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The Hidden Space Races:

Ideological Motives for Space Exploration in the US, 1950-1970

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ABSTRACT

The early history of space exploration is a history of justifications for funding programs whose purposes aren't clear. Likewise, these programs were incorporated for military purposes as the Cold War intensified. This paper examines these competing motivations for the research and development of space technology during the 1950s-60s, juxtaposing ostensibly peace-oriented motives cited by scientists like Wernher von Braun, the more defense-oriented focuses, and the nationalist notions behind many early rocketry programs. This paper will examine the ideological motives behind early space programs for a better understanding of the conceptual roots of modern space exploration. The focus is on studies of nationalist, militaristic, and optimistic views to best determine the beliefs pushing the American space program forward. Ultimately, this paper argues that these points of view had equal effects on the development of space technology, leading not to competition but rather a synergy of these viewpoints to further the cause of space technology development.

Keywords: Nationalism, militarism, scientific optimism, space, space technology, cold war, ideology, space exploration, rocketry development, and the Space Race.

I. INTRODUCTION

The year is 1957. Sputnik has just been launched by the Soviet Union, shocking the American people and confirming the suspicions of those within the government even as the Soviets failed to advance in most other areas.¹ The Space Race has begun in earnest, but the question remains of what reason America has to go to space, and what benefits there are. Thus, different groups with different reasonings try to answer this question for the sake of space exploration, even despite their differences. Our definition of "ideology" in this context is taken from Michael Hunt's work on ideology during the Cold War, and thus we use his conception of ideology not as a truly uniform and rigid set of ideas, but as a more subtle and broader worldview coloring the actions of the public and policy-makers². A broader definition of ideology allows for the interpretation of outlooks that wouldn't be considered ideologies in the classical sense, and these viewpoints are key to understanding the motivations behind efforts toward spaceflight.

The Space Race is often portrayed as a battlefield, and in many ways, it was. Whether between the US and Soviet Union, concerned citizens and the US government, or different factions in NASA, the history of early space development is one of contentions and debates lasting from the first Vanguard launch to the end of Apollo. This framing of the Space Race as one argument and factionalism even extends to the earliest years of the Space Race, before any group had managed to launch a rocket into space. Discourse thus became symbolic during this time and was fueled by differing factions that, despite differing ideals, aimed to promote the cause of space exploration and research above all else. However, despite the stark ideological differences of the groups pushing for space technology development during the early Space Race, their rhetoric and ideas often blended together, and their pushes for space development should be viewed as part of a collective effort towards the same goal rather than a divisive competition.

The first such group was the nationalists, pushing for space exploration as a response to the Soviet Union's rapid development in the field despite their otherwise poor technological base.³ In search of the national

¹ For an overview, see: Yanek Mieczkowski. *Eisenhower's Sputnik Moment: The Race for Space and World Prestige*. Ithaca: Cornell University Press, 2013.

²Michael H Hunt, *Ideology and U.S. Foreign Policy*, 2nd ed, New Haven, CT: Yale University Press, 2009, 14-17

³ Mieczkowski, 14-6

prestige that would accompany success in the battle for technological dominance, this faction, exemplified by many government officials and newspapers as well as a large contingent of the public, sought to push for space as a method of ensuring that America would remain on top. This contingent was perhaps most supported by a shocked and fearful American public, having lacked the knowledge about the Soviet space program that the Eisenhower administration did when Sputnik was launched. In addition, general Cold War tensions affecting the public were a large factor in the opinion of the nationalists and thus the broad support of their sentiments.⁴

A group similar in many ways to the nationalists but different in outlook were the militarists, often composed of government officials and presidential administrations themselves. The officials of the Eisenhower administration, having known the Soviet Union's weaknesses, sought to control space not to prove true the concept of First World dominance but rather to use it as a tool for military purposes, such as spying on the Soviet Union. From the commencement of the Space Race, space has always been utilized to advance military rhetoric and proves that "non-military facets of power can be exploited⁵." Space has never truly been a realm in which peace between all nations was expressed as the primary and focal concern above all else. To this end, each superpower attempted to gain a foothold in space which was a more attractive alternative than a nuclear buildup in regards to the projection of power.

