

History of Rocketry and Astronautics

**Proceedings of the Fifty-Third History Symposium of
the International Academy of Astronautics**

Washington DC, USA, 2019

Otfrid G. Liepack, Volume Editor

Rick W. Sturdevant, Series Editor

AAS History Series, Volume 52

A Supplement to Advances in the Astronautical Sciences

IAA History Symposia, Volume 39

Copyright 2022

by

AMERICAN ASTRONAUTICAL SOCIETY

AAS Publications Office
P.O. Box 28130
San Diego, California 92198

Affiliated with the American Association for the Advancement of Science
Member of the International Astronautical Federation

First Printing 2022

ISSN 0730-3564

ISBN 978-0-87703-681-4 (Hard Cover Plus CD ROM)
ISBN 978-0-87703-682-1 (Digital Version)

Published for the American Astronautical Society
by Univelt, Incorporated, P.O. Box 28130, San Diego, California 92198
Web Site: <http://www.univelt.com>

Printed and Bound in the U.S.A.

Chapter 26

International Cooperation during the Space Race^{*}

Mai'a K. Davis Cross[†]

Abstract

While the story of the race to land humans on the Moon is often told from the perspective of US ingenuity, there was much more international cooperation in the lead up to this important milestone than is often recognized. From a political science perspective, such cooperation is highly unexpected. Mainstream theories of international relations tend to assume that the space race fits squarely into explanations based on the great power rivalry and competition that characterized the Cold War. And given that the Soviet Union and the US had many tense stand-offs, including the Cuban Missile Crisis, political scientists would assume that little to no scientific sharing occurred, especially scientific advancements that could add to military advantage. Indeed, this narrative of a world bent on power competition, and devoid of trust or shared norms, has permeated into the popular discourse about the space race, becoming common wisdom, and even impacting decisions that are made today about a potential space race 2.0. Drawing upon archival research at the JFK Presidential Library, NASA Headquarters, Boeing, and the European Space Agency, this chapter shows that there was much more to

^{*} Presented at the Fifty-Third Symposium of the International Academy of Astronautics, October 21–25, 2019, Washington, DC. Paper IAC-19-E4.3.08.

[†] Edward W. Brooke Professor of Political Science, Associate Professor of Political Science and International Affairs, Northeastern University, Boston, Massachusetts 02115, United States. E-mail: m.cross@northeastern.edu.

the space race than super-power competition. While competition certainly helped to spur on key innovations in spaceflight, the historical record also shows that the main countries involved were just as adamant about finding ways to cooperate. Focusing on the period from the International Geophysical Year (1957) to Apollo 11 (1969), this chapter lays out the evidence for cooperation during the space race and argues that the power of the original spaceflight idea—that space should be treated as a peaceful domain for the enrichment of all mankind—was a key reason why space became a distinctive arena for states to work towards international cooperation despite the heightened tensions of the Cold War. Moreover, these early years of human spaceflight set the tone for future forays into space. Indeed, despite the widespread political rhetoric about warfighting and the weaponization of space, the cooperative underpinnings of it continue to this day, from the operation of the international space station to the growth of new actors in space. As Stephen Hawking said in 2016,

We are entering a new space age and I hope this will create a new unity. Space exploration has already been a great unifier, we seem able to cooperate between nations in space in a way we can only envy on Earth.

I. Introduction

The lead-up to the Apollo Moon landing fifty years ago is commonly seen in hindsight as simply a relentless race to see whether the United States or the Soviet Union would be first in space exploration. The Moon landing was, of course, the ultimate prize. Because of this standard narrative, which was heavily perpetuated by Cold War historians writing about the time [1], many of the nuances of the more cooperative side to the space race have been neglected, especially in popular memory [2]. Rip Bulkeley points out this bias, arguing that most American space historians “have merely endorsed the patriotic version of events” [3]. In this chapter, I argue that international cooperation in the lead-up and during the space race was a significant part of the events of the time, and that without this recognition, it would be difficult to understand what happened after Apollo 11 in terms of human advancements in space exploration.

