SENIOR SERVICE COLLEGE FELLOWSHIP RESEARCH PAPER

A SEPARATE SPACE FORCE: AN OLD DEBATE WITH RENEWED RELEVANCE

BY

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ABSTRACT

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Space systems are fundamental to modern military operations and national security. They play a central role in the ongoing revolution in warfare because of their special capabilities for collecting, processing, and disseminating information. Space systems support the strategic, operational, and tactical levels of war. They are force multipliers that are progressively important in sustaining an effective level of U.S. offensive and defense capability as the overall force is transformed. A commission was set up by the FY'00 Defense Authorization Act to consider space management reorganizations, including the possible creation of a separate military service -- the United States Space Force. The commission's analytic report stops short of calling for an actual separate branch of the armed forces devoted to military uses of space, but there are members of Congress who still favor the U.S. Space Force concept. The ongoing argument over the formation of a separate Space Force has been debated by military and political leaders since the wide spread acknowledgement of the value of space operations to national security. The purpose of this fellowship research paper is to analyze the need for an independent Space Force. As such, it does not debate the legal and political ramifications associated with the weaponization of space and the use of space power, but focuses on the best structure to execute space missions. Given the United States' increasing reliance on space and emerging threat technology, this paper assumes that our country has the political will to use space power as a means of achieving national security objectives. Additionally, this paper assumes that technological obstacles will be reduced, allowing the further exploitation of space, and that warfare from space will become a reality. The research method for this paper centered on a detailed literature search and review, and interviews with personnel possessing extensive knowledge and experience in space. The paper concludes that an independent Space Force is necessary to ensure that the United States is best postured to execute its national security space mission.

TABLE OF CONTENTS

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The views presented in this paper are those of the author and do not necessarily reflect the views of the U.S. Army, Department of Defense, or the U.S. Government.

LIST OF ILLUSTRATIONS

LIST OF TABLES

A SEPARATE SPACE FORCE: AN OLD DEBATE WITH RENEWED RELEVANCE

Nothing endures -- there is always change, there is always war.

—Joseph Alsop

The purpose of this fellowship research paper is to analyze the need for an independent Space Force as a separate branch of the armed forces dedicated to the national security space mission. Since the wide spread acknowledgement of the value of space operations to national security, there has been an ongoing debate by military and political leaders over the formation of a separate Space Force. Given the United States' increasing reliance on space and emerging threat technology, this paper makes three important assumptions: that this country has the political will to use space power as a means of achieving national security objectives; that technological obstacles will be reduced allowing further exploitation of space; and that warfare from space will become a reality. This paper does not argue the legal and political ramifications associated with the weaponization of space and the use of space power, but focuses on the best structure to execute national security missions. The research method for this paper centered on a detailed literature review and interviews with personnel possessing extensive knowledge and experience in space to develop the position that an independent Space Force is necessary to ensure that the United States is best postured to execute its national security space mission.

To develop the position that an independent Space Force is needed, this paper will first cover the lessons learned about the value of space assets from the Persian Gulf War. Then it will examine the work of the Congressional Space Commission created two years ago to assess United States National Security Space Management and Organization. The paper then critically discusses the leadership, cultural, doctrinal, and organizational issues related to space power

as well as the arguments against a separate Space Force. The paper concludes that the creation of separate Space Force is necessary to ensure continued space superiority.

PERSIAN GULF WAR AND SPACE STUDIES

The Persian Gulf War was a watershed event and a turning point for space operations because it was the first war in which space systems played a significant role; the Persian Gulf War is often referred to as the first "space war." During this war, space systems supported the warfighter by providing satellite communications, warnings of missile launches, weather coverage, navigational data, intelligence, surveillance and mapping. As a result of space operations during the war, our military and civilian leaders developed a clear understanding that space forces are a limited resource; a resource that is critical to the military's success in battle and to the nation's security. The Persian Gulf War awakened the nation's leadership to the absolute importance of maintaining security in space, space dominance, and "freedom to maneuver" in space.

A number of studies, articles, and reports published since the Persian Gulf War further illustrate and highlight the nation's growing dependence on space assets. As a result of a growing reliance on space, the importance of space control, which includes the protection of U.S. military, non-military, and allied space assets, as well as our ability to degrade or deny a potential adversary unlimited use of space, is more critical than ever. In 1995, The New World Vistas report concluded: "For the U.S. to sustain its super power status, it will become necessary not only to show global awareness through space-based information, but also to be able to project power from space directly to earth's surface or to airborne targets with kinetic or directed energy weapons."[1] In 1998, Secretary William Cohen told Congress that "spacepower has become as important to the nation as land, sea, and air power."[2] The importance of space to the nation cannot be overstated.

Two years ago, Congress directed the creation of the Commission to Assess United States National Security Space Management and Organization, more commonly referred to as the "Space Commission." The purpose of this Space Commission was to take a comprehensive look at the future impact of space on the U.S military. Senator Bob Smith, then serving as the Armed Services Committee Strategic Forces Subcommittee Chairman, was a key player in establishing the Space Commission as part of the National Defense Authorization Act for Fiscal Year 2000. Congress tasked the Space Commission to research five major areas. The first area of study was the manner in which military space assets can be exploited to support military operations. The second was the current inter-agency process for operating the military space assets. The third was to further explore the relationship between intelligence and non-intelligence space activities and the potential costs and benefits of bringing the two activities completely or partially together. The fourth was the manner in which military space issues are addressed by professional military educational institutions. The fifth and final area addressed the potential costs and benefits of establishing any of the following:

- An independent military department and service dedicated to the national security space mission.
- A corps within the Air Force dedicated to the national security space mission.
- A position of Assistant Secretary of Defense for Space within the Office of the Secretary of Defense.
- A new major force program, or other budget mechanism, for managing funding within the Department of Defense.
- Any other changes to the existing organizational structure of the Department of Defense for national security space management and organization.[3]

The National Defense Authorization Act for Fiscal Year 2001 amended the Space Commission's mandate to include the advisability of:

- Various actions to eliminate the requirement for specified officers in the United States Space Command to be flight rated that results from dual assignment of such officers to that command and to one or more other commands for which officers are expressly required to be flight rated.