A third group, and a much smaller and yet more visible one at that, were the scientists, pushing for a greater position in space not for any greater desire for control, but rather a peaceful exploration of what was beginning to be seen as mankind's final frontier. This group was exemplified by notable figures such as Wernher von Braun, who was himself a sort of pioneer in pushing for space presence in a host of articles and news segments popularizing his vision of a peaceful, universal presence.⁶ This sort of optimist view of space wasn't free from government interests and was colored by the militarist view to boot, but it remained a unique faction in its own right as the National Aeronautics and Space Administration (NASA) was formed under the auspices of this very same group.

Throughout the 1960s the US public felt threatened by Soviet Union superiority during the space race. The Soviet Union's advancement in space technology during the 1950s was out of this world, literally. Most Americans believed that if the Soviet Union could hit Venus, a world 26 million miles away, with a rocket, it would be child's play to send a rocket to the Moon⁷. Whether it was Sputnik in 1957 or the first man in space, Yuri Gagarin in 1961, it seemed as though Russia was always one step ahead of the US. The United States was remarkably intimidated by Sputnik, so much so that they even launched Vanguard TV-3, better known as "Floppnik". Vanguard's failure only provoked further interest in space exploration from all groups, thus sparking the pushes from all three towards further exploration of space.

What is the rationale behind wanting control over space during the Cold War, and how different groups push for it? In asking this question, we seek to analyze the three perspectives given and their contributions to the Space Race in the United States. To this end, we first define and then deconstruct the boundaries between these three groups in order to show that the ideological barriers between the people pushing for space dominance did not prevent them from sharing ideas and resources. A source notable for its glimpse into both nationalist and military mindsets is "The International Space Race" by Donald W. Cox. Having been written in 1962, this book gives the perspective of the U.S. public before Apollo 11 reached the moon. Likewise, we look at the arguments presented by Asif Siddiqi and John E. Shaw in their articles on specific viewpoints pushing for space exploration and argue that these viewpoints are slices of a greater spaceflight-oriented goal by all involved parties. Ultimately, we find that it wasn't the competition of the ideals presented that pushed the Space Race in the US, but rather their synergy and combination.

⁴ John E. Shaw, "The Influence of Space Power upon History 1944-1998," *Air Power History* 46, no. 4 (1999): 23

⁵ Michael Sheehan, *The International Politics of Space*, Space, Power, and Politics. London ; New York, Routledge, 2007.

⁶ Wernher von Braun, "Crossing the Last Frontier," *Collier's*, March 22, 1952, pp. 23-29

⁷ "EUROPEANS LAUD ROCKET TO VENUS: SOVIET SPACE ACHIEVEMENT STIRS FEAR OF SATELLITE THAT COULD BOMBARD THE EARTH," *New York Times* (1923-), Feb 14, 1961. 10

II. Historical Analysis

A. Nationalism

The space domain is undergoing a period of significant change⁸. Within the realm of cosmic exploration, competition between nations has been fierce. Whether it was over who was first to touch down on the lunar surface, or who could occupy a never-before-traveled piece of celestial space, there has always been competition for power and territory. In the years prior to the 1969 Apollo mission, the US was threatened by the Soviet Union's rapid advancements in space technology. The Soviet Union was always one step ahead of the US. We argue that nationalism was a motive for space exploration from 1950-1970. Not only do nationalism, militarism, and scientific optimism exist individually within space exploration, but they also exist in correlation with one another. The interdependence of nationalism with militarism and scientific optimism can be observed in the actions of both the Soviet Union and the United States in the expeditious tug-of-war that led to the first man in Space. The effects of nationalism in an acrimonious battle over uncharted celestial territory was influential however disruptive to previous best-practices. This led to morally questionable research and development, as well as hurried testing practices. In addition, nationalism contributed to an upheaval among citizens as many lost a sense of safety and security during this time.

