also] essential to maintain strong connections with warfighters and to maintain the institutional support that only a military Service ... [could] provide.”¹⁸³

In recommending the NSSO, as in recommending the NSSA, panel members were looking toward a future space corps or space department: “This structure [the NSSO] also provides a foundation for growth and evolution of the organization into a Corps or independent Service as necessary to adapt to future events.”¹⁸⁴

Looking back, and ahead

This study has described some of the major milestones in the decades of analysis, investigations, proposals, and counterproposals that lay behind the establishment of the United States Space Force. The individuals involved in these developments spent much time and effort searching for better ways to protect the United States in an increasingly complex and volatile world. Certain concerns were constant and remain so. The United States must lead in space. The competitive military advantage of the United States and its dominance in space—a domain central to the country’s national security, military operations, economy, and way of life—are eroding, notably in the face of rapid advances in, and the global proliferation of, space-related technologies. Adversaries such as China and Russia know the extent of U.S. dependence on space and are increasingly capable of carrying out attacks against U.S. space systems. If successful, these will have devastating effects on the nation. “[S]pace is the strategic high ground from which all future wars will be fought.”¹⁸⁵

The idea of a space force did not originate with President Trump. It was a notion that had long been discussed by legislators, serving and retired military and civilian leaders, and other subject-matter experts from a variety of disciplines. But the President’s advocacy of Space Force, together with the efforts of its supporters in Congress, certainly influenced the timing of its creation. International developments—such as the establishment, by adversaries and allies, of space forces; anti-satellite tests by China and Russia; and China’s landing on the “dark side” of the Moon in January 2019—also played a part. By March 2019, the Defense Department and the Air Force saw the establishment of a space force as a strategic priority, one that would fundamentally transform the service’s approach to space: space was a warfighting domain, not a combat support function.

In their November 1996 *Global Engagement* white paper, Air Force chief of staff General Fogleman and Air Force secretary Widnall described the Air Force as evolving from an air force into an air and space force and then into a space and air force. Their vision did not survive their tenures. Thereafter, it was largely replaced by a vision of the service as an already fully integrated aerospace force. This force, the Scientific Advisory Board feared, still treated air and space operations as separate activities and kept space, in the main, in a support role.

Into this discussion stepped Senate Armed Services Committee chairman Senator Bob Smith. His November 1998 Fletcher School speech and later journal article were, as the future General Hyten saw at the time and later wrote, significant milestones. Thanks to Smith’s efforts, the National Defense Authorization Act for Fiscal Year 2000 included a requirement to establish a commission to investigate the organization and management of national security space and the possibility of establishing a space force or an independent space department. Many of Smith’s ideas and proposals, including the space force he advocated, would be echoed in the 2001 Space Commission report and in the National Defense Authorization Act for Fiscal Year 2020.

Eleven years after the Independent Assessment Panel submitted its report to Congress, and eighteen years after the 2001 Space Commission submitted its report to Congress, and despite much resistance along the way, the National Defense Authorization Act for Fiscal Year 2020 established the United States Space Force.

In a speech on 20 November 2019 and in an article published in January 2020, Lt. Gen. Steven L. Kwast, recently retired commander of Air Education and Training Command, Joint Base San Antonio-Randolph, Texas, expressed concerns about the new force. Congress

had placed restrictions on the Space Force, such as it must “be built with existing forces,” that Kwast believed would “render it largely useless in any future conflicts.” He wondered if the USSF would mature into the kind of space force the nation needed, or if it would continue “to perform the task that current space assets perform—supporting wars on the surface of the Earth.” Space Force should not, he stated, be “developed as a mere support function for air power.” He argued that a revolutionary approach akin to the Manhattan Project was essential “to develop the kind of Space Force needed to meet future military challenges.” In detailing China’s geopolitical ambitions, he described that country as “America’s greatest competitor for the high ground of space.”¹⁸⁶ He, like others, argued that China was openly planning to be the dominant space power by 2049, the centennial of the founding of the People’s Republic of China.¹⁸⁷ This position would enable China “to shut down America’s computer systems and electrical grids at any time or place of its choosing.” In short, being first in space was an existential imperative for the United States, and “a proper and winning Space Force,” independent from the Air Force, would help America win “the strategic space race.”¹⁸⁸

The history of the new United States Space Force was just beginning in December 2019, but it was anything but a new idea.

Addendum

1 March 2019: The Department of Defense submits to Congress a proposal to create a U.S. Space Force

Pentagon officials announced on 1 March 2019 that the Defense Department sent Congress a proposal to establish a U.S. Space Force over a five-year period, fiscal years 2020 to 2024. The new military service would be placed, initially, within the Department of the Air Force. Their relationship would be similar to that of the U.S. Marine Corps and the Department of the Navy. The nation’s access to the critical domain of space was under threat by China and Russia, both of which had developed anti-satellite capabilities, and by other adversaries, notably North Korea and Iran. The U.S. Space Force was designed to help the nation “deter aggression and outpace potential adversaries in order to protect and defend ... [U.S.] national interests in the face of a changing space environment and growing threats.”¹⁸⁹

5 March 2019: The FY 2020 *Defense Budget Overview*, part of the President’s *Annual Defense Budget*, devotes a chapter to “Establishing the Space Force”¹⁹⁰

The increasingly complex and volatile global security environment in 2019, mirroring that described in the 2018 National Defense Strategy, was marked by “increased global disorder,” “defined by rapid technological change,” and characterized by “the re-emergence of long-term, strategic competition between nations.” The United States faced “challenges from adversaries in every operating domain,” even as its “competitive military advantage ... [was] eroding.”¹⁹¹

Throughout 2019, as in 2018, U.S. prosperity and security were threatened by “[r]ogue regimes such as North Korea and Iran” but particularly by China and Russia, “revisionist powers” seeking to “shape a world consistent with their authoritarian model—gaining veto authority over other nations’ economic, diplomatic, and security decisions.”¹⁹²

In 2019, the threats posed by China and Russia, not terrorism, were the primary U.S. national security concern, and the “[l]ong-term strategic competitions” with those two adversaries were “the principal priorities” for the Department of Defense.¹⁹³

On 5 March 2019, as part of the Defense Department’s efforts to meet these national security challenges, the Office of the Secretary of Defense published online the *Defense Budget Overview*, “one part of an extensive set of materials that constitute[d] the presentation and justification of the President’s Budget for FY 2020.” The budget overview argued that China and Russia were “aiming for military parity with the U.S. in a potential future, high-end conflict.” This type of “great power aggression” presented new challenges.

Detering or defeating great power aggression is a fundamentally different challenge than the regional conflicts against rogue states and violent extremist organizations that were our day-to-day challenges for much of the last 25 years. In fact, the U.S. has not fought a prolonged conventional conflict against major powers since the Korean War after the intervention of China, and no longer has the same degree of dominance that the American public remembers from more recent conflicts.¹⁹⁴

Further, future warfare would be more complex: wars would be fought “not just in the air, on the land, and at sea, but also in space and cyberspace.”