Drawing upon fresh archival research [4], this chapter sheds light on the cooperative underpinnings of the space race, focusing mainly on the period from the International Geophysical Year (IGY) in 1957 through to the Apollo 11 Moon landing in 1969. The IGY was instrumental in both generating interest in space and eventually setting the stage for what would become known as the space race. This chapter highlights the key moments, from the IGY, to the 1962 US-USSR agreements, to the joint Moon landing proposal, to the multilateral and

bilateral cooperation that occurred beyond the two superpowers. Of course, the *effort* to cooperate was often stronger than *actual* cooperation, but aspiration is always a necessary starting point for more to be achieved. International cooperation in space clearly began before the Moon landing, and subsequently set the stage for what became stunning cooperative achievements in the decades since, from Spacelab to Apollo-Soyuz to Shuttle-Mir to the International Space Station.

For those historians and political scientists aware of these efforts to cooperate during this period, it is oftentimes baffling how cooperation and competition could coexist in the way that it did. Was cooperation simply a thin veneer of propaganda covering what was just cut-throat competition? Were efforts at cooperation mainly strategic, i.e., to surreptitiously get more information and technology from the other side? Was cooperation mainly designed to save money and save face when concerns arose about making the deadline of landing a man on the Moon before the end of the decade? Or were the simultaneous pursuits of both cooperation and competition a sign of bureaucratic mismanagement—the left hand did not know what the right hand was doing?

Rather than strategy or bureaucratic mismanagement, I argue first that political leaders at the time genuinely sought to find ways to end the Cold War. The Cold War was a complex political time in human history, with many actors involved. There was no singular approach to the space race, especially from the two superpowers. However, space exploration clearly took on a special meaning, leading to the emergence of a kind of *space diplomacy* even alongside the more militarist competition of the Cold War. Indeed, President Kennedy and Premier Khrushchev allowed just enough room for this diplomacy to find areas where Cold War tensions could be thawed, and norms of cooperation could emerge. This space diplomacy was conducted by scientists and space agency representatives, and resulted in scientific exchanges, technology transfer, and joint satellite programs. It even eventually encompassed the realm of manned exploration. Secondly, I argue that it is significant that space, as opposed to other potential policy areas, was designated as this arena for cooperation. In this respect, I argue that it is necessary to consider the power of the original spaceflight idea, solidified in the 1920s—that space should be an arena for peaceful exploration for the betterment of all mankind.

This chapter proceeds as follows. In the next section, I briefly review some of the main international relations theories that seek to explain international cooperation and situate my own argument in this debate. Subsequently, the bulk of the chapter focuses on the nature of international cooperation during this period, focusing on the International Geophysical Year (IGY), the Dryden-Blagonravov agreement, the joint Moon landing proposal, and the Apollo program itself. I then

examine the political and societal impact of the Apollo 11 mission and conclude with how lasting misperceptions about its nature feed into a dangerous narrative about space race 2.0 today.

II. Cooperation and Competition

The notion of international cooperation as being a fundamental part of the space race is surprising to most everyday observers. Rip Bulkeley writes that the, “disinformation or misapprehensions of ... early space writers’ is significant, and clearly perpetuated the commonly held belief that Soviet accomplishments were a complete surprise to Americans” [5]. Rarely mentioned in International Relations (IR) scholarship about the Cold War is the fact that, for example, as early as 1958, a US-Soviet joint Moon landing was a US bipartisan policy [6], or that as late as 1962, 47 percent of Americans supported cooperation with the Soviets on outer space exploration [7]. Indeed, efforts at international cooperation, especially between the two superpowers flies in the face of mainstream IR approaches.

IR realists do not consider true, long-term international cooperation possible as they assume that states seek to maximize their relative material power, especially when a security dilemma is present [8]. Robert Jervis identifies a security dilemma as a situation in which, “in the absence of a supranational authority that can enforce binding agreements, many of the steps pursued by states to bolster their security have the effect—often unintended and unforeseen—of making other states less secure” [9]. This means that even if states do not necessarily want to end up in a situation close to war, they feel the need to err on the side of caution, and plan for the worst-case scenario. Such behavior then leads towards a build-up of arms and eventually a self-fulfilling prophecy in which, “as each state seeks to be able to protect itself, it is likely to gain the ability to menace others” [10]. Besides WWI and WWII, the Cold War is the classic example that realists draw upon to support their theoretical assumptions of an international system of anarchy, calculations of relative power, and competition.