Nationalism has been a major driver of conflict in the US. Throughout American History, citizens have become especially patriotic during disputes with other nations. This patriotism fueled by conflict can both aid in efforts and cause detriment. Despite Americans typically supporting their nation in times of conflict, the US space program was receiving no such support during its early years. The solution was nationalism: The American people could be convinced that the USSR would have a foothold if they reached space and that they would become an even more powerful threat. The unknown advantage that came with reaching Space first was a point of fear and speculation. During instances of conflict propaganda, rioting, and war-mongering are some of the results of an increase in nationalistic beliefs among a population. The influence that the public puts on a country's military and operational agencies can be incredible. This has been true of the United States during times of war and conflict. One of the main powers of the Eisenhower Administration, Secretary of the Treasury, George Humphrey, said, "The real danger of the Sputnik is that some too-eager people may demand hasty action regardless of cost in an attempt to surpass what the Russians have done⁹." Development of technology has been seen as a necessity in order to keep up in a rapidly changing technological landscape, and therefore, was prioritized. One challenge the United States faced during the Sputnik launch was managing how the public would react. The US public became uneasy and felt threatened when the USSR made obvious gains in the Space Race. This resulted in the US rushing to launch one of its own satellites. That satellite was the Vanguard TV-3, better known as the "Flopnik", due to its catastrophic explosion only 4 feet off of the ground. Not only does history indicate that hastily piecing together technology to appease the public can be dangerous, but it also indicates that nationalism can place unnecessary pressure on administrations and government agencies. Ultimately, this led to destruction and has been the cause of further conflict in times of unrest.

As American space efforts progressed, support primarily continued to grow despite some failings. As in any other industry, with success, came many failures. An example of one of these failures under the umbrella of space exploration is the Apollo 1 tragedy in 1967, the first of its kind in the US. The crew for this spacecraft was Edward White, as the Command Pilot, Virgil "Gus" Grissom, as the Commander, and Roger Chaffee, as the Pilot. This group of astronauts took on the role of representing the whole country at a time when the public was hungry for victory. The entirety of the US public was looking up to them with the expectation of completing this mission. Just before the liftoff, the astronauts were latched shut in the cockpit. Soon after, Chaffee was heard saying, "Flames!" and White said "We've got a fire in the cockpit!"¹⁰ shortly after. Due to the hatch being latched shut, it took about 5 minutes to open. By the time rescuers got in, White, Grissom, and Chaffee were already killed because of smoke inhalation and significant burns. The Apollo 1 launch pad fire was the first public tragedy at the hands of NASA and it truly shook the US public in subsequent years. This is one reason the government often tests in private and with confidential flight and weapons testing. After the Apollo 1 tragedy, the Apollo program was postponed due to an investigation on the cause of the fire, how to fix the issue, and to allow the public time in coping with the loss of the crew members. After investigating, they found that the fire was caused by a short

⁸ Henry R. Hertzfeld., Brian Weeden, and Christopher D. Johnson, "Ungoverned or Lacking Effective Governance?: New Approaches to Managing Human Activities in Space," *SAIS Review of International Affairs* 36, no. 2 (2016), 15–28

⁹ Donald W. Cox 1962. *The International Space Race*. 1st ed. Philadelphia: Chilton Books, 21

¹⁰ David R. Williams, "Apollo 1." NASA, January 16, 2018. <https://nssdc.gsfc.nasa.gov/planetary/lunar/apollo1info.html>.

circuit in a bundle of wires. These findings resulted in a plummeting of support and pride in the Apollo program. This was not only devastating for the loved ones of the crew members lost that day, but it was devastating to the trajectory of the Space program as a whole. Next to the loss of life, the most notable result of the Apollo 1 tragedy was the public's disapproval and distrust of NASA to pursue space exploration without hurting anyone. While the failures and losses were significant, it is also true that Apollo 1 led to new ideas for the development of space exploration, albeit, at the cost of the lives of White, Grissom, and Chaffee. Their deaths were not in vain. This is supported by the fact that only 3 years later, the crew of Apollo 11 would triumph in their successful mission to the moon and back. Therefore, nationalism allowed American space efforts to overcome struggles, and, through its connection to the scientific and militaristic aspects of space, aided these efforts.