- The establishment of a requirement that all new general or flag officers of the United States Space Command have experience in space, missile, or information operations that is either acquisition or operational experience.

- Rotating the command of the United States Space Command among the Armed Forces.[4]

After six months of work, the Space Commission identified five matters of key importance:

- That U.S. national security space interests be recognized as a top national security priority with the President setting forth the national space policy.

- That the Department of Defense and the Intelligence Community are not organized or focused to meet the national security needs of the 21st Century.

- That the two officials primarily responsible and accountable for U.S. national security space programs are the Secretary of Defense and the Director of Central Intelligence.

- That the U.S. must develop the means to deter and to defend against hostile acts in and from space.

- That investment in science and technology resources to include people is essential if the U.S. is to remain the world's leading space-faring nation.[5]

The Space Commission stopped short of recommending the creation of an independent Space Force, but many people see this as the next step in continued national security and the evolution of warfare. Space will be of the utmost importance to the U.S. in the future. This realization is causing a growing concern that not enough is being done to capitalize on the unique capabilities of space in maintaining world "superpower" status. One idea stemming from this concern is the creation of an independent Space Force dedicated to national security in space. A separate service whose leadership and vision would not only advance the space force enhancement mission, proven so critical in the Persian Gulf War, but also to advance the space power projection mission, a logical next step in ensuring the nation's continued security and

dominance in space. While most Air Force officials strongly oppose efforts to create a separate Space Force, thus removing space assets from the Air Force's control, some government leaders champion it. Senator Bob Smith (R-NH), lambasted the Air Force's stewardship of space and supports the creation of a separate Space Force because he claims that the Air Force refuses to fully embrace space power. He stated:

> If the Air Force cannot or will not embrace space power, we in Congress will have to drag them there, kicking and screaming if necessary, or perhaps establish an entirely new service. Drastic as that sounds, it is an increasing real option that may be necessary to put this nation on a course toward space power.[6]

Senator Smith accused the Air Force of spending the majority of its space budget on the maintenance and improvement of information systems which support non-space forms of power projection. He stated that "This is not space warfare. It is using space to support air, sea, and land warfare. It is essentially the space component of information superiority. If we limit our approach to space to just information superiority, we will not have fully utilized space power. And we will pay a high price as our adversaries move past us as they buy and steal our technology."[7] Senator Smith is clearly a space power advocate and fully supports space reform, to include the creation of a separate space service.

Creating a new military service to exploit and leverage technology is not without precedent. That is exactly what occurred when Congress created the Army Air Corps in 1926 and then the Air Force in 1947. The Air Force was born out of three major Congressional concerns that: Army leaders at the time were unwilling to develop and promote aviation leaders; Army leaders lacked the commitment and intellectual energy to develop air power doctrine outside of direct support to ground forces; and Army Leaders failed to adequately invest in aviation technologies and equipment to ensure U.S. air superiority over foreign military forces. Congress felt, at that point in time, that the Army leadership was not providing an environment which fostered and nurtured air power culture; an environment critical to realizing

the potential of air power and aerial warfare. There was fear that the Army culture would continue stifling the development of air power, putting U.S. national security at risk. General Billy Mitchell echoed this fear in his statement, "To leave aviation essentially under the dominance and direction of another department is to absolutely strangle its development, because it will be looked on by them merely as an auxiliary and not as a principal thing."[8] This begs the question: After more than eighty years, what would General Mitchell say about the Air Force's role in space and the associated need for a space culture?

A CONSTRAINED SPACE CULTURE

A strong space culture is essential to the growth of space power because it provides the intellectual nutrients to ensure the growth of space leader development and training, space doctrine, and space assets -- all three of which are critical to the ascendancy of space power. The development and nurturing of a strong space culture are vital to the United States' continued growth and dominance in space. In his report to the Space Commission, Lt Col Kevin McLaughlin, a Space Commission staff member, writes that "The Department of Defense is not yet on course to develop or maintain the space cadre the nation needs. DoD must create a stronger military space culture through focused recruitment, career development, education, and training within which the space leaders for the future can be developed."[9] The Air Force has played a dominant role in space matters for years. In the area of space, the Air Force accounts for 90% of the personnel and infrastructure, 86% of the assets, and 85% of the budget.[10] By virtue of scale, the Air Force is largely responsible for developing the U.S. space culture. While the Army and Navy have space programs and space cultures of their own, they are small in comparison to that of the Air Force. The Space Commission recognized this when they reported:

> In highly valued operational military career fields, such as Air Force pilots and Navy nuclear submariners, military leaders have spent about ninety percent of their careers within their respective fields. In contrast, among those holding military leadership positions in DoD's largest space organizations, there is little space experience. The lack of experience is most acute at senior levels of DoD's operational space organizations. A review by the commission of over 150 personnel in key space jobs found out that over 80% of the flag officers come from non-space backgrounds and that as a group they average only about 8 percent of their career in space related duties.[11]

The impact of Air Power Culture on Space Power is visually illustrated in Figure 1. This depicts the concept of the relative space power dividend as a product of aerospace leader development and training, aerospace doctrine, and aerospace systems in an environment with competing air power and space power cultures.