Even amongst the IR theories that do take the possibility of sustained cooperation seriously, there are multiple, competing explanations. Rationalist accounts of international cooperation often rely on game theory, and like realists assume that there is no trust in the international system. Therefore, to cooperate states must rely on tit-for-tat strategies that are based largely on calculations of economic gain that eventually create a longer “shadow of the future” (versus just short-term considerations) [11].

Taking the possibility of trust more seriously, theories of liberalism, by contrast, are often invoked to explain the longevity of cooperation in space ex-

ploration through a regime-oriented approach, i.e., the creation of international institutions and/or agreed-upon rules and decision-making procedures [12]. However, cooperation in space efforts would be a relatively weak example of this as it did not emerge out of a formal regime. The overall weaknesses of the United Nations in enhancing the international rules surrounding space also undermines a regime-governed explanation of cooperation [13]. Indeed, nonstate actors have oftentimes been more important in establishing informal rules and norms in the engagement with space [14]. Constructivist accounts of space cooperation have been valuable in pointing to the role of experts, scientists, epistemic communities, and other nonstate actors in encouraging cooperation in space, but these studies have been few and far between [15]. They tend also to not problematize why space specifically became a policy venue for cooperation.

Cooperation and competition can be understood as competing forces, but they can also be understood as inter-related. In terms of the former, nonstate actors, especially scientists and members of the spaceflight movement, have pushed primarily for cooperation, defining space exploration as a fundamentally human endeavor. By contrast, governments and militaries have tended to paint advancements into space as a competition among states. Much of the historical analysis tends to focus on this, and at times, too cynically attributes any effort at cooperation as just a foil for winning the competition. At certain key junctures, such as during the 1960s space race, competition and cooperation have existed side-by-side even at the governmental level, and they have often been driven by a genuine desire to work together. While it is clear that cooperation and competition can coexist, we still need to understand why space *in particular* emerged as an arena for cooperation. Other policy areas might have arguably been easier, and perhaps less tinged with associations to intercontinental ballistic missiles, nuclear weapons, and other military-defense applications.

Moreover, there is the question of timing. The late 1950s and 1960s—the period of the space race—was arguably the most challenging time for cooperation in space to take place. This was the period in which a fledgling cooperative regime was only starting to form, and it was simultaneous with the height of the Cold War, a period in which regular Americans prepared for a nuclear attack. There were multiple points at which the two superpowers came close to the brink of war.

I argue that it was not just happenstance that space was chosen as a means to work together despite the tensions of the Cold War. The *spaceflight idea* itself, as a fundamentally human and peaceful endeavor, had long held sway with many nonstate actors who sought to keep it free from nationalist rivalry. As discussed below, the origins of this idea can be found in the 1920s when space exploration

captured people's imaginations, forming a transnational spaceflight movement. This movement took on traction for a variety of reasons, including (1) a fundamental desire to cooperate which stems from human evolution itself and our social nature as a species [16], (2) the appeal of a common challenge, (3) the drive to explore and discover, and (4) the so-called overview effect, which comes from seeing Earth from space [17].

The next section sheds light on just how important international cooperation became during the space race, especially between the US and Soviet Union, and highlights the underlying thread of the spaceflight idea as a motivating factor.

III. From Scientific Sharing to the Moon Landing

Space enthusiasts have long thought of the discovery of space as a common, human endeavor, not a nationalistic one. In the interwar period, amateur spaceflight organizations or rocket societies emerged all over the world and consolidated into what became a diverse spaceflight movement [18]. Of course, spaceflight was not yet possible in the 1920s and 1930s, but regular people were inspired by the idea of developing the human capacity to travel to and eventually settle on other planets. Science fiction stories like those of Jules Verne and H.G. Wells had popularized the idea, and regular people had developed a widespread fascination with what the future would bring. As Stroikos argues, it "was largely a social and cultural phenomenon evinced in a wide range of activities, including books, pamphlets, films, experimental research, and exhibitions" [19].