B. Militarism

Military power has always been a major driver of spaceflight, especially since the advent of nuclear Inter-Continental Ballistic Missiles (ICBM). The promising future of German rocketry during World War II, shown in Wernher Von Braun's V2 rocket, demonstrated a leap into space weaponization. The ICBM would expand on the foundations laid by the Germans and later become the very first military space system, the first weapon to travel into and through space¹¹. These weapons stirred up fear due to their nuclear capabilities, which could cause total and unadulterated armageddon and could detonate or launch anywhere on Earth effortlessly. These armaments were also a liability as both the Soviet Union and the US held an undisclosed number of them. This naturally meant that these weapons were unlikely to be used, as any first strike would lead to retaliatory strikes, leading to the destruction of both nuclear combatants. Ergo, they were more of a deterrence than a means to start an actual nuclear war. The Nuclear Triad, or the combination of land, sea, and air nuclear platforms, was a method that was developed by the US to defensively minimize and offensively maximize the damage that could come from all-out war with the Soviet Union (see Fig. 3)¹². Although, damage is always inevitable and casualties would be immense. The military might of these two superpowers was constantly being compared to one another and the build-up of nuclear arms would do nothing to prove who was the dominant power. The growing militaristic competition between these two nations would ultimately lead to a need to shift their resources to a common goal that would better visualize their military's superiority. Gaining the support of nations not aligned with either major power was a top-level priority during the Cold War and demonstrating technological prowess would prove essential to the reining-in of the non-aligned world. So, space was prioritized as a viable option to the creation of future allies due to the positive image that would follow a successful program.

Space was thus seen as a valuable alternative, instead of a nuclear buildup, to prove the superiority of each nation's military and ideas. The reason for this shift in priorities was the advantages that would come from controlling space sooner than the other. This nationalist rhetoric would prove to be essential in the Space Race and advancement of scientific thought. These ideas culminated in the eventual success of Sputnik by the Soviet Union on October 4, 1957, marking a new dawn in space exploration and its increased militarization thereafter. Sputnik had profound effects on the international stage, considering that it orbited over US territory and many feared the implied ability for a nation in the Eastern Hemisphere to attack the North American continent for the first time.¹³ This fear led various proponents in the US military to fund programs to advance space exploration, in efforts to project military interests. One such proponent was The US Army Ballistic Missile Agency, which created the PGM-11 REDSTONE that was originally designed to detonate nuclear and conventional warheads with a range of 175-200 miles.¹⁴ This REDSTONE missile was heavily modified and was converted into the Jupiter-C rocket, and was used in the Explorer 1, launching the first American satellite into space in 1958. The REDSTONE rocket was again used in Mercury-Redstone 3 (MR-3) by the National Aeronautics and Space Administration (NASA) to launch the first American crew into orbit and safely land them back in 1961. These are instances where military motives were prioritized in the beginning and were later used in the advancement of space exploration.

¹¹ Shaw, 20–29.

¹² Backus, Thomas. "The Nuclear Triad." Atomic America

¹³ Shaw, 22

¹⁴ US Army. "The United States Army: Redstone Arsenal Historical Information." The United States Army | Redstone Arsenal Historical Information. Accessed July 21, 2023.

The rockets that were meant to level cities and destroy nations were now being used to promote scientific understanding and competition. The point being, the military has always been influential from the start with the future of space and its agenda. As Michael Sheehan mentions in his book *The International Politics of Space*, “Space has proven to be a domain where non-military facets of power can be exploited.”¹⁵ While there will always be missions that are scientifically innovative and promote cooperation with nations, the militaristic aspect of it can never be overlooked.

Sputnik proved that there were no real rules set in place internationally for military interests in space, no single country owns space after all. The Soviet launch of Sputnik was used to justify the use of military satellites that could be operated for intelligence, surveillance, target acquisition, and reconnaissance (ISTAR). These satellites would prove invaluable to US efforts in warfare for “managing the battlespace and improving situational awareness”¹⁶. This again proves to be a motivation for launching technologically sophisticated devices into space not necessarily for civilian use but for the enrichment of military assets. Many satellites were even masked to advance scientific research but in reality, were veiled for spying motivations, showing a combination of scientific and militarist ideas for space technology. One of the first instances where satellites were proven combat effective, especially for reconnaissance, was during the Vietnam War. The Vietnam War was constantly being monitored through satellites that would relay information, such as weather conditions and enemy positions, to higher-ups, proving the combat effectiveness of satellites. Many proponents in the US Armed Forces witnessed the potential in this technology which only spurred more programs to advance space surveillance and exploration.