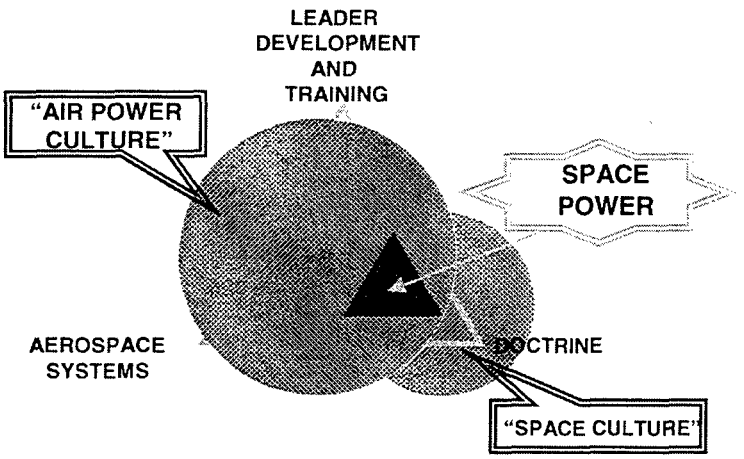

FIGURE 1 IMPACT OF AIR POWER CULTURE ON SPACE POWER

The space experience of leaders in current space organizations prevents the optimal development of a healthy space culture. Leaders with education, training, and command experience in space are critical to the formulation and sustainment of a space culture. The Space Commission's report clearly states the importance of military space professionals:

> Military space professionals will have to master highly complex technology; develop new doctrine and concepts of operation for space launch, offensive and defensive space operations, power projection in, from and through space and other military uses of space; and operate some of the most complex systems ever built and deployed. To ensure the needed talent and experience, the Department of Defense, the Intelligence Community and the nation as a whole

must place a high priority on intensifying investments in career development, education and training to develop and sustain a cadre of highly competent and motivated military and civilian space professionals.[12]

Highly trained space leaders are necessary for the important transformation of space missions from a support and force enhancement role to a support and power projection role. When properly resourced and empowered, space leaders will strengthen the space culture, which will, in turn, produce even stronger space leaders. The strength of space culture is directly proportional to the strength of space leaders and vice versa. Space culture influences space power by directly influencing leader development and training, doctrine, and the acquisition and employment of space systems. Figure 2, below, depicts the concept of the relative space power dividend as a product of space leader development and training, space doctrine, and space systems in a space culture environment which is not competing with an air power culture or coexisting within an aerospace culture.

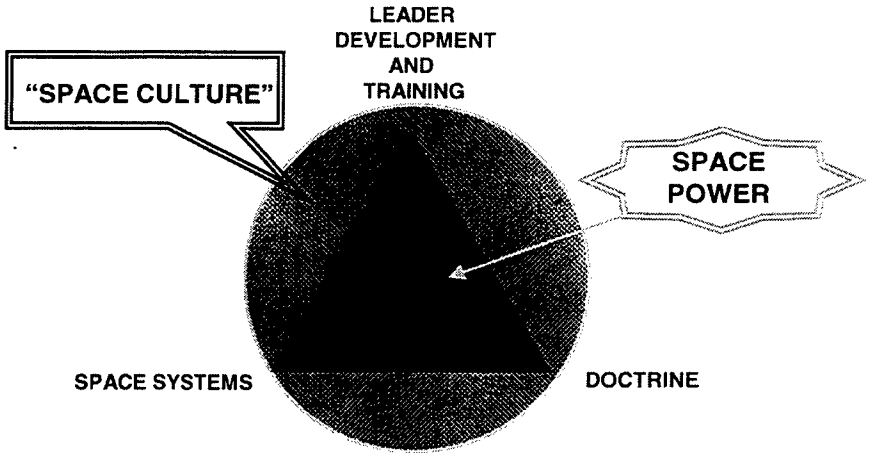

FIGURE 2 IMPACT OF SPACE CULTURE ON SPACE POWER

In summary, the benefits of a strong space culture are numerous. It provides the base for leader development and training. Additionally, a strong space culture provides the foundation for research, development, and the acquisition of space systems, all critical to space power. The environment provided by a healthy space culture allows for the more rapid,

unconstrained intellectual development of space theory and doctrine in support of current and future space warfare. A military space culture focused on supporting space leader development and training, space doctrine development, and the acquisition of space systems is absolutely critical to setting the conditions for ensuring national security in and continued control of space.

During meetings conducted by the Space Commission, members heard testimony that, "despite official doctrine that calls for the integration of space and air capabilities, the Air Force does not treat the two equally."[13] Recognizing the perceived weaknesses in the space component of current aerospace culture, the Space Commission recommended changes designed to strengthen the space culture. The recommended changes included designating the Air Force as the Executive Agent for space within the DoD as well as reorganization within the Air Force to more effectively train and equip forces for timely and sustained offensive and defensive air and space operations.[14] Additionally, the Space Commission stated that, "as with air operations, the Air Force must take steps to create a culture within the Service dedicated to developing new space systems concepts, doctrine, and operational capabilities."[15] While the Space Commission's recommendations are a move in the correct direction towards improving the "space component of aerospace culture," they fall short of ensuring the development of a strong space culture. After receiving pressure from Congress, the Air Force took steps in moving towards an aerospace culture, but it continues to stifle the space components of the aerospace culture. The stifling of space culture by the Air Force puts space power at a distinct disadvantage and at significant risk. Paul Johnston put it succinctly when he stated:

> Whatever the specific corporate culture is, it will tend to become self-replicating since the sort of person hired and promoted will be a reflection of the sort of characteristics the corporation values. Corporate culture may change over time, but at any given moment actions strongly at odds with the prevailing culture are unlikely to appear among any of the corporation's decision makers.[16]

While the Air Force has undoubtedly acknowledged the ascendancy of space and has hesitantly taken measures to integrate space into its culture, it has fallen short in its struggle. There are too many cultural factors hampering the effective integration of air and space. The struggle is evidenced by the Air Force's shifting rhetoric in calling itself first an "Air and Space Force," then a "Space and Air Force'" and finally an "Aerospace Force." This search for an identity is but one example of a self induced obstacle to integration. Yogi Bera once said, "You have to know where you are going to get there."