As key scientists and rocket engineers, such as Konstantin Tsiolkovsky, Robert Hutchings Goddard, and Hermann Oberth, had successes with their experiments, more space societies emerged and became devoted to their belief that the spaceflight movement must be both transnational and international, and serve as a lynchpin in human history, a shared spirit of discovery, peaceful cooperation, the advancement of humankind. While WWII certainly interrupted this movement, it re-emerged after the war stronger than ever. On September 30, 1950, the first meeting of the International Astronautical Congress took place in Paris, with around forty delegates from ten countries. Together they founded the International Astronautical Federation, bringing together fourteen rocket societies. The impetus behind the spaceflight movement helped pave the way for space being a major part of what would become the International Geophysical Year (IGY). The IGY represented an enormous flourishing of international scientific sharing, including establishing the goal of putting the first satellite into orbit. In other words, Sputnik fundamentally emerged out of a desire to achieve international

sharing and cooperation—the culmination of the goals of the early rocket societies.

III.1. The International Geophysical Year (IGY)

Planning for the IGY, although initially an American idea, was led by the International Council of Scientific Unions. Discussions began early and as the momentum spread, participation quickly grew from twenty-six to sixty-seven countries, comprising around 60,000 scientists. The Soviet Union took notice when in October 1954 it became clear that the IGY would include plans to launch the first human-made satellites into orbit, prompting the country to come on board in 1955. Even though both the United States and Soviet Union already had fledgling satellite programs at the national level [20], the IGY clearly transformed the satellite goal into a peaceful, international endeavor for the benefit of shared scientific discovery.

The IGY is often described as “the largest and most complex international scientific undertaking ever attempted,” and praised for its contributions “in overcoming ideological differences as a means of building bridges between science and diplomacy” [21]. As Bulkeley argues, the conspiracy theory that the US supported the IGY as a foil for launching American satellites under the guise of scientific inquiry “must be rejected” [22]. The US government very clearly kept the IGY satellite program separate from its military program, and Soviet policymakers took the IGY very seriously. Indeed, while the United States is seen as spearheading the imitative, Russians treated the IGY as its highest priority in terms of money, resources, and personnel [23]. The Soviet Union became so integrated into IGY endeavors that it was a chief contributor in nearly all areas, including providing fifteen of the forty-eight ships for the oceanography section [24].

Of course, once states completed the overarching plans for the IGY, it was really the nonstate actors—scientists and regular members of the public (teachers, students, volunteers)—who brought the IGY to life. Thousands of individuals formed transnational networks, spanning across countries whose governments were on opposite sides of the Cold War, and making borders irrelevant to the scientific goals that they all shared [25]. They abided by the IGY’s core stipulation that there would be “free movement of data,” available to all [26]. Beyond the thousands of scientific stations populated with international teams of scientists all over the world, three World Data Centers were established to compile all the discoveries in one place.

When the IGY was over, the number of advancements and discoveries that had occurred because of such widespread scientific cooperation are too numerous to count. It made its mark in everything from atoms to human health to earth sci-

ences to Antarctica to space. It has been described as “the single most significant peaceful activity of mankind since the Renaissance and the Copernican Revolution” [27]. While the effort was clearly highly cooperative, the context of the Cold War and the recent advent of nuclear weapons was certainly part of that context. Governments saw the military implications in much of this even while civilian groups of scientists did not see it that way.

The IGY is not an event often mentioned in connection to the space race, certainly not among IR scholars, but without acknowledging its role as a key catalyst for widespread international scientific cooperation, one cannot put Sputnik into context. And without knowing about the IGY, the nature of the space race itself cannot truly be understood.

III.2. Sputnik and the Emergence of the Space Race

Sputnik began its orbit around the Earth on October 4, 1957. However, there are three major misconceptions about this milestone that have detracted from an understanding of the cooperative context leading up to its launch. First, it is assumed that Sputnik came out of nowhere, with little warning. Second, the story of Sputnik is nearly always recounted as an event that instantly invoked fear in the people. Third, Sputnik is painted as a purely nationalistic achievement, which had no cooperative dimension to it [28].