C. Scientific Optimism

The scientists who worked under the US Navy and later NASA are often the most divorced from the historical context of the Cold War; beyond Operation Paperclip, they are typically cut out of the picture, leaving the Eisenhower administration and the military-industrial complex to argue over how much development is needed to combat the Soviets. Despite these assertions, scientists, too, were heavily involved in these political games just as the politicians were involved with their seemingly pure dreams of space exploration, as was their reasoning behind them.

In his article on rationales for spaceflight, Roger D. Launius cites hopes of a utopia in space, untouched by the flaws of humankind, as one of the first¹⁷. These are dreams of a more perfect world than Earth, where mankind can colonize the stars without repeating any of the damage that has defined historical, earth-bound colonization. This vision paints a picture of itself as pure and untouched, a sort of revisionist history in space. Take for example the assertions of Wernher von Braun in his 1952 article on space colonization; the article is laden with language asserting that the technology he is fostering will naturally be used as tools of peace and discovery for all mankind. Von Braun’s proposals for a rotating space station are the shining gem of the article, a world above our own, free from political interference (Fig. 4). In a contradictory fashion, this concept of peaceful scientific efforts runs through the whole article even as the introduction to it asserts spaceflight’s necessity using entirely nationalist rhetoric¹⁸. This separation of popular reasoning and scientific reasoning for space travel seems to have lent an air of universality to von Braun’s argument, and this was most likely intentional: as the Cold War started in earnest and nuclear weaponry lent weight to the concept of mutually assured destruction, a message of peace and a better future would most likely be appealing to even the most hostile American citizens. With von Braun being a leading rocket scientist and figurehead of NASA’s scientific efforts during the Space Race, he would of course want to sell his project as a peaceful scientific mission rather than one of war, even if only because of the secrecy of the government programs working on such efforts. The assertion in the same article that the space station could be built in only ten years was most likely another appealing prospect to the American public, especially with the increase in industry that the post-world-war years had held for the US¹⁹. Therefore, it stands to reason that the idea of scientific optimism as an ideology standing alone would trickle into the public imagination.

¹⁵ Sheehan, 13

¹⁶ Sheehan, 92-93

¹⁷ Launius, 40

¹⁸ von Braun, 10

¹⁹ von Braun, 30

However, this separation isn't necessarily real: just as with the previous ways of thought analyzed thus far, this scientific utopianism is in no way divorced from the greater concerns of security around it despite the efforts of its promoters to make it seem so. Take, for example, an article posted in the *New York Times* six years after von Braun's article. It mentions the scientific aspect of space exploration heavily, at least in a layman's setting, but it also focuses on these scientific discoveries' potential for destruction when paired with military infrastructure. Likewise, it suggests that this technology would be useful in combating the Soviet Union's rapidly-developing space program²⁰. These mentions illustrate the extent to which these systems of thought were conjoined even at the time they originated, and they show the extent to which the scientific optimism characterized by von Braun's writings was balanced by the more practical and deadly aspects of the technology in the public sphere and the American imagination.

The 1960s is considered the height of the Space Race, and thus it follows that all ideologies were pushing for space travel at this time, blending as they did so. Analysis of the situation as it was in the 1960s reveals another clear picture of the combinations of these worldviews, even as they try to separate them in an attempt to ignore the implications of the intersection. A report on the state of rocketry in *Technology and Culture* in 1961, for example, lists off both military and scientific applications in its recalling of the scientific progress made thus far. Interestingly, that same report fails to mention any military applications when focusing on the future of rocketry, an oversight that points to an early attempt to separate military and scientific applications of technology in the context of outer space²¹. The heavy focus on scientific applications despite the acknowledgment of others points to a trend of focusing on the more peaceful and therefore entirely acceptable aspects of space exploration, the things that brought hope for the future rather than despair even despite their intersection with such technology as space-based weaponry. Newspapers and other popular media weren't as afraid to admit the convergence: in 1961, the same year as the release of the *Technology and Culture* article, a *New York Times* headline threatened Americans with bombardment by Soviet space weaponry²². That this same article mentions the satellite launched was an entirely scientific mission is probably an irony that was lost on the people of America, as the potential that scientific applications had for military purposes became clearly publicized, and probably to the ire of the scientists who railed against that view.