Although Department of Defense leadership recognizes the necessity of integrating space into mainstream Air Force activities, "achieving results has been very difficult."[17] Now is the time for results to come to fruition; this paradigm must be broken. A strong space culture independent of the parochialisms of air power appears essential in the formulation of space power which is required to guarantee our nation's continued superiority in space. In addition to distinctive space culture, the importance of developing strong space leadership needs to be carefully considered in order for the full potential of space to be recognized and exploited.

LEADERSHIP

Strong leadership is critical in advocating the capabilities of space power, providing an environment that supports the formulation of new doctrine, and implementing change. The Space Commission recognized the significance of leadership in national security space interests when it stated that, "Only the President has the authority, first, to set forth the national space policy, and then to provide the guidance and direction to senior officials, that together are needed to ensure that the United States remains the world's leading space-faring nation."[18] The President's leadership is crucial to ensuring cooperation between the commercial, civil, defense, and intelligence space sectors.

In addition to Presidential leadership, this country needs military space leaders who can command the changes required in developing space power. Capable space leaders are required to develop space doctrine, promote space forces, and gain support for a revolution in space warfare. In his May 2000 Maxwell Paper, Colonel Michael Whittington concluded that the U.S. may never be able to fully exploit the capabilities of space without space advocates in key leadership positions. He stated that, "Regardless of charisma, a colonel just doesn't have the clout to contend with the Air Staff. Fortunately for the Air Force, the Army did promote a few airmen to a rank where their voice could be heard in the War Department, albeit grudgingly. The Air Force, however, has not taken the initiative to groom its space leaders in the 17-year history of Space Command."[19] Essentially, the lack of experienced space leaders has severely constrained the ascendancy of space power. In the past, sea power had its Alfred T. Mayan and air power had Douhet and Mitchell. These great leaders were visionaries and commanders of change. The Army Force Management School teaches that to lead change:

> You must be able, through professional development and competence, to provide the required direction, persuasion and instruction to seniors, peers and subordinates so that the requirements for and the acceptance of change is understood to be a normal condition, rather than the exception of the normal, in the accomplishment of assigned missions.[20]

In his paper, "On Space-Power Separatism," Major Shawn Rife opines that without an original thinker to elaborate a vision including the potential of space power, an independent space force lacks a "raison d'être."[21] For the full potential of space to be recognized, our country needs charismatic, experienced senior space leaders who will serve our nation by educating members of Congress and the public on the grave importance of exploiting space as new dimension of warfare. Even in the absence of a visionary space leader, many recognize the importance of space and are questioning whether U.S. space assets are best organized to accomplish our national security space mission. Just as a strong space culture will breed

stronger space leaders, strong space leaders will encourage and facilitate new space doctrine which will transform our space force mission.

THEORY AND DOCTRINE

The Quadrennial Defense Review Report, prepared by the Department of Defense and released on 30 September 2001 stated that, "Exploiting the revolution in military affairs requires not only technological innovation but also development of operational concepts, undertaking organizational adaptations, and training and experimentation to transform a country's military forces."[22] Operational concepts, or doctrine, are defined as "fundamental principles by which military forces or elements thereof guide their actions in support of national objectives."[23] Doctrine development is the process of translating doctrinal requirements into publications that prescribe doctrine, tactics, techniques and procedures. New space doctrine is required if space forces are to transform from a pure force enhancement mission into a force enhancement and a power projection mission.

There has been much debate on whether space power theory and doctrine should, or even can, be developed from air power theory and doctrine. Major Bruce DeBlois portrays the differences in the characteristics of air and space power and highlights the relative advantages of each in Table 1.[24] The importance of Table 1 is not the determination of a characteristic as advantageous to either air power or space power, but rather the major differences highlighted by the characterization. Table 1 indicates that the characteristics of air power and space power are quite different. Technological dependence is the only characteristic that is appreciably similar between air and space power. In his comparison and analysis, Major DeBlois states:

> One cannot build space power theory and doctrine in general upon air power theory and doctrine. Theories and doctrines of airpower, land power, and sea power may contribute significantly to the development of the theory and doctrine

of space power, but space power clearly requires fundamental, bottom-up, theoretical and doctrinal development. The most conducive environment for such development remains a separate space corps or service.[25]

	Airpower	Space Power
Politics	**Political access to the realm** (military use of space is limited by particular political and legal constraints)	**Sovereignty (no overflight restrictions** in space; international aggreements support free access) **Likelihood of reduced casualties** (based on use of remote, unmanned systems)
Development/ Employment	**Centalized command & control (C2)** (centralized C2 for space degraded by multiple organizations intruding upon CINCSPACE's on-orbit control, launch, acquisition, research and development, and budget authority; airpower not comparitively constrained) **Decentralized execution** (concept applies relatively more to airpower; controlling and executing elements of space may, in effect, be the same)	**(No comparative advantage for space power)**
Realm Access	**Access to the realm (operations)** (ease of performing operations in the air as opposed to space) **Access to the realm (maintenance and support)** (ease of performing maintenance/ support for air operations as opposed to space operations	**(No comparative advantage for space power)**
Realm Environment	**Composition of the realm** (hostile nature of the physical space environment as opposed to the air environment)	**Size of the realm** (Space affords unlimited potential for freedom of movement) **Position of the realm** (space environment encloses the air environment)
Realm-Afforded Capability	**Autonomy** (advantage of independent decision-making capability in manned versus unmanned systems) **Manuever** (aerodynamics versus orbital mechanics) **Flexibility** **Precision** **Firepower** **Stealth**	**Surveillance and reconnaissance** (advantages of perspective and elevation) **Duration** **Range** **Speed of response**

TABLE 1 CHARACTERISTICS OF AIR POWER AND SPACE POWER

Major DeBlois does not accept the "aerospace power conjuncture," – the idea that space power theory and doctrine should be built on air power theory and doctrine, and concludes that the best way to build space power theory is from its foundations up, with a distinct Space Force unbiased by the air power culture. He silences his critic's argument that merging air power and space power creates aerospace power by counter-arguing that the "functional equivalent" is

merging land and sea power into "surface power." Major DeBlois contends that this merging of concepts defies logic.