To respond to these circumstances, the FY 2020 budget request funded “four focus areas to build a more lethal, agile, and innovative joint force.” The first, “Investing in the emerging space and cyber warfighting domains to prepare to a complex security environment,” set out, as the first item, a \$72.4 million request to fund the new U.S. Space Force headquarters.¹⁹⁵

The *Defense Budget Overview* devoted its fifth chapter to “Establishing the Space Force,” which began by quoting President Trump’s 18 June 2018 direction to “the Department of Defense and Pentagon to immediately begin the process necessary to establish a space force as the sixth branch of the armed forces.” The chapter declared that “Unfettered access to and freedom to operate in space is a vital national interest.” It described the fundamental role of space in ensuring the prosperity of the United States and the capabilities of its military. The joint force’s military operations depended on space, a circumstance recognized by adversaries seeking to develop “strategies, organizations, and capabilities to exploit real U.S. vulnerabilities in space.”¹⁹⁶

The Defense Department had to “strategically adapt” to ready itself for future wars and had to “be prepared to assure freedom of operation in space, to deter attacks, and, when necessary, to defeat space and counterspace threats to the national security interests of the United States and its allies and partners.”¹⁹⁷

Space had altered the security environment and changed the character of warfare. In the past, the Defense Department had viewed space as a combat support function: “space systems simply enable[d] terrestrial forces to fight and win wars.” Now, however, space was a warfighting domain: “actions in space also ... [would] directly contribute to the outcome of future crises or conflicts.” This transformation of approach required, as a “fundamental step,” the organizational reform of the U.S. military space enterprise.¹⁹⁸

With this imperative in mind, and pursuant to the President’s direction, the Defense Department proposed to establish a new, sixth branch of the Armed Forces, a United States Space Force (USSF). The DoD budget overview set this objective in historical context, noting that “[t]he world ... [had] changed significantly” since the last new branch of the Armed Forces—the U.S. Air Force—was established in 1947.¹⁹⁹

The *Defense Budget Overview* described the establishment of a space force as “a strategic priority” that would help the department adjust to the changing character of twenty-first century warfare. The new service would need a “dedicated military leadership” to

... unify, focus, and accelerate development of space doctrine, capabilities, and expertise to outpace future threats; institutionalize

advocacy for space priorities to provide for the common defense in all domains; and further build a space warfighting culture.²⁰⁰

Over the long term, the Department of Defense envisaged “a new, independent Military Department for space.” Initially, however, the department aimed to establish “the USSF as a separate branch of the Armed Forces within the Department of the Air Force.” It was believed that this more modest goal “would allow the Space Force to mature before proposing a new Department of the Space Force and would set the conditions for a smooth transition in the future.”²⁰¹

Under this initial construct, the air force secretary would “be responsible for organizing, training, and equipping” the USAF and the USSF. A four-star Space Force chief of staff would be a member of the Joint Chiefs of Staff and would be its “expert on and advocate for space power.” Civilian supervision of the Space Force would fall to a new under secretary for space, who would be under the Air Force secretary’s “authority, direction, and control.”²⁰²

The U.S. Space Force was tasked with organizing, training, and equipping U.S. military space forces, with a view to

... [providing] for freedom of operation in, from, and to the space domain; ... [providing] independent military options for joint and national leadership; and ... [enabling] the lethality and effectiveness of the joint force. The Space Force would include both combat and combat-support functions to enable prompt and sustained offensive and defensive space operations and joint operations in all domains.²⁰³

Establishing the Space Force would require five years, FY 2020–FY 2024. The President’s Budget of FY 2020 focused on setting up USSF headquarters, to enable the new USSF “to receive and execute its missions” and to “accept responsibilities for acquisition programs and operational missions” beginning in FY 2021 or beginning “as soon as” FY 2021.²⁰⁴

The FY 2020 budget provided Space Force headquarters an initial authorization of “160 manpower billets plus additional contractor and detailee support.” Of the 160 total, the Defense Department would transfer “120 military and civilian authorizations ... from across the Department” to the Space Force. The remaining 40, the department requested, would be new, permanent authorizations, “for subject matter experts that will build an effective and efficient organization.” The department also planned “to detail another 40 personnel to assist with standing up the USSF Headquarters.”²⁰⁵

Initial costs were modest. Requested FY 2020 funding totaled \$72.4 million, only .01 percent of the DoD budget. Annual costs for FY 2024, when Space Force was expected to be at full operational capability, were estimated to total \$500 million, .07 percent of the DoD budget.²⁰⁶

	FY 2020 Costs	Estimated New Annual Costs At Full Operational Capability (projected for FY 2024)
Total FY 2020 Funding (\$ in Ms)	\$72.4	\$300
Other Recurring Costs	---	\$200
Total (\$ in Ms)	\$72.4	\$500
Percentage of DoD Budget	0.01%	0.07%

The *Defense Budget Overview* noted that the Air Force secretary and the Space Force chief of staff would be responsible for developing the USSF organizational structure in FY 2020.²⁰⁷ And in fact, Secretary of the Air Force Barbara Barrett provided to congressional defense committees a comprehensive plan for the USSF organizational structure in February 2020, in accordance with directions in the joint explanatory statement accompanying the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92).²⁰⁸

The *Defense Budget Overview* noted also that the secretary of defense would be responsible for consulting with the secretaries of the military departments and the military service chiefs to decide “which existing space forces would transfer into the Space Force after creation.” Those forces might be realigned or redesignated upon their transfer into the Space Force, or new units might be established.²⁰⁹

Initially, about 15,000 personnel would be assigned to the Space Force; most of these would be transfers from the existing military services. Thereafter, additional manpower and resources would be required. The budget overview noted that

Following the transition period, Space Force manpower and resources would increase, to build out the force structure for a warfighting domain and to support USSPACECOM requirements.²¹⁰

Potential disruption to space capabilities and missions was a significant concern. Sufficient time had to be allotted for the Space Force “to establish the necessary policies, procedures, and systems to operate.” For this reason, the transfer of missions, operations, programs, and resources to USSF would not begin until a full year after its establishment and would be phased over several years. The transfer timeline was as follows:

FY 2020: Establish HQ USSF (160 billets). The focus for the USSF in FY 2020 will be to ensure acquisition programs and missions can be accepted without disruption.

FY 2021–FY 2022: Beginning in FY 2021 the DoD will initiate the transfer of select missions and units to the USSF organization.

FY 2023–FY 2024: With a strong foundation, the USSF will continue assessing its missions and develop innovative ways to organize, train, and equip its forces to meet operational requirements. This could include activating additional operational, acquisition, or training elements.²¹¹

“Long-term strategic competition ... [was] the central challenge to U.S. prosperity and national security ... [and] [s]pace ... [was] a key arena of this competition.” The centrality of space to U.S. prosperity and national security made “[u]nfettered access to and freedom to operate in space ... a vital national interest.” Adversaries, recognizing the U.S. military’s dependency on space, now sought to gain advantage by exploiting the nation’s “vulnerabilities in space.” In this new security environment, space was “changing the character of warfare.” Space systems would “directly contribute to the outcome of future crises or conflicts.”²¹²

5 March 2019: The U.S. Air Force *Fiscal Year 2020 Budget Overview* plans for \$72.4 million for Space Force Headquarters and 160 personnel billets²¹³

Like other military departments, the Air Force reported to Congress on its activities in several ways. In accordance with U.S. Code Title 10, Section 113 (c)(1),²¹⁴ requiring military departments to report on expenditures, the Air Force provided a short summary of its FY 2020 budget submission, included in the *Defense Budget Overview*.²¹⁵

The Air Force also provided its own separate budget overview. Its FY 2020 budget request totaled \$165.6 billion (165,571,000,000), 6 percent more than the 155.8 billion (\$155,811,000,000) requested for FY 2019; of that total, \$14.0 billion was proposed for space, 17 percent more than was requested for FY 2019. The FY 2020 Operation and Maintenance (O&M) Total Force Total Obligation Authority (TOA) request of \$54.6 billion (\$54,577,000,000) was more than \$4 billion over the FY 2019 request of \$49.9 billion (\$49,894,000,000). Included in the FY 2020 request total was \$72 million²¹⁶ for the new Space Force.²¹⁷

The Air Force FY 2020 *Budget Overview* noted that “Airmen are shifting their focus to great power competition,” and the budget aimed to

train and equip them for “the high-end fight.” The process of establishing Space Force as the new, sixth branch of the Armed Forces, as directed by President Trump on 18 June 2018, was an important part of that effort.²¹⁸

Much of the text of the Air Force *Budget Overview* duplicated passages of the *Defense Budget Overview*. The Air Force overview’s description of the establishment of a space force as “a strategic priority” and the changing character of twenty-first century warfare echoed the description and views expressed in the *Defense Budget Overview*, as did this sentence in particular:

A sixth branch of the Armed Forces dedicated to space would catalyze a fundamental transformation of our approach to space from that of a combat support function to a warfighting domain.