Addressing each in turn, it must first be noted that the Sputnik launch occurred *during* the IGY, meaning that the goal itself was formally a collective, international endeavor and some of the science needed to achieve it was being widely shared across countries. When the announcement was made, many scientists were surprised about the precise timing, but not about the actual achievement [29]. Second, the initial reaction to Sputnik was positive. As Roger Launius, former chief historian for NASA, writes,

Most Americans seemed to recognize that the satellite did not pose a threat to the United States and instead congratulations ensued and many people seemed excited by the Soviet success ... a generation of Americans embraced the dawn of the Space Age as a symbol of progress and a better future both on Earth and beyond [30].

Many surveys asked regular Americans what they thought of space exploration after Sputnik, and all the surveys showed the same thing: there was little immediate concern over the Soviet achievement [31]. Third, contrary to the story of alarm and fear, a ratcheting up of Cold War rhetoric, the US and USSR were already talking about the next steps in cooperation at exactly the same time as Sputnik.

It goes without saying that the IGY occurred during a very intense time in international relations. Debunking common misperceptions about Sputnik is not intended to deny this. The US presidential debates focused heavily on the Soviet threat both in terms of a nuclear attack and in terms of a space race. There was a clear assumption that as John F. Kennedy put it in the debates, “If the Soviets control space they can control earth” [32]. And once Kennedy took office the crises came one after the other from the U2 plane crash in Soviet territory to the crisis over the Berlin Wall to the Bay of Pigs. However, the reaction to Sputnik was caricatured at the time and continues to be. Those opposed to the Eisenhower administration and the media in general constructed a sense of panic surrounding the Sputnik launch that was not initially there, seeking to turn Sputnik into a much larger problem. Representative of the exaggerated tone that began to permeate newspapers at the time, Chalmers Roberts wrote about the impact of Sputnik in the *Washington Post* on October 20, 1957:

The United States could no longer proclaim the supremacy of its industrial machine or of the capitalist free system of economics—could no longer proclaim it, that is, without the most serious doubts and challenges from many men in many lands [33].

Thus, as politics kicked in, the media and some politicians tried to associate Sputnik with an overarching failure of the US in general. Years later Eisenhower expressed surprise at how “psychologically vulnerable” the American people were, given how readily they connected one achievement to everything else [34]. This alarmist narrative surrounding Sputnik was successfully constructed and shifted popular opinion over time. Despite this outward panic, an important shift took place and cooperation on space intensified.

What was this shift? During the IGY, states had already initiated discussions at the UN on how to cooperate on space, but only in the context of disarmament. From late 1958 to late 1961, however, efforts turned towards more positive approaches to cooperation, specifically in terms of the peaceful use of outer space [35]. The United States made a proposal at the UN in 1958 that “the peaceful use of outer space be separated from disarmament.” [36]. Of course, this was in close alignment with the 1958 National Aeronautics and Space Act, which included among other things US cooperation with other countries in its space programs, and with the International Committee for Space Research (COSPAR) established in November 1958.

The international sharing and collaboration that occurred in so many areas of science during the IGY thus had a lasting impact. American officials, in particular, took seriously the idea that “openness and cooperation go together” [37]. In 1959, a permanent committee in the UN was created for this, and NASA began to build a network of bilateral cooperative arrangements with other countries

as well as multilateral cooperation involving American experimental communications and meteorological satellites [38]. This included cooperation with the Soviet Union. In 1959, the United States offered its own satellite services to the Soviet Union. In a letter to the Academy of Sciences of the Soviet Union the specific offer was

to extend the services of the U.S. satellite tracking network to the scientists of the Soviet Union in the event that the USSR should at some time in the future desire to utilize them in connection with a manned space flight program [39].

The Soviet Academy of Sciences promptly accepted the offer [40]. The same was true for several other countries, who rapidly set up space programs to take advantage of new opportunities for cooperation.