In his article, "Doctrine Is Not Enough: The Effect of Doctrine on the Behavior of Armies," Paul Johnston concludes that, "It is not enough to write new doctrine, if the purpose is to change the way an army will fight. Ultimately, an army's behavior in battle will almost certainly be more a reflection of its character or culture than the contents of its doctrinal manuals."[26] None the less, space doctrine is required as the foundation necessary to guide the actions of space forces. It is a reality that doctrine is influenced by culture, and that the development of doctrine and technology are linked. History demonstrates that doctrine can drive technology or technology can drive doctrine. The development of the M-1 main battle tank is an example of technology driving doctrine, and the creation of the Interim Brigade Combat Team (IBCT) is an example of a change in doctrine forcing advancements in technology. This is important because it invalidates the argument that it is premature to create a Space Force prior to the demonstration of power projection technology as it pertains to space warfare. In summary, the notion that aerospace doctrine is a logical extension of air power doctrine is questionable, if not false altogether.

In "Military Space Forces," John Collins provides a Military Objectives Matrix [27] (as shown in FIGURE 3) which depicts sample options for achieving politico-military options in space. A doctrine which addresses the 5 W's: who, what, why, where, and when as outlined in the matrix is a starting point for ensuring U.S. national security space interests in peace and war.

For the country to enjoy the force application dividends of space power, and for space power to be elevated to that of land power, sea power, and air power, space power theory and doctrine cannot remain embedded in aerospace doctrine. The U.S. needs space doctrine, drawn from the principles of war, to provide a clear operational means by which space power is

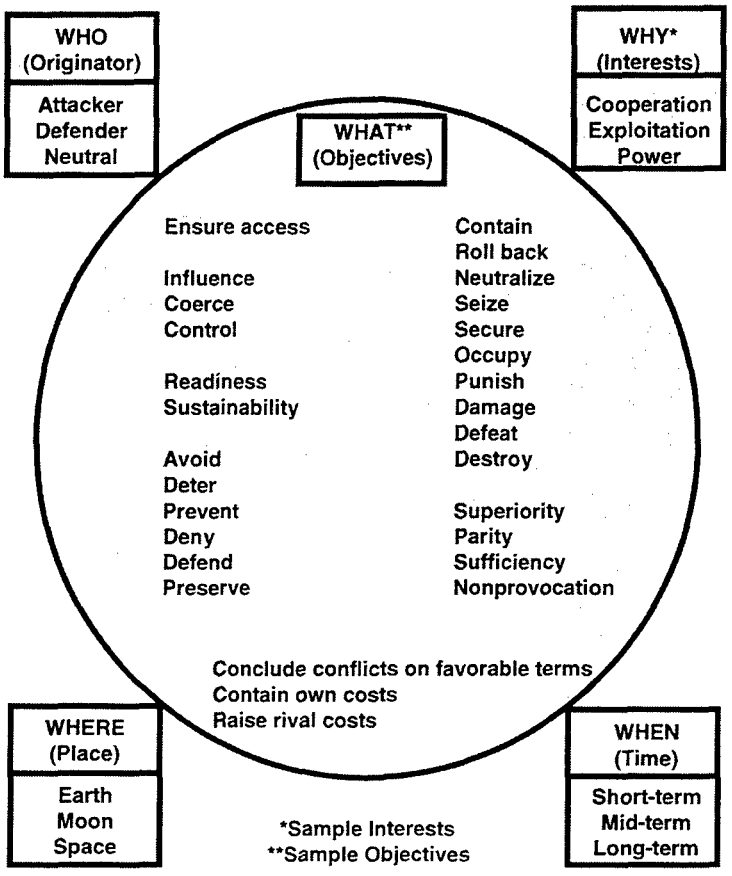

FIGURE 3 MILITARY SPACE OBJECTIVES MATRIX

a means to the end. Space doctrine needs to clearly distinguish the manner in which space power, as a tool of force application, either independently or in conjunction with land, sea, or air power, can achieve national security objectives. In addition to developing doctrine, organizational reform is an area that requires serious review.

ORGANIZATIONAL REFORM

The Army, Navy, and Air Force are directed by the Secretary of Defense to execute specific space programs, to comply with DoD space policy, and to integrate space capabilities into its strategy, doctrine education, training exercises, and operations. Each service is free to develop the space capabilities required to perform its mission[28]. At the time the Space

Commission met, no single service was assigned the statutory responsibility to organize, equip, and train for space operations. Over concerns that organization, technology and doctrine were not optimally aligned in support of the U.S. national security space mission, the Space Commission conducted a comprehensive review of national security space management and organization.