Like the *Defense Budget Overview*, the Air Force *Budget Overview* stressed the importance of having a separate military leadership, dedicated to only the new service, and for most of the same reasons.²¹⁹

A new Space Force Headquarters was seen as the first step toward achieving DoD’s long-term goal of a new military department, and the President’s Budget set aside \$72.4 million for its initial stand-up. This headquarters funding would “include 160 personnel billets to establish the initial elements and proposed structure of the U.S. Space Force.”²²⁰

O & M, Space Force TOA (\$M)	FY 2019	FY 2020
Mission Support	0	54
Civilian Pay	0	19
Total	0	72 ²²¹

11 March 2019: President Trump sends his proposed FY 2020 budget request to Congress²²²

12 March 2019: Acting Secretary of Defense Patrick M. Shanahan announces the release of DoD’s FY 2020 budget proposal [part of what the President sent to Congress on 11 March]²²³

12 March 2019: Media outlets report on Space Force funding in FY 2020 DoD budget request

In its fiscal year 2020 budget request, the Department of Defense sought funding for almost 830 military and civilian personnel to staff

“Space Force headquarters at the Pentagon, the Space Development Agency and U.S. Space Command.”²²⁴

Of that 830 total personnel, DoD officials told reporters, 160 staffers, plus contractors and detailees, were sought for Space Force headquarters at the Pentagon. Budget documents indicated that to meet that 160-person request, the Defense Department had already “identified 120 service members and civilians in “space-related jobs who could transfer into the new service” and was asking for “40 additional, permanent individuals to help with the standup.”²²⁵

13 March–5 June 2019: Senate Appropriations Subcommittee on Defense conducts hearings on the DoD funding request

The subcommittee held nine sessions, beginning on 13 March and ending on 5 June 2019. Witnesses from the Defense Department and the intelligence community provided testimony.²²⁶

25 March 2019: HASC chairman Adam Smith criticizes the Trump administration’s space force proposal

In a statement released on 25 March 2019, House Armed Services Committee chairman Adam Smith (D-Wash.) commented on the space force proposal President Trump sent to Congress. The representative found “highly problematic” the details of the administration’s proposal. First, Smith was critical of the plan’s creation of what he described as “a top-heavy bureaucracy” consisting of “two new four-star generals and a new Under Secretary of the Air Force.” Second, Smith was troubled by the request for, as he described it, “an almost unlimited seven-year personnel and funding transfer authority that seeks to waive a wide range of existing law—all without a detailed plan or analysis of the potential end state or cost.” Third, Smith believed the proposal was “an attack on the rights of DoD civilian employees,” given its proposals to waive “elements of civil service rules, pay rates, merit-based hiring, and senior civilian management practices.”²²⁷

11 April 2019: SASC hearing on proposal to establish a U.S. Space Force

Chair: Senator Jim Inhofe (R-Okla.). Witnesses included Secretary Patrick Shanahan, Acting Secretary of Defense; Secretary Heather Wilson, Secretary of the Air Force; General Joseph Dunford, Chairman of the

Joint Chiefs of Staff; and General John Hyten, Commander, U.S. Strategic Command.²²⁸

2 May 2019: Office of the Secretary of Defense, *Annual Report to Congress, Military and Security Developments Involving the People's Republic of China 2019*²²⁹

20 May 2019: Open letter by 44 former senior defense and national security officials in favor of establishing a space force²³⁰

A later article by Ambassador Henry F. Cooper referred to that open letter and connected SDI-initiated technology, Undersecretary of Defense for Research and Engineering Michael Griffin, Lt. Gen. Steven Kwast and the Electromagnetic Defense Task Force. He also discussed an article by the acting Air Force secretary, Matthew Donovan, dated 1 August 2019 and entitled “Unleashing the Power of Space: The Case for a Separate Space Force.”²³¹

May–July 2019

The House and the Senate work on the NDAA for FY 2020

The week of 19 May 2019 was a busy one on Capitol Hill. Senate Armed Services Committee subcommittees began marking up their portions of the bill on 20 May. House appropriators were marking up the NDAA for FY 2020 defense spending bill on 21 May. The full Senate Armed Services Committee began its mark ups on 22 May.²³²

In May and June, and into July 2019, the SASC and HASC each passed their versions of the NDAA for FY 2020. The committees “passed military space reorganization language in their versions of the fiscal year (FY) 2020 National Defense Authorization Act (NDAA). Both committees address the issue in similar ways, yet with a few key differences.”²³³

Even earlier than May, the House and Senate Armed Services Committees were “reviewing the administration’s Space Force legislative proposal and considering whether to authorize the new service in the 2020 National Defense Authorization Act.”²³⁴

May–December 2019

The House and the Senate authorize and fund Space Force

The House and Senate Armed Services Committees were responsible for authorizing (or not) the creation of Space Force, while the

appropriations committees in those two chambers were responsible for funding (or not) the new military service. Both the authorization process and the appropriations process were protracted and often contentious.²³⁵

14 May 2019: The House Committee on Appropriations releases FY 2020 defense appropriations bill

The House Appropriations Committee released the draft “Full Committee Print” FY 2020 defense funding bill on 14 May 2019. The subcommittee would consider it the next day. The bill’s \$690.2 billion in new discretionary spending was \$15.8 billion more than the enacted level for FY 2019 but \$8 billion less than the DoD request.²³⁶

The draft defense bill also allocated \$44,662,729,000 for the operation and maintenance of the Air Force. Under that same category, the bill provided \$15,000,000 “[f]or expenses ... necessary to study and refine plans for the potential establishment of a Space Force as a branch of the Armed Forces.” Appropriators pointedly noted that “nothing in this provision shall be construed to authorize the establishment of a Space Force.”²³⁷ The power to authorize such was in the hands of the House Armed Services Committee.

15 May 2019: The House Appropriations Defense Subcommittee marks up its FY 2020 defense appropriations bill

In a closed session on 15 May 2019, the House Appropriations Defense Subcommittee (HAC-D) marked up the FY 2020 defense appropriations bill. The draft bill evinced less than wholehearted support for Space Force. The draft bill allocated only \$15 million of the \$72.4 million the administration had requested for the new military service. The subcommittee could have approved DoD’s request “contingent upon the passage of authorization legislation,” but members did not do so. As noted above, the draft bill did, however, direct that those much-reduced funds were to “study and refine plans” for the service’s “potential establishment.”²³⁸

21 May 2019: The House Committee on Appropriations approves the FY 2020 defense funding bill, cutting funds for Space Force to \$15 million

The House Appropriations Committee voted on 21 May 2019 along party lines, 30–22, to approve the FY 2020 defense bill. It was unchanged from the “Full Committee Print” dated 13 May 2019. The legislation

provided \$690.2 billion in new discretionary spending authority for the Defense Department to fund “operations and maintenance, readiness activities, research and development, equipment modernization, and health and quality-of-life programs” for military personnel and families. This total was \$15.8 billion more than the enacted level for FY 2019 but \$8 billion less than was sought in President Trump’s budget request.²³⁹

The President had requested \$72.4 million to build a Space Force headquarters; the committee’s bill, however, allocated only \$15 million for the Pentagon to research establishing his desired space force. Democrats believed the Pentagon’s space force proposal was, in the words of House Appropriations Subcommittee on Defense chairman Pete Visclosky (D-Ind.), “incredibly lacking in detail.” The chairman delivered remarks at the committee’s markup of the FY 2020 bill, including the following:

In FY19 this Committee expressed significant displeasure with the inadequate budget justification by the Department of Defense. There have been improvements in certain areas, but a number of major proposals put forth by the DoD in the FY20 budget were incredibly lacking in detail. For example, there was a \$72 million request to establish a Space Force, but the Department was unable to answer basic questions about the structure of the force, nor could they detail long-term costs. Because of that uncertainty, the Committee only provides \$15 million for Space Force.²⁴⁰

The House Appropriations Committee also “released the draft report to accompany the FY 2020 defense appropriations bill. The report explains the actions the committee took in the companion bill.”²⁴¹

22 May 2019: The Senate Committee on Armed Services votes 25–2 to advance the NDAA for FY 2020 to the Senate floor²⁴²

The Senate defense subcommittee markups had been accomplished on 20–21 May.