During Kennedy's presidential campaign, even while he was overtly cultivating panic over Sputnik as a means to drum up political support, a proposal was prepared within his camp that included among other things the establishment of an Institute for International Cooperation in Space Research, which would involve "the exchange of scientists and space data ... with other nations," and that, "as far as possible all scientific data should be unclassified and freely available to the scientific community" [41]. While the specific institute itself was never established, the spirit behind it was vigorously pursued once Kennedy took office, and NASA for its part established an Office of International Programs. In 1961, the UN Outer Space Committee was launched. That same year, scientists from ten countries, including the Soviet Union, met in Vermont for four days to discuss international space cooperation, and came up with a viable program involving the creation of a shared global system of weather and communication satellites, data exchange on space biology, and a common program of lunar and planetary space exploration [42]. Also, in 1961, the idea of launching a joint space station and a joint Moon landing was being seriously discussed in the United States.

Thus, the cooperative initiative spearheaded during the IGY had momentum and staying power when it came to space. Even though it continued to be a challenging area in which to overcome the barriers of the Cold War, the actors involved remained committed to it. Frequently invoked in letters, documents, and agendas at the time was the original spaceflight idea: nations should vigorously pursue cooperation in space because it was an inherently peaceful domain with scientific potential to benefit all of mankind.

III.3. The Dryden-Blagonravov Agreement

A few short years after the IGY, the US-USSR bilateral relations involving space discussions on ways to engage in cooperation became noticeably more specific and technical. In 1962, McGeorge Bundy, Kennedy's National Security

Advisor, wrote to NASA Administrator James Webb just after signing a National Security Action memo on cooperation with the Soviets emphasizing that, “there is a real political advantage for us if we can make it clear that we are forthcoming and energetic in plans in peaceful cooperation with the Soviets in this sphere. It is even conceivable that progress on this front would have an automatic dampening effect on the Berlin crisis” [43]. The Soviets had suggested cooperation in space on many occasions, even sharing their medical research on cosmonauts Titov and Gagarin [44], and the National Security Action memo itself made it clear that Kennedy wanted to go full speed ahead on cooperation. In this memo, Kennedy asked for the Department of State to “to prepare new and concrete proposals for immediate projects of common action” [45]. And in his message to Khrushchev, Kennedy hoped that, “at a very early date representatives of our two space teams may meet to discuss our ideas and yours in a spirit of practical cooperation” [46].

Under Secretary George McGhee was put in charge of this, and the State Department immediately responded with a list of proposals, including launching a satellite together to provide meteorological services to all countries, sharing tracking equipment, a project on mapping the earth’s magnetic field, communications satellites, and in terms of human spaceflight—pooling work in areas of space medicine, and planning on how to work together on exploration of the lunar surface and Mars or Venus. It was stated clearly that like during the IGY, “All data would be made freely available” [47]. The next day, Kennedy sent these proposals to Khrushchev who responded quickly on March 20, 1962, with a desire to move forward:

It seems to me, Mr. President, that the necessity is now generally recognized for further practical steps in the noble cause of developing international cooperation in space research for peaceful purposes. Your message shows that the direction of your thoughts does not differ in essence from what we conceive to be practical measures in the field of such cooperation [48].

Khrushchev particularly echoed strong support to move forward with cooperation in weather and communication satellites, the work on mapping earth’s magnetic field, and cooperation in space medicine. In terms of space exploration, Khrushchev was open to it pending progress on a disarmament agreement, which would prohibit the weaponization of space [49]. He also put forward additional proposals on the rescue of spaceships and some dimensions of space law to protect astronauts, cosmonauts, and equipment, should there be an accident in space.

That same month, March 1962, informal talks were held at the UN in New York between American and Soviet representatives—led by Hugh Dryden on the US side and Anatoli Blagonravov the Russian side—on some of the details of these proposals, during which there was agreement on the value of and willing-

ness to cooperate [50]. They drew special attention to the fact that if both countries agreed that space would not be militarized, cooperation would become much easier. In a confidential summary of the talks, a NASA representative described the talks as, “very relaxed in character, with an almost total absence of cold war atmosphere” [51].

A major outcome of the meeting was that cooperation would proceed step-by-step rather than with a full program worked out from the start. As the Soviets put it,

The Academy of Sciences of the USSR expresses the hope that the agreement on cooperation in peaceful exploration and use of outer space will provide a good beginning for the further development and expansion of cooperation between Soviet and American scientists in this noble task for the sake of scientific progress and strengthening of peace on Earth [52].