The Space Commission was charged with assessing the potential costs and benefits of establishing any of the following organizational structures:

> an independent military department and service dedicated to the national security space mission; a corps within the Air Force dedicated to the national security space mission; a position of Assistant Secretary of Defense for Space within the Office of the Secretary of Defense; a new major force program, or other budget mechanism, for managing national security space funding within the Department of Defense; and any other changes to the existing organizational structure of the Department of Defense for national security space management and organization.[29]

As part of its method of assessment, the Space Commission identified a set of management functions that highlighted how U.S. space policy is developed and implemented, resources allocated to accomplish the space mission, new capabilities developed and procured, and space operations conducted. The Commission stated that: "organizations, of whatever form, must collectively accomplish the following management functions: High-Level Guidance; Implementation Guidance; Requirements Determination; Research, Development and Acquisition; Operations, Use, Training, and Education."[30] The Space Commission used leadership and direction, interagency coordination, military readiness, intelligence readiness, process, and human resources as the quantitative and qualitative criteria for measuring desired outcomes in each of the functional areas.[31]

Figure 4[32] depicts the roles and responsibilities of White House, Congressional, government agencies, Department of Defense (DoD), and information operations organizations in the conduct of policy formulation, implementation, planning and resource

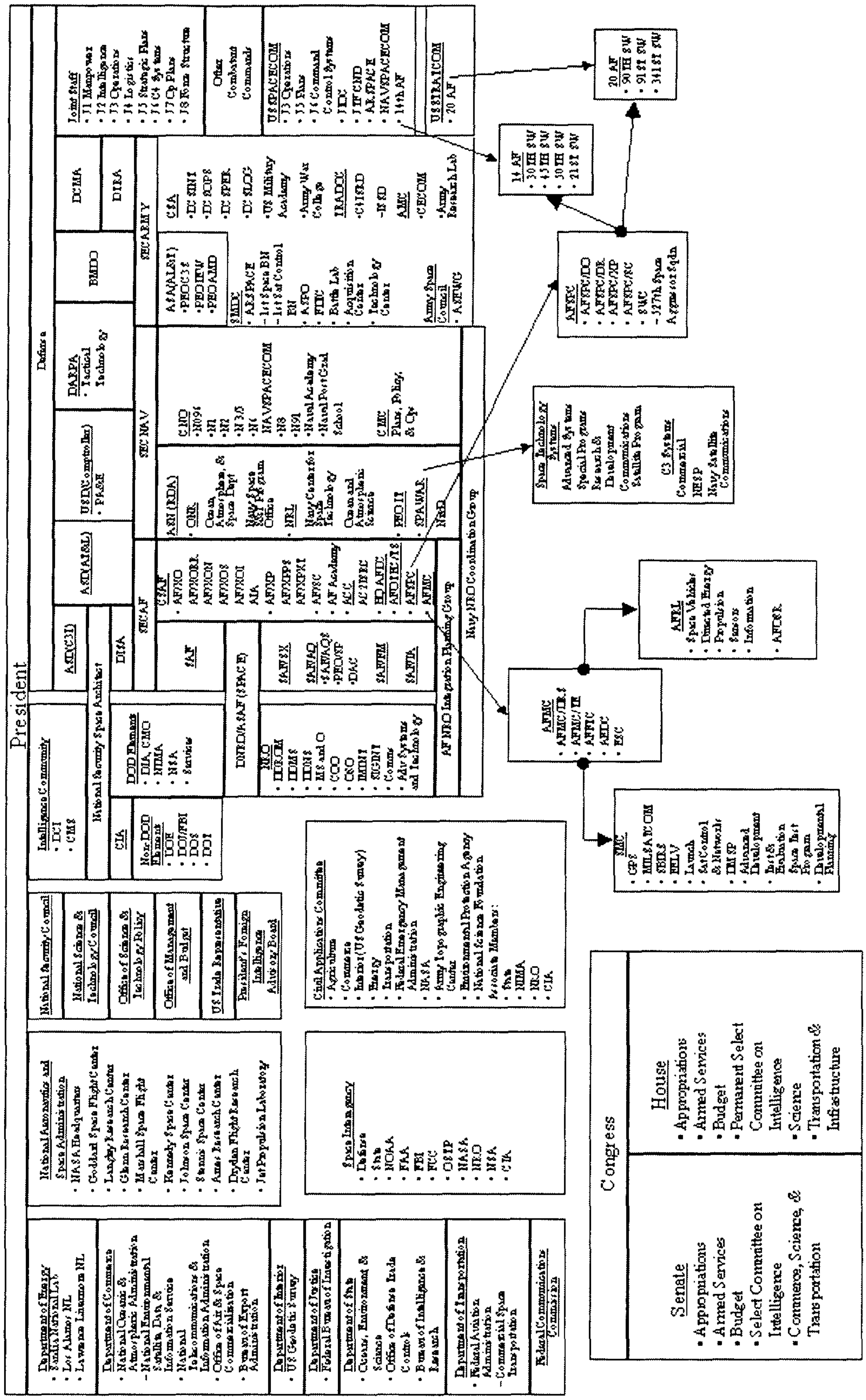

FIGURE 4 SPACE ORGANIZATIONAL CHART

allocation, requirement determination, development and procurement, and operation of national security space capabilities at the time the space commission convened.[33] One doesn't have to analyze Figure 4 for long to imagine the many organizational challenges and issues that hamper our nation's efficient acquisition and effective employment of space assets. Space programs currently represent $8 billion of the Pentagon's $300 billion plus budget and are splintered among a "hodgepodge" of Pentagon offices.[34] In times of shrinking budget, organizational effectiveness is more critical than ever. Given the relatively small portion of the Pentagon's budget dedicated to space, and the increasing role and importance of space to our national security efforts, it is evident that space dollars must be maximized through leadership, management, organizational design, and efficiency.

While the Space Commission stopped short of calling for the near term creation of a military department dedicated to space, it did recognize significant shortcomings in the current organization and management of space assets. The Commission established that:

> The Department of Defense requires space systems that can be employed in independent operations or in support of air, land and sea forces to deter and defend against hostile actions directed at the interest of the United States. 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 nearer term, a realigned, rechartered Air Force is best suited to organize, train and equip space forces.[35]

Essentially, there is a clear parallel between the Space Commission's conclusion that there will be a need for a separate space service and the evolutionary reorganization of the Army Air Corps into the US Air Force. After World War I, air power advocates wanted Congress to create an independent Air Force; however, senior Army leaders were able to convince Congress that the formation of an independent Air Service was premature. In 1926, Congress reorganized the Army, moving aviators from the Signal Corps into their own separate branch, the Air Corps. During World War II, the evolution continued, and in 1942 another organizational change created an independent Army Air Force headquarters within the Army. Finally, in 1947,

following the war, Congress made the U.S. Air Force a separate service.[36] In other words, a clear precedent has been set.