23 May 2019: The Senate Committee on Armed Services completes its markup of the NDAA for FY 2020

The chairman and ranking member of the Senate Armed Service committee, Senators Jim Inhofe (R-Okla.) and Jack Reed (D-R.I.), released a joint statement on 23 May 2019 announcing details of their committee’s markup of the NDAA for FY 2020. Of utmost concern to

both was the “increasingly dangerous world,” in Inhofe’s words, and the “dynamic and changing environment,” in Reed’s words, in which the U.S. military operated. The press release clearly highlighted the importance of, first, space to military operations and, second, the proposed establishment of a United States Space Force, under the U.S. Air Force, in restoring the nation’s “combat advantage”:

Importantly, the NDAA recognizes that space is a warfighting domain where our nation lacks a cohesive strategy, and so establishes a United States Space Force under the Air Force. The Space Force addresses space acquisition needs and space warfighting ethos, while minimizing bureaucracy and costs.

Further, Inhofe pointed out,

Each and every provision [of the committee’s markup] addresses some of the most pressing challenges facing our military: curtailing threats from great power competitors and rogue regimes, securing new warfighting frontiers of space and cyberspace and addressing management issues within the Department of Defense. ...²⁴³

The previous day, “just over two months after receiving the administration’s budget request,” the Senate Armed Services Committee had voted 25–2 to advance the legislation to the Senate floor. In an executive summary of the legislation, also released on 23 May, Inhofe and Reed reiterated their view that the United States faced a world “more unstable and dangerous than it has been in recent memory.” They again pointed out “new threats from strategic competitors like China and Russia” and the “persistent threats from North Korea, Iran, and terrorist organizations.” The senators expressed concern that U.S. military supremacy and readiness had eroded, notably in the face of “[r]apid technological advances [that] have fundamentally altered the nature of warfare, and years of sustained armed conflict, underfunding, and budgetary instability.” They argued that “urgent change” was needed, “at significant scale.” Therefore, “clear priorities” as to “roles and missions, force employment, and resource allocation” had to be established and reinforced “with strategic investments.”²⁴⁴

The new U.S. Space Force featured prominently in the Inhofe-Reed executive summary, which devoted significant discussion to its establishment. The senators were clearly troubled that U.S. adversaries had already established space forces, and they saw the new U.S. Space Force as an important component in the restoration of the nation’s “combat advantage through modernization, innovation, and cooperation.”

As the global security dynamics shift, warfare has also expanded to new frontiers. To meet growing threats in the space domain, the NDAA establishes a U.S. Space Force as a new component of the Air Force. Our adversaries have Space Forces—we are behind. This new force will focus on cultivating a space warfighting ethos, unify command of space operations and activities, and improve acquisition policies for space programs and systems.²⁴⁵

3 June–13 June 2019: The NDAA for FY 2020 and developments in the House of Representatives

A House Armed Services Committee press release announced on 3 June 2019 that under the chairmanship of Jim Cooper (D-Tenn.), the members of the Committee on Armed Services Subcommittee on Strategic Forces had that day released their own proposal for the NDAA for FY 2020. The press release listed a number of specifics about the proposal, but none related to a space corps or space force proposal.²⁴⁶

The subcommittee’s mark, as reported to the full committee on 7 June, made no mention of a space corps or space force.²⁴⁷

The House Armed Services Committee released an undated summary of the proposal by Chairman Adam Smith (D-Wash.) for the NDAA for FY2020. It referred to “[a] challenging global security environment” but made no mention of a space corps or space force. The “Strategic Forces” section in the summary of Smith’s proposal did, however, require “an independent study of deterrence in space to improve policies and capabilities to deter conflict in space.”²⁴⁸

Explicit mention of a space corps was included in an amendment to H.R. 2500 offered on 9 June by Subcommittee on Strategic Forces chairman Cooper and its former chairman, Mike Rogers. Their bipartisan amendment added new sections to Title IX dealing with the establishment of a United States Space Corps within the Department of the Air Force. In 2017, Cooper and Rogers had proposed the creation of a Space Corps. Their 2019 amendment was similar to their earlier military space reorganization language the full House had passed two years earlier, only to remove it later in conference.²⁴⁹

On 12 and 13 June, the House Armed Services Committee met to accomplish the full committee markup of H.R. 2500²⁵⁰

Members reviewed, among other items, the following parts of the text of the legislation:

“FY 20 NDAA Report on H.R. 2500”

“FY 20 NDAA Chairman’s Mark”

The chairman’s mark included Smith’s proposal for “An Independent Study on Plan for Deterrence in Space” was included as Section 1606 in Title XVI, Strategic Programs, Cyber, and Intelligence Matters, Subtitle A—Space Activities.

This section would require an independent study on deterrence in space and would require this independent study to be assessed by the Defense Policy Board. This section would require the Secretary of Defense to submit a report containing the study and the assessment, and a description of any changes to the policies, programs, and plans of the Department of Defense that would enhance deterrence in space, to the congressional defense committees not later than 270 days after the date of the enactment of this Act.²⁵¹

Like the previously released summary, this final version of the chairman’s mark of the NDAA for FY 2020 also did not include language creating a new military space service. But Title XLIII—Operation and Maintenance detailed funding, in thousands of dollars, requested for Space Force for FY 2020 and authorized by the House.

Sec. 4301. Operation and Maintenance
(In thousands of dollars)²⁵²

Line	Item	FY 2020 Request	House Authorized
	Total Operation & Maintenance, Air Force	44,910,832	44,451,366
	Operation & Maintenance, Space Force Operating Forces		
010	Base Support	72,436	15,000 ²⁵³
	Insufficient justification		[-57,436]
	Subtotal Operating Forces	72,436	15,000
	Total Operation & Maintenance, Space Force	72,436	15,000
	Total Operation & Maintenance, AF Reserve	3,396,818	3,339,193

12 June 2019: Senate Committee on Armed Services reports favorably S. 1790, the NDAA for FY 2020

Work on the NDAA for FY 2020 advanced on 12 June 2019, when Senators Jim Inhofe (R-Okla.) and Jack Reed (D-R.I.) announced they had filed S. 1790, the National Defense Authorization Act for Fiscal Year 2020. The Senate was set to begin consideration of the act later in June. Inhofe and Reed, the Senate Armed Services Committee chairman and ranking member, respectively, stressed the bipartisan nature of the bill. Inhofe noted that the bill continued “the implementation of the National Defense Strategy, ... [worked] to restore our combat advantage, and ... [ensured] ... the effectiveness of our military now and for years to come.” Reed opined that the NDAA would “help strengthen and modernize our military.” It was imperative, he believed, to “continue working on a bipartisan basis to enhance America’s security and keep our military strong, efficient, innovative, and capable of safeguarding our nation and deterring conflict.” Attached to their press release were their 23 May executive summary of the NDAA for FY 2020 and the SASC report to accompany S. 1790.²⁵⁴

Senate Report²⁵⁵

27 June 2019: The NDAA for FY 2020 and developments in the Senate

On 27 June 2019, the Senate voted 86–8 to pass its version of the National Defense Authorization Act for Fiscal Year 2020. In keeping with this “strong bipartisan vote,” Senators Inhofe and Reed released statements on the legislation. These were published in an SASC press release that also listed eight highlights of the legislation. The sixth was “Establishing the United States Space Force under the Air Force.”²⁵⁶

27 June 2019: CSIS reports on the three competing legislative proposals to create a new military space service

The Center for Strategic & International Studies (CSIS) released a brief on 27 June 2019 comparing, in significant detail, the three legislative proposals prepared in response to President Trump’s direction in June 2018 that the U.S. military create a U.S. Space Force. These were, as noted above,

1. The DoD legislative proposal, submitted on 27 February 2019
2. The SASC version, passed by the Senate on 27 June 2019
3. The HASC version, passed by the committee on 13 June 2019 but not yet taken up at the time of the CSIS brief.²⁵⁷