The conceptualization of scientific optimism as separate from most other factors of the Space Race did manage to leave a lasting impression by the end of the 1960s; this is what's most likely responsible for the perceived separation between it and other ideologies of its time and place. Once again, this separation of one factor from the rest gives us a less accurate picture of the driving forces and people behind the space race due to its treatment of singular ideologies in a vacuum. Asif Siddiqi's acknowledgement of the scientific factors behind the Space Race in his article on the narratives behind the Space Race and Cold War is a step in the right direction, as it doesn't entirely ignore the issue at hand; however, it still doesn't fully acknowledge the presence that science had in influencing policy for space²³. Ultimately, scientific optimism and techno-optimism of the type shown by von Braun was integral to the Space Race not only through its own achievements, but through its integration with military operations and nationalist thought.

²⁰ Kathleen Teltsch, "U.S. WILL PROPOSE THAT U. N. DIRECT SPACE EXPLORING: WILL RECOMMEND WORLD UNITE IN FUTURE EXPERIMENTS TO PROMOTE PEACE DATA TO BE GIVEN TODAY LODGE TO REVEAL DETAILS IN A SPEECH TO LEGION AT CHICAGO MEETING U. S. WILL PROPOSE OUTER SPACE PLAN," *New York Times* (1923-), Sep 02, 1958, 1

²¹ Hugh L. Dryden, "Future Exploration and Utilization of Outer Space," *Technology and Culture* 2, no. 2 (1961), 122.

²² "EUROPEANS LAUD ROCKET TO VENUS: SOVIET SPACE ACHIEVEMENT STIRS FEAR OF SATELLITE THAT COULD BOMBARD THE EARTH," *New York Times* (1923-), Feb 14, 1961, 10

²³ Asif A. Siddiqi, "Competing Technologies, National(Ist) Narratives, and Universal Claims: Toward a Global History of Space Exploration." *Technology and Culture* 51, no. 2 (04, 2010): 425-43,

D. Figures and Photographs



FIG. 1. The Sputnik probe, the first artificial satellite to be launched into space.



FIG. 2. The first U.S. rocket launch attempt, the Vanguard failure, dubbed "Flopnik."

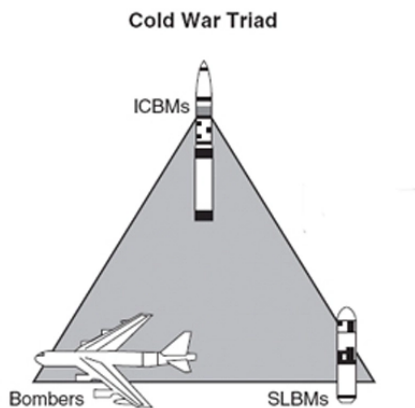


FIG. 3 The components of the U.S. nuclear defense/attack system.



FIG. 4. An artist's rendition of a space station proposed by Werner von Braun.

III. CONCLUSION

The driving motives so often focused on in the history of space exploration did not work against each other, but rather with each other, during the Space Race, and this can be seen in the myriad applications of this technology and the interactions between the holders of these ideas over this time period. It is the combination of viewpoints like nationalism, militarism, and optimism that drove the development of rocketry and space technology in America, and the lens of isolation through which these viewpoints are analyzed ignores the similarities in the thought of these viewpoints. Ultimately, it is the combination of these ideas that truly pushed it into the modern consciousness and above the atmosphere.

As space technologies gain more focus in the public sphere and new factors such as corporate interest come into play, research into the motivations behind the Space Race and the collaboration and competition of those motivations is essential to understand why we go into space and how our future will be shaped by these ideologies. Further research into this might delve specifically into the corporate aspect of modern space travel, from nation-bound groups like United Launch Alliance or Mitsubishi to more broad-looking companies like Rocket Lab, SpaceX, and Blue Origin. Likewise, as nations like India and China develop their own launch platforms and find success in space exploration, we must look at how a multipolar space race might affect American attitudes toward rocketry.

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C.C. devised the idea for the project. All authors engaged in historical research and source gathering. All authors wrote and reviewed the manuscript.