The short term, mid term, and long term recommendations of the Space Commission mirror the evolution and reorganization of the Army Air Corps into the Air Force. Retired General Charles A. Horner, a fighter pilot, commander of coalition air forces during Operation Desert Storm, and former Commander of United States Space Command (CINCSPACE), was a member of the Space Commission. It is interesting to note that in 1997, General Horner went on the record stating: "If the Air Force clings to its ownership of space, then tradeoffs will be made between air and space, when in fact the tradeoff should be made elsewhere."[37] While General Horner made his statement based primarily on budgetary considerations, it none the less highlighted his concerns about the future of space power within the Air Force.[38]

In a 1997 article in "Joint Forces Quarterly," Dr. Joan Johnson-Freese wrote that "Organizational reform can represent a major attempt to introduce change or a mechanism for deflecting real change."[39] In her paper, "Transitioning to a Space & Air Force: Moving Beyond Rhetoric?" Dr. Joan Johnson-Freese states:

> Dramatic change is the antithesis of tradition and seems to reject the very legacies upon which the military is built. This sets up an almost approach-avoidance situation, where marginal adjustments satisfy the acknowledged need for change while protecting the entity as a whole from changes it does not really want.[40]

Dr. Johnson-Freese contends that the current organizational environment is not advantageous to air and space integration; that rhetoric will probably outpace substantive progress; and that the results will continue to negatively influence integration. Dr. Johnson-Freese concludes that, given these circumstances, the need for a new "United States Space Force" might be inevitable. Dr. Johnson-Freese cautions the reader against the pitfalls of marginal organizational adjustments.

The Wright Brothers made the world's first powered, sustained, and controlled flight in their "heavier than air flying machine" in 1903. Forty-four years later, an Air Force that was equipped, manned, and capable of power projection was established. In 1958, the United States launched its first satellite, Explorer I. Now, 44 years later, the U.S. is still unable to routinely project power into or from space, and is still sorely struggling with the basics of space theory and doctrine. The evolution of the United States Air Force is a success story where as the evolution of space power to this point is not. Marginal adjustments were successful in the ascendancy of air power, but they have not been so successful in developing space power.

Technology has accelerated the rates of change in our global environment. Figure 5[41] depicts the curves of change in population, material and technology, and military cultural

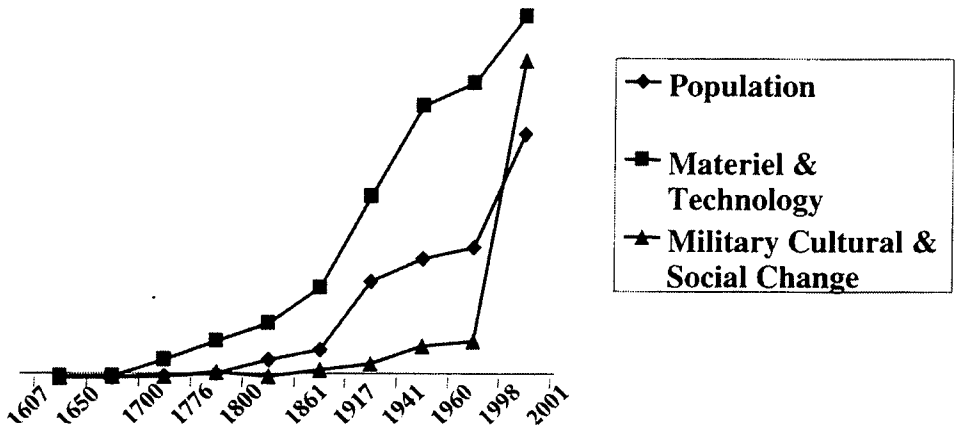

FIGURE 5 THE CURVES OF CHANGE

change. The vertical nature of the curves in Figure 5 depicts how rapidly change has occurred in the last 25 years. Given the accelerated rate of change, perhaps evolution as a concept for the growth of space power is a risky thesis. To this point, allowing space power to simply evolve has yielded less than optimal results. Maybe this is an appropriate time to break the evolution paradigm, make a drastic organizational change, and create a separate Space Force.

ARGUMENTS AGAINST A SEPARATE SPACE FORCE

Many professionals argue that the creation of a separate Space Force is not appropriate for space at the present time. Opponents to a separate Space Force argue that it is too early to establish a new Service dedicated to the national security space mission. There are three major arguments against a separate Space Force. First, that together air and space form a seamless medium and therefore their powers should not be employed separately, but should be employed together as aerospace power. Second, based on historical precedent, space does not meet the criteria for independence. Military space is still immature, and it is not combat tested. And third, overhead costs associated with reorganization and the creation of a separate Space Force will negatively impact DoD. As their bottom line, space separatist critics argue that the military space mission has not evolved enough to merit a separate Space Force.

While on the surface these arguments might appear to be solid reasons to dismiss the pressing notion of a separate Space Force, they are in essence less valid than the pro-Space Force arguments. While the seams between land, sea, and air are readily visible to the naked eye, they are no more or no less limiting than the seam between the atmosphere and space. The seamless operational medium argument can be countered with the fact that the Army, Navy, and Air Force all operate in the air. In accordance with joint doctrine, the services establish and employ coordination measures to deconflict operations in a shared environment. The Air Force is not the sole user of air nor is it the sole user of space. Just because space is connected to, and above the atmosphere is no reason to integrate air power and space power into aerospace power. If this concept is logical, the connection of land to the sea would have driven the development of "surface power" from land and sea power, which is not the case.