	DOD LEGISLATIVE PROPOSAL	SASC FY20 NDAA MARKUP	HASC FY20 NDAA AMENDMENT
Creates a new military department	No	No	No
Creates a new service within the Air Force	Yes	Yes*	Yes
Creates a new civilian space position in the Air Force	Yes, Under Secretary of the Air Force for Space	No	No
Senior OSD civilian position	No	Elevates Deputy Assistant Secretary of Defense (DASD) for Space to be Assistant Secretary of Defense (ASD) for Space Policy	No
Military leadership	Chief of Staff, 4-star Vice Chief of Staff, 4-star	Commander, 4-star** Vice Commander, 4-star	Commandant, 4-star
Representation on the Joint Chiefs of Staff	Yes	Yes	Yes
New Civil Service positions	Yes, and gives greater flexibility for recruiting, hiring, and pay for civilians in the Space Force	No, transfers existing billets	No, transfers existing billets
New military positions	Yes, allows SECDEF to authorize new military positions for the Space Force	No, transfers existing billets	No, transfers existing billets
Includes NRO and other intelligence agencies	No	No	No
Includes Army and Navy space components	Yes	No	Not immediately, but requires DOD to submit a report to Congress advising necessity
Includes National Guard and Reserve components	Includes associated reservists, but left out National Guard	Yes	Unclear
Mentions SPACECOM	Yes	Yes	Yes
SPACECOM Leadership	Commander, 4-star	Commander, 4-star**	Not addressed
Mentions SDA	No	Yes	Yes
Estimated budget	Gives DOD authority to transfer funds and establish headquarters for the Space Force	Intended to be budget-neutral	Requires report on estimated funding to establish and operate Space Force through the FYDP (2021–2025)
New service transition timeline	5 years from enactment	Not addressed	30 December 2023

* Unlike DOD's legislative proposal or the HASC amendment, the SASC NDAA markup does not overtly state that a new service is being established within the Department of the Air Force.

** For the first year, the commander of U.S. Space Command will also serve as commander of U.S. Space Force.²⁵⁸

The Congressional Research Service would review the updated NDAA for FY 2020 legislative proposals in a short paper dated 2 October 2019. (Please see below.)

12 July 2019: The House passes H.R. 2500, the NDAA for FY 2020

The House passed its version of the NDAA for FY 2020 on 12 July 2019 on a party-line vote, 220–197. This final version did provide for the establishment of a U.S. Space Corps.²⁵⁹

The House and Senate Conference Committee was the next step for the act. During that process, the two parties would attempt to settle their significant differences over, among other issues, their approach to President Trump's "much-desired Space Force."²⁶⁰

13–14 July 2019: French president Emmanuel Macron announced the creation of a French space force²⁶¹

12 September 2019: The Senate Appropriations Committee passes S. 1790, its version of the NDAA for FY 2020²⁶²

12 September 2019: Senate Committee on Appropriations reports Department of Defense Appropriations Bill, 2020, S. 2474, recommending \$72.4 million for Space Force operation and maintenance

Senate Appropriations Committee chairman Senator Richard C. Shelby (R-Ala.) reported the FY 2020 DoD appropriations bill, S. 2474, to the Senate on 12 September 2019. His committee recommended a total of \$687,546,478,000 in new obligational authority. This total included funding for various military functions, including personnel; operation and maintenance; procurement; and research, development, test and evaluation. The total was \$19,030,719,000 more than amount Congress appropriated for FY 2019 and \$3,071,086,000 less than the amount requested in the 2020 budget estimate.²⁶³

Funds appropriated under Title II, Operation and Maintenance are used “to prepare for and conduct combat operations and other peace time missions.” These functions include purchasing “fuel and spare parts for training operations, pay[ing] supporting civilian personnel, and ... [purchasing] supplies, equipment, and service contracts for the repair of weapons and facilities.” The following table summarizes the budget estimate for Air Force and Space Force operation and maintenance, the appropriations committee’s recommendation, and the committee’s recommended adjustments to the budget estimate.²⁶⁴

Summary of Operation and Maintenance Appropriations
(In thousands of dollars)

Account	2020 budget estimate	Committee recommendation	Change from budget estimate
Operation and Maintenance, Air Force	21,278,499	43,092,286	+ 21,813,787
Operation and Maintenance, Space Force	72,436	72,436	-----

The committee’s recommended appropriation for operation and maintenance of Space Force was equal to the administration’s request.²⁶⁵

(In thousands of dollars)

Line	Item	2002 budget Estimate	Committee Recommendation	Change from budget estimate
207	Operation and Maintenance, Space Force			
	Budget Activity 1:			
	Operating Forces			
	Air Operations			
	Base Support	72,436	72,436	-----
	Total, Budget Activity 1	72,436	72,436	-----
	Total, O & M, Space Force	72,436	72,436	

12 September 2019: Air Force secretary-nominee Barbara M. Barrett tells the Senate Armed Services Committee that a space force is “overdue”

Air Force secretary-nominee Barbara M. Barrett testified before the Senate Armed Services Committee at her confirmation hearing on 12 September 2019. Space and creation of a space force received frequent mention in her answers to advance policy questions, in her opening statement, and in her testimony.

In responding to the committee’s advance policy questions about Air Force priorities and the challenges she would face, Barrett wrote that her vision of the service’s future entailed continuing “today’s mission while building the operational Space Force,” which she called “pivotal to America’s future defense.” Standing up such a force would “be a key challenge.” Questioned about the 2018 National Defense Strategy (NDS), Barrett opined that it “accurately ... [assessed] the current strategic environment” with regard to the threats from China, Russia, North Korea, and Iran, but she suggested that more should be said about the importance of space: “The importance of space to our national defense may deserve more attention than given in the NDS. Reliable access to our space assets is essential to our national defense.” When asked specifically about space and about creating a space force, Barrett noted the increasing U.S. economic and military dependence on space and the increasing international competition for and availability of “space and space-enabled technologies.” She again expressed concern about the nation’s “great power competitors—China and Russia” but also about North Korea and Iran. Barrett expressed her “full support” for the establishment of Space Force:

A domain-specific service to organize, train, and equip space forces is overdue. The U.S. Space Force is needed to address current and future threats and strategic opportunities in space.²⁶⁶

In her opening statement at her confirmation hearing, Barrett spoke about the importance of space to the U.S. military and public and about the need to protect the country’s “critical space assets”:

Most Americans use space before their first cup of coffee in the morning. Space controls our electricity, water, financial transactions and of course, navigation, information, and communication. While space is ubiquitous, it is also invisible, and therefore often underappreciated. American national power depends upon space and our potential adversaries know it. We must be prepared to

defend critical space assets, increase the resilience of our space enterprise, and be prepared to fight and win should deterrence fail.

A strong supporter of efforts to create a space force, she called it “overdue” and a “key imperative.”²⁶⁷

During her testimony, Barrett told Senator Tim Kaine (D-Va.) she looked forward to “participating ... in developing an agency that focused on capability in space, not on building bureaucracy, but instead building the capability for the warfighter and for the American public.”²⁶⁸

23 October 2019: OMB letter to Senate Committee on Appropriations notes first-time inclusion of funding for Space Force, a critical priority

As the Senate continued to work “diligently” on the various FY 2020 appropriations bills, the Office of Management and Budget (OMB) reviewed language provisions and funding levels in the versions that had been released to date. In a letter dated 23 October 2019, addressed to Senate appropriations committee chairman Senator Shelby, acting OMB director Russell T. Vought complained about actions taken on some of the bills. But he noted that the Trump administration appreciated that the DoD Appropriations Act, 2020 included “funding for critical priorities” such as creating—for the first time—a new budget line item for Space Force.

The Administration greatly appreciates that the Committee establishes an “Operations and Maintenance, Space Force” appropriation within the Department of Defense ... for the first time and has provided the requested funding for the initial operations of the United States Space Force. The Administration looks forward to working with the Congress to complement the Committee’s work by modifying Title 10 of the United States Code to establish the Space Force as the sixth branch of the Armed Forces in FY 2020.²⁶⁹

11 and 17 December 2019: The House and the Senate pass S. 1790, the National Defense Authorization Act for Fiscal Year 2020

On 11 December 2019, the House agreed to the conference report to accompany the NDAA for FY 2020 and voted to pass S. 1790, by voice vote with bipartisan support, 377 in favor, 48 against, with 5 not voting.²⁷⁰

On 17 December, the Senate agreed to the conference report to accompany S. 1790 by a roll call vote, with 86 in favor, 8 against, and 6 not voting. These 6 were the Democratic presidential candidates plus

Johnny Isakson (R-Ga.), who retired from the Senate on 31 December for health reasons.²⁷¹

20 December 2019: President Trump signs the National Defense Authorization Act for Fiscal Year 2020

At a ceremony held at Joint Base Andrews, Maryland, on 20 December 2019, President Trump signed into law the National Defense Authorization Act for Fiscal Year 2020. The act marked, in the President's words, "the largest-ever investment in the United States military" and the official inauguration of Space Force, the sixth branch of the U.S. armed forces. He gave "a special shout out" to Senator Inhofe, who, the President said, had "worked so hard on this." Inhofe, as the chairman of the Senate Armed Services Committee, reported the original measure to the Senate on 11 June 2019 and was its sponsor, despite being unconvinced of its necessity as recently as the SASC hearing of 11 April.²⁷² The President gave particular thanks also to Vice President Mike Pence. This was, the President stated, "a big moment," and he predicted that there were "Going to be a lot of things happening in space." He pointed out the following:

... space is the world's newest warfighting domain. Amid grave threats to our national security, American superiority in space is absolutely vital. And we're leading, but we're not leading by enough. But very shortly, we'll be leading by a lot.

The Space Force will help us deter aggression and control the ultimate high ground.

... Vice President Mike Pence... [and I] realized how important it [Space Force] is to our military, to our future, to our defense—so important. And it's going to blend in magnificently with everything else that we have.

The President set the day firmly in historical context, noting the passage of approximately fifty years from the Wright brothers' first flight at Kitty Hawk in 1903 to the establishment of the U.S. Air Force in 1947, and from Apollo 11's Moon mission in 1969 to the NDAA for FY 2020 signing ceremony. With the signing, Trump appointed Gen. John W. "Jay" Raymond as the first chief of space operations. The general would become "the very first member of the Space Force" and would be a member of the now-expanded Joint Chiefs of Staff.²⁷³

As a separate military branch, U.S. Space Force would “reside within the Department of the Air Force, the same way the Marine Corps is organized as an independent service in the Department of the Navy.”²⁷⁴

The Space Force authorization was a significant victory for President Trump, coming as it did two days after the House of Representatives impeached him. In a widely distributed Associated Press article, Robert Burns noted that “In signing the 2020 National Defense Authorization Act that includes Space Force, Trump ... can claim a victory for one of his top national security priorities just two days after being impeached by the House.”²⁷⁵

Air Force secretary Barrett described the launch of Space Force as “an historic moment for our nation” and pointed out that the President’s “vision” became “a reality with overwhelming bipartisan and bicameral support from Congress.” On 17 December, the Senate had passed the NDAA by an 86–8 vote; on 11 December, the House had passed it by a 377–48 vote.²⁷⁶

20 December 2019: President Trump signs H.R. 1158, the “Consolidated Appropriations Act, 2020”

Late in the evening on 20 December 2019, after he had signed into law the NDAA for FY 2020, President Trump signed into law H.R. 1158, the “Consolidated Appropriations Act, 2020.”²⁷⁷ With Trump’s signature, H.R. 1158 became Public Law 116-93.²⁷⁸

The act incorporated S. 2474, Department of Defense Appropriations Act, 2020, sponsored by Senator Shelby, and H.R. 2968, Department of Defense Appropriations Act, 2020, sponsored by Representative Visclosky.²⁷⁹ This “national security minibus” included four appropriations bills: Defense, Commerce-Justice-Science, Financial Services, and Homeland Security.²⁸⁰

The bill allotted \$40 million for Space Force operations and maintenance. The Trump administration had originally requested \$72.4 million. The Senate Appropriations Committee approved the request, but the House Appropriations Committee cut funding to \$15 million “when it approved the bill in May because of misgivings about a number of unanswered questions at the time.”²⁸¹

Sandra Erwin of *SpaceNews* reported on 20 December 2019 that most of the Space Force’s funding would “be transferred internally from the Air Force’s budget.” Erwin noted that Air Force secretary Barbara Barrett had requested several transfers, from various programs, for FY 2020. These totaled about \$11 billion, with associated personnel costs also transferring to the Space Force.²⁸²

The NDAA for FY 2020: Specific provisions

The Space Force

The NDAA for FY 2020 gave the Department of Defense “the authority to stand up the Space Force.”²⁸³ In fact, it redesignated Air Force Space Command as the United States Space Force. It also amended portions of Title 10, United States Code. In so doing, a U.S. Space Force was “established ... as an armed force within the Department of the Air Force” under the leadership of a chief of space operations (CSO). The Space Force was to provide, first, “freedom of operation for the United States in, from, and to space; and, second, prompt and sustained space operations.” The Space Force had three duties:

- (1) protect the interests of the United States in space;
- (2) deter aggression in, from, and to space; and
- (3) conduct space operations.

The Air Force secretary was to specify which Air Force members would be assigned to the Space Force. The act specifically stated that it did not authorize “additional military billets for the purposes of, or in connection with, the establishment of the Space Force.”²⁸⁴

Chief of Space Operations

The provisions in the NDAA for FY 2020 regarding the chief of space operations also amended portions of Title 10 of the U.S. Code. The President was responsible, “by and with the advice and consent of the Senate,” for appointing a chief of space operations from the Air Force general officers. The CSO would serve “at the pleasure of the President” and was to be appointed for a four-year term. In wartime, “or during a national emergency declared by Congress,” the President could reappoint the CSO for a term not longer than four years.

The chief of space operations was “directly responsible” to the Air Force secretary and was to carry out the CSO duties “under the authority, direction, and control” of the Air Force secretary. The CSO was to, first, “preside over the Office of the Chief of Space Operations”; second, communicate to, and advise the Air Force secretary about, that office’s “plans and recommendations”; third, if such were approved, then to act as the Air Force secretary’s agent to carry them out; fourth, supervise those Space Force “members and organizations” as determined by the Air

Force secretary; and fifth, carry out “other military duties” assigned by the President, the defense secretary, or the Air Force secretary.

Beginning one year after the enactment of the NDAA for FY 2020, the chief of space operations was to become a member of the Joint Chiefs of Staff. The CSO was to have some independence with regard to the performance of duties as a JCS member. The CSO was to tell the Air Force secretary about military advice, given by JCS members, “on matters affecting the Department of the Air Force.” But this was permitted “[t]o the extent that such action ... [did] not impair the independence of the Chief [of Space Operations] in the performance of the duties of the Chief” as a JCS member. The defense secretary could also limit the CSO’s communications with the Air Force secretary, as this confusing provision stipulated:

Subject to the authority, direction, and control of the Secretary of Defense, the Chief [of Space Operations] shall keep the Secretary of the Air Force fully informed of significant military operations affecting the duties and responsibilities of the Secretary.

It was unclear which secretary—defense or Air Force—was meant by “the Secretary” at the end of the sentence, but presumably it was the Air Force secretary.

Whoever commanded Air Force Space Command on the day before the enactment of the NDAA for FY 2020 could serve as the CSO. And beginning on the enactment date, and for a year thereafter, the defense secretary could authorize the CSO to serve also as the commander of U.S. Space Command.²⁸⁵

20 December 2019: General Raymond becomes the first Chief of Space Operations, United States Space Force

Upon signing into law the National Defense Authorization Act for FY 2020, President Trump appointed General Raymond to lead the Space Force.²⁸⁶ With the redesignation of Air Force Space Command as U.S. Space Force, AFSPC vice commander Lt. Gen. David D. Thompson became vice commander, Headquarters U.S. Space Force.²⁸⁷

In a formal swearing-in ceremony on 14 January 2020 at the Eisenhower Executive Office Building, General Raymond became the first chief of space operations, the highest-ranking military member of the newly created U.S. Space Force. Vice President Pence administered the oath. Attendees included defense secretary Mark Esper and deputy

defense secretary David Norquist; Air Force secretary Barbara Barrett and chief of staff Gen. David L. Goldstein; the chief of naval operations; the chief, National Guard Bureau; and the vice-commandant of the U.S. Coast Guard. Raymond, a career space officer and currently commander of U.S. Space Command, described the development: “Not only is this historical, it’s critical.” Commenting on the establishment of the new Space Force, Barrett noted that the Air Force is “moving forward with alacrity and in accordance with presidential direction, the law, and DOD guidance” and that Raymond was “[d]irecting this effort.”²⁸⁸