It is not convincing that historical precedence is a valid criterion for arguing against the creation of a separate Space Force. The Air Force's historical precedent and model of

evolutionary growth and reorganization does not necessarily lend itself to the technology driven, rapidly increasing threats in the global environment. As previously mentioned, the Air Force evolved over a 44-year period. By comparison, the development of space power is significantly behind that of air power at the 44-year mark. Could it be that the current organizational model is a main contributor to the slow development in space doctrine, limited advocacy for a space budget, and the development of space professionals, all of which are linked? It is simply ridiculous to wait for a war to prove the effectiveness of and to certify the need for a separate Space Force.

With regard to the overhead costs associated with this bold reorganization effort, there would most certainly be extensive initial costs. Overall, however, the space budget would be better maximized through the close cooperation of military, civil, and commercial space practitioners, the end result being long term efficiency and savings. Additionally, the consolidation of existing functions and commands within one service supports the unity of command principal of war.

It is interesting to note that many of those who speak and write against a separate Space Force are members of an organization which considers itself the custodian of the nation's space experience, space assets, and the future of space -- the United States Air Force. There is no insinuation that those involved in this argument are unprofessional or that their views are not well thought out and presented for debate. In fact, it is evident by their scholarly work that they are concerned professionals; however, their discourses may be unknowingly and innocently tainted by the parochialism of their service. The Space Force argument is contentious to say the least. While the argument over the creation of a separate Space Force is contentious, the fact that space is rapidly becoming both a military and commercial center of gravity is not.

RECOMMENDATIONS

The best way to protect space as a center of gravity is through the creation of a separate Space Force dedicated to maintaining the United States' space superiority. The benefits associated with a separate Space Force and the ascendancy of space power clearly outweigh the costs associated with the creation of a new Service. Senator Bob Smith, a strong supporter of a separate Space Force put it very clearly when he stated:

> A Space Force would put the same muscle behind space missions that the Army, Navy, and Air Force flex in their missions today. A separate service would allow spacepower to compete for funding within the entire defense budget, lessening the somewhat unfair pressure on the Air Force to make most of the tradeoffs, and protecting spacepower programs from being raided by popular more established programs. A separate service would create an incentive for people to develop needed skills to operate in space and a promotion pathway to retain those people. And a separate service would rationalize the division of labor among the services -- consolidate those tasks that require specialized knowledge, such as missilery and space -- so that this specialized knowledge could be applied more effectively.[42]

The increasing reliance on space by the U.S. military and the civil and commercial sectors is undisputed. The 30 September 2001, Quadrennial Defense Review Report highlights the fact that "technological advances create the potential that competitions will develop in space and cyber space" and that "space control - the exploitation of space and the denial of the use of space to adversaries - will become a key objective in future military competition."[43] On 25 January 2001, President Vladimar Putin created a new Russian military space force, an independent section of the military, as part of a plan to streamline and modernize Russian armed forces. "The Russian space forces are in charge of space launch pads and a fleet of military satellites that serve spy and communication purposes and tracks the launches of ballistic missiles.[44] On 15 January 2002, the Hong Kong Bureau of the China News Agency reported a group of scientists urged the government to accelerate acceptance of a proposal to develop an infrastructure in space and regard developing space territory as a national strategy.

The scientists also recommended that China claim access to space as China's "fourth territory."[45]

In its report, the Space Commission concluded that the U.S. is an attractive candidate for a "space Pearl Harbor, in which a sneak attack against American commercial and military satellites could cripple business and leave the Pentagon blind to foreign troop and ship movements."[46] The events of 11 September 2001, which occurred after the release of the Space Commission's report, are an unfortunate example of the unpredictability of the world environment. It took the Air Force forty-four years to evolve from the Army, but technology and threats associated with globalization do not allow the United States the luxury of a continued, lengthy evolution of air power into aerospace power. The United States must mitigate the risk presented by the nation's reliance on space by accelerating the ascendancy of space power. The best way to ensure the ascendancy of U.S. space power is through the creation of a separate Space Force.

CONCLUSION

During the research and writing of this paper, the attempt was to maintain intellectual objectivity in as much as it was possible. Robert Kaplan, a correspondent for "The Atlantic Monthly," and author of nine books cautions us that "objectivity is illusionary...often, what passes for analysis is merely an expression of one's life experiences applied to a specific issue. From that sin stems another - that of selecting facts and insights to defend a particular vision. To this dilemma there may be no solution."[47] Hopefully, the temptation to waiver from objectivity has been avoided throughout this project.

This paper examined the constraints placed on the development and ascendancy of space power by the current aerospace paradigm. A detailed literature review and interviews

provided the facts used to persuasively argue that the creation of an autonomous Space Force is the best path towards ensuring our ability to maintain space superiority. The United States of America can ill afford to sit by and watch its marked superiority in space erode as a result of poor organization, split leadership, the suppression of space warfare doctrine, and a failure to capitalize on evolving technologies. The "final frontier" is far too important to the nation's continued successes and to national security.

Some experts argue against the need for a separate Space Force, because the capability of space power to secure national objectives through force application remains unproven. Conversely, many argue that the creation of a separate Space Force will actually accelerate the capability to defend the country's space assets as well as to attack both terrestrial and space based targets from assets operating in space. Let this nation's leaders not be surprised by a "Space Pearl Harbor," like they were with the attacks against our homeland on 11 September 2001. Now is the time to enable the national security space mission with the creation of a separate Space Force -- a force that will ensure that United States space interests are protected, that national security space objectives are met, and that this great nation achieves its full potential in space.

WORD COUNT: 7,124

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