Four major communications by Secretary of the Air Force Barbara Barrett, 20 December 2019

20 December 2019: Air Force secretary Barrett sends a letter to all U.S. Air Force and U.S. Space Force personnel

Air Force secretary Barrett announced President Trump’s signature of the NDAA for FY 2020 in a letter dated 20 December 2019 and circulated that morning to “The Men and Women of the United States Air Force and United States Space Force.” Joining her as signatories were Air Force chief of staff General Goldfein and, for the first time, General Raymond, Chief of Space Operations, U.S. Space Force. Their letter noted that the NDAA, “with the bipartisan support of Congress, established a sixth branch of the armed forces” and redesignated Air Force Space Command as the U.S. Space Force. The letter described the new force as “an independent service singularly focused on protecting our interests and security in space” that launched “the nation into a new era.” Now, with both the U.S. Space Force and U.S. Space Command—the latter established in August 2019—the United States was “well postured to preserve and protect space.” The establishment of the USSF was an “historic opportunity to deliver world-class capabilities to the American people.” The letter then revealed that “Space professionals ... [would] soon have the opportunity to permanently transfer into the new service, while U.S. Air Force Airmen ... [would] continue to support the space mission.” The letter went on to refer readers to the Space Force website, spaceforce.mil.²⁸⁹ At 8:25 p.m. on 20 December, the letter was emailed again to all U.S. Air Force and U.S. Space Force personnel.²⁹⁰

23 December 2019: HAF/ES circulates Secretary Barrett’s memorandum dated 20 December, “Actions to Establish the Office of the Chief of Space Operations”

At 10:57 a.m. on 23 December 2019, HQ Air Force Executive Secretariat (HAF/ES) circulated Air Force secretary Barrett's memorandum, dated 20 December, directing three "actions to establish the United States Space Force (U.S. Space Force) within the Department of the Air Force upon enactment of the Fiscal Year 2020 National Defense Authorization Act." Barrett directed the following:

The establishment of the Office of the Chief of Space Operations (CSO) "in the executive part of the Department of the Air Force." The CSO "will be comprised of the billets previously identified on the Initial Space Force Staff unit manning document."

"Existing Secretariat and Air Staff offices will work with the Office of the Chief of Space Operations to accomplish all current and follow-on actions."

The Department of the Air Force was "to immediately begin hiring and assignment actions to fill vacant positions on the Office of the CSO in accordance with fiscal and legal constraints."²⁹¹

23 December 2019: HAF/ES circulates Secretary Barrett's memorandum dated 20 December, "Redesignation of Air Force Space Command to United States Space Force"

At 11:06 a.m. on 23 December 2019, HAF/ES circulated Air Force secretary Barrett's memorandum, dated and effective 20 December, redesignating Air Force Space Command as United States Space Force. By virtue of Barrett's action and pursuant to the NDAA for FY 2020, all Air Force Space Command military and civilian personnel were "now assigned to the U.S. Space Force," and "[a]ll U.S. Air Force authorities and policies ... continue[d] to apply to" them. Barrett's memorandum also stipulated the following:

Fourteenth Air Force (Air Forces Strategic) is hereby redesignated as Space Operations Command. The Air Force Element presented to the National Reconnaissance Office is hereby redesignated Space Force Element; all authorities in Air Force Instructions concerning Air Force Elements will also apply to Space Force Elements. Air Force Commercial Satellite Communications Office is hereby redesignated Space Force Commercial Satellite Communications Office.

All were to "retain all of their currently assigned units, other organizations, and personnel." In addition, "all authorities in Air Force Instructions concerning Air Force Elements will also apply to Space Force Elements."²⁹²

23 December 2019: HAF/ES circulates Secretary Barrett’s memorandum dated 20 December, “Redesignation of the Principal Assistant to the Secretary of the Air Force for Space”

At 11:18 a.m. on 23 December 2019, HAF/ES circulated Air Force secretary Barrett’s memorandum, dated 20 December, redesignating the Office of the Principal Assistant to the Secretary of the Air Force for Space as the Office of the Assistant Secretary of the Air Force for Space Acquisition and Integration. Until the President appointed, and the Senate confirmed, the Assistant Secretary of the Air Force for Space Acquisition and Integration, Barrett noted, “[t]he Assistant Secretary of the Air Force for Acquisition will remain the Service Acquisition Executive for all Department of the Air Force programs and will be responsible for chairing the Space Force Acquisition Council.”²⁹³

NATO and impact of U.S. Space Force

21 June 2019: Reuters reports “NATO aims to recognize space as a domain of warfare”

4 December 2019: NATO heads of state and government issue the London Declaration

Allied leaders at the July 2018 Brussels Summit “recognised that space is a highly dynamic and rapidly evolving area, which is essential to a coherent Alliance deterrence and defence posture, and agreed to develop an overarching NATO policy. And in December 2019 [sic], Allied leaders welcomed the recognition of space as a new operational domain—alongside air, land, sea and cyberspace.”²⁹⁴

“There was some speculation in the media that this flurry of space activity at NATO had been triggered by President Trump’s initiative to establish a United States Space Force (USSF). In fact, these were deliberated Allied decisions preceded by and based on years of careful and thorough reflection and debate. Some of the underlying factors that drove the decision to create the USSF, also influenced the Alliance’s decisions on space policy and space domain. Coincidentally, France has also adopted its first Defence Space Strategy, and is set to reorganise its Air Force into Air and Space Force.”²⁹⁵

“The decision [to recognize space as a domain of warfare], set to be taken at a Dec. 3-4 leaders summit in London that Trump is due to attend, would formally acknowledge that battles can be waged not only on land, in the air, at sea and on computer networks, but also in space.”²⁹⁶

20 January 2020: Japan announces plans for a space defense unit that “will work closely” with the U.S. Space Force

In a policy speech on 20 January 2020, Japanese prime minister Shinzo Abe announced the formation of the Space Domain Mission Unit, to begin in April. His speech marked the beginning of the 2020 parliamentary session and the previous day’s sixtieth anniversary of the signing of a 1963 mutual cooperation and security treaty between Japan and the United States. Abe pointed out that the new space defense unit, part of the Japan Air Self-Defense Force, would cooperate with the country’s space exploration agency and with U.S. Space Command. The prime minister commented on the development of missiles and other technology by rivals and said Japan had to protect itself from cyberspace threats and from electromagnetic interference against its satellites. Of particular concern were the increasing capabilities of China, Russia, and North Korea.²⁹⁷

1. Senator Bob Smith, “The Challenge of Space Power,” *Airpower Journal* (spring 1999), pp 38, 39, adapted from his 18 Nov 1998 speech hosted by the Institute for Foreign Policy Analysis and the Fletcher School of Law and Diplomacy at Tufts University [<https://apps.dtic.mil/dtic/tr/fulltext/u2/a529829.pdf>, accessed 12 Mar 2019].

2. *Report of the Commission to Assess United States National Security Space Management and Organization*, pursuant to Public Law 106–65, Washington, DC, 11 Jan 2001, report to Congress, p 81 [<https://apps.dtic.mil/dtic/tr/fulltext/u2/a404328.pdf>, accessed 30 Jan 2019].

3. Department of Defense, United States Space Force, Feb 2019, *Strategic Overview of Legislative Proposal for U.S. Space Force*, p 3 [<https://media.defense.gov/2019/Mar/01/2002095012/-1/-1/1/UNITED-STATES-SPACE-FORCE-STRATEGIC-OVERVIEW.PDF>, accessed 30 Dec 2019].

4. Barbara M. Barrett, Senate Armed Services Committee, Nomination Hearing – Secretary of the Air Force, Opening Statement, 12 Sep 2019 [https://www.armed-services.senate.gov/imo/media/doc/Barrett_09-12-19.pdf, accessed 16 Jun 2020].

5. The White House, “Remarks by Vice President Pence on the Future of the U.S. Military in Space,” issued on 9 Aug 2018, 11:17–11:41 a.m. EDT, The Pentagon, Arlington, Va. [<https://www.whitehouse.gov/briefings-statements/remarks-vice-president-pence-future-u-s-military-space/>, accessed 30 Apr 2019].

6. U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller) Chief Financial Officer, *Defense Budget Overview: United States Department of Defense Fiscal Year 2019 Budget Request*, Feb 2018, p 2-1 [https://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2019/FY2019_Budget_Request_Overview_Book.pdf, accessed Jun 25, 2019].

7. The White House, “Remarks by President Trump at Signing Ceremony for S.1790, National Defense Authorization Act for Fiscal Year 2020,” Joint Base Andrews, Md., 20 Dec 2019, 7:51 p.m. EST (quote) [<https://www.whitehouse.gov/briefings-statements/remarks-president-trump-signing-ceremony-s-1790-national-defense-authorization-act-fiscal-year-2020/>, accessed 23 Dec 2019]. U.S. Government Printing Office (GPO), National Defense Authorization Act for Fiscal Year 2020, [S. 1790], Public Law 116–92—20 Dec 2020, 133 Stat. 1198, 116th Cong (2019–2020), 1st sess [<https://www.govtrack.us/congress/bills/116/s1790/text> and <https://www.govinfo.gov/content/pkg/BILLS-116s1790enr/pdf/BILLS-116s1790enr.pdf>, accessed 6 Mar 2020].

8. U.S. Government Information, GPO, Consolidated Appropriations Act, 2020, H.R. 1158, 116th Cong, 1st sess [<https://www.govinfo.gov/content/pkg/BILLS-116hr1158enr/pdf/BILLS-116hr1158enr.pdf>, accessed 28 Apr 2020]. U.S. Government Information, GPO, Public Law 116–93, Consolidated Appropriations Act, 2020, Public Law 116–93, 133 STAT. 2317, 20 Dec 2019 [<https://www.congress.gov/116/plaws/publ93/PLAW-116publ93.pdf>, accessed 29 Apr 2020]. Marcia Smith, “Trump Signs FY2020 Appropriations into Law,” *SpacePolicyOnline.com*, 20 Dec 2019, 11:47 p.m. ET, updated 21 Dec 2019, 12:14 a.m. ET [<https://spacepolicyonline.com/news/trumps-signs-fy2020-appropriations-into-law/>, accessed 16 Jun 2020].

9. Secretary of the Air Force Barbara Barrett, U.S. Air Force Chief of Staff Gen. David L. Goldfein, and U.S. Space Force Chief of Space Operations Gen. John W. Raymond, letter to the Men and Women of the United States Air Force and United States Space Force, 20 Dec 2019, attached to email sent 20 Dec 2019, 8:25 a.m. Also available at United States Space Force, official webpage, Letter to the Force [<https://www.spaceforce.mil/About-Us/Letter-to-the-Force>, accessed 5 Mar 2020].

10. U.S. Department of Defense, Transcript, “Space Force Briefing,” Hon. Barbara Barrett, Secretary of the U.S. Air Force; General John “Jay” Raymond, Commander, U.S. Space Command, and Commander, Air Force Space Command, and Commander, Joint Force Space Component; Stephen Kitay, Deputy Assistant Secretary Of Defense for Space Policy, 20 Dec 2019 [<https://www.defense.gov/Newsroom/Transcripts/Transcript/Article/2045979/space-force-briefing/>, accessed 17 Jun 2020].

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12. Benjamin S. Lambeth, *Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space* (RAND, Project Air Force: 2003), chapter 4, “The Space Commission and Its Impact,” p 67 [https://www.rand.org/content/dam/rand/pubs/monograph_reports/MR1649/MR1649.ch4.pdf, accessed 18 May 2020].

13. Defense Intelligence Agency, *Challenges to Security in Space*, n.a., n.d. (information cutoff date was Jan 2019; DIA Public Affairs press release dated 11 Feb 2019 stated the report was released that day), pp 14–15, 24 [press release: https://www.dia.mil/News/Articles/Article-View/Article/1754150/defense-intelligence-agency-releases-report-on-challenges-to-us-security-in-spa/, accessed 17 Jun 2020; report: https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/Space_Threat_V14_020119_sm.pdf, accessed 21 Jan 2020].

Even nonadversarial countries would establish space forces. Five months before President Trump signed the NDAA for FY 2020 creating the USSF, President Emmanuel Macron of France announced the creation of a French space force. Japan would follow, on 20 Jan 2020. News Wires, Agence France-Press (AFP), “Macron announces creation of French space force,” *France24*, issued 13 Jul 2019, 8:43 p.m., modified 14 Jul 2019, 10:33 a.m. [https://www.france24.com/en/20190713-macron-france-space-force, accessed 8 Nov 2019]. Mari Yamaguchi, “Japan reveals plan for space defense unit,” *The Associated Press/Defense News*, 21 Jan 2020 [https://www.defensenews.com/space/2020/01/21/japan-reveals-plan-for-space-defense-unit/, accessed 24 Jan 2020].

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29. United States Air Force, *Global Engagement: A Vision for the 21st Century Air Force*, Gen Ronald R. Fogleman, Air Force chief of staff, and Sheila E. Widnall, Air Force secretary (Washington, DC: Department of the Air Force, 26 Nov 1996) [https://apps.dtic.mil/dtic/tr/fulltext/u2/a318235.pdf, accessed 4 Jun 2020].

30. Maj Barbara J. Faulkenberry, USAF, *Global Reach—Global Power: Air Force Strategic Vision, Past and Future*, Air University, School of Advanced Airpower Studies (Maxwell Air Force Base, AL: Air University Press, Feb 1996), p 25, italics in original, citing her interview with Lt Col Tom Owen, Chief’s Staff Group (CCX), 16 Mar 1995 [https://apps.dtic.mil/dtic/tr/fulltext/u2/a305713.pdf, accessed 11 Jun 2020]. Faulkenberry had a 32-year career in the USAF. Promoted to major general on 22 Jul 2011, she retired on 1 Oct 2014. Her last assignment was as the vice commander of Eighteenth Air Force, Scott AFB, IL.

31. *Ibid.*, p 26; Faulkenberry cites comments made to her by “one or more of the Air Staff members currently involved with a vision document rewrite. ... either in phone interviews or in personal interviews between January and May 1995.” (p 27, endnote 15).

32. USAF, *Global Engagement*, Fogleman and Widnall, 26 Nov 1996.

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41. F. Whitten Peters, Acting Secretary of the Air Force, *Report of the Secretary of the Air Force*, Part VI Statutory Reports, in William S. Cohen, Secretary of Defense, *Annual Report to the President and the Congress*, 1998, p 216 [https://history.defense.gov/Portals/70/Documents/annual_reports/1998_DoD_AR.pdf?ver+2014-06-24-153404-623, accessed 28 May 2020].
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43. U.S. Department of Defense, Press Operations, “Department of Defense Budget for FY 1999,” News Release No. 026-98, 2 Feb 1998 [<https://archive.defense.gov/releases/release.aspx?releaseid=1566>, accessed 28 May 2020].
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47. Cohen, *Annual Report to the President and the Congress*, 1998, pp 4 (1st quote), 20 (all other quotes).
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49. Peters, *Report of the Secretary of the Air Force*, in Cohen, *Annual Report to the President and the Congress*, 1998, pp 205 (1st quote), 206 (all other quotes).
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53. *Ibid.*, p 9.
54. *Ibid.*, pp 9–10.
55. *Ibid.*, p 10.
56. *Ibid.*, p v.
57. *Ibid.*, p 39.
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113. Other retired military commission members included a three-star and a four-star, both Army, and a Navy admiral who had been a Joint Chiefs of Staff vice chairman. Currently serving Air Force officers assisted the commission in other capacities as well. Maj Gen H. J. “Mitch” Mitchell was the DoD Liaison, and Lt Col J. Kevin McLaughlin (later Lieutenant General McLaughlin, now retired) was on the commission’s 10-person core staff. *Report of the Commission to Assess United States National Security Space Management and Organization*, pp A-1–A-4; Attachment B, Résumés of Core Staff of the Commission, pp B-1–B-2. Lambeth, *Mastering the Ultimate High Ground*, ch 4, “The Space Commission and Its Impact,” p 61.

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