It is *not* the case, as some have argued, that during this period the Russians were dragging their feet and the initiative was all on the American side. Instead the spaceflight idea was invoked time and time again. For example, a Russian cable, dated April 5, 1962, states:

... all the data of our space research we publish in detail because we adhere to the principle that our achievements in space are the achievements of all of humanity, not simply of the Soviet people. We publish the wavelengths on which the spaceships broadcast or transmit their orbits, and other information too. But what is more important, I think, is the fact that we in the Soviet Union want very much to cooperate with the United States in space research [53].

Despite the tense context of the Cuban Missile Crisis, in May-June 1962, space diplomacy became more formalized with a second round of talks in Geneva during the meetings of the UN Outer Space Committee. Agreement was reached on three of the cooperative projects: weather data sharing and launching of meteorological satellites, magnetic field mapping of Earth, and experimental communication using the Echo satellite and possible launching of future communications satellites [54]. After more technical details were worked out, they reached the first formal agreement (known as the Dryden-Blagonravov agreement) on June 8, 1962, including how to work together with other countries beyond the United States and Soviet Union. The two superpowers informed the UN Secretary General of their agreements in December 1962. In a somewhat subdued tone, given the recent Cuban Missile Crisis, NASA Administrator Webb’s formal response was:

This is an important step toward cooperation among nations of the world to increase man’s knowledge and use of his special environment. The careful preparation for such a joint cooperative effort made by Academician A. A. Blagonravov and Dr. Hugh L. Dryden is a sound basis on which to proceed. The United States will make every effort to facilitate this undertaking [55].

And the Soviet news agency wrote: “There is no doubt that this agreement will make a great contribution to the conquest of the universe and to the further advance of international cooperation between scientists” [56]. The two countries formed joint working groups so that they could begin implementation of the Dryden-Blagonravov agreement in January 1963 [57].

III.4. The Spaceflight Idea Strengthens

Communication between NASA and the Soviet Academy commenced regularly, in what became informally known as the “NASA-Soviet Academy channel” [58]. The cooperation that ensued, while not always meeting all the deadlines, was nonetheless meaningful. As NASA Administrator James Webb put it, “In order to achieve real gains, we should push for substantive rather than token cooperation,” echoing Kennedy’s speech to the UN that “we should not put forward proposals merely for propaganda purposes” [59]. The scientific community was especially enthusiastic about these prospects both for research and political reasons. After all, their predecessors had been pushing for the spaceflight idea since the 1920s, and they were pleased to see it gain traction. For example, Eugene Rabinowitch published an editorial in the *Bulletin of the Atomic Scientists* to that effect:

In the last two years, cooperation in space has been the one field in which positive agreement has been achieved between the Soviet Union and the United States. In facing cosmic space, the quarrels and struggles between different factions of humanity appear petty and irrelevant... If space exploration could help bring together the two alienated parts of humanity and reduce, even slightly the danger of all-destroying nuclear war, that alone would make worthwhile investing in it many billions of dollars [60].

Summarizing the climate after two early meetings on space at the UN, a telegram from Geneva to the Secretary of State in Washington, DC, was clear about this in 1962. It stated that:

It was now generally realized that international cooperation in the exploration and utilization of outer space would benefit all the nations of the world, irrespective of their size, political structure or industrial potential...one goal would undoubtedly be achieved: the nations of the world would come closer together and understand more clearly that they were members of one family—mankind [61].

Similarly, On June 18, 1963 a secret paper, addressed to McGeorge Bundy, Special Assistant to the President for National Security Affairs, and written by the US Department of State’s Policy Planning Council, was discussed in a special planning group on the “Implications of Outer Space in the 1970s.” [62]. This comprehensive paper again invoked the spaceflight idea, concluding that:

The nature of outer space activities themselves, and of the international context in which they develop, will necessarily lead to increased international interdependence in this field. International cooperation in space and space-related activities should be sought from the points of view both of the foreign support which the US program will need, and of the foreign policy objectives which can be served [63].

III.5. US-USSR Joint Moon Landing

Although cooperation and communication had progressed, it was still limited to developing unmanned space technology. Thus, by September 1963, Kennedy started to push for more cooperation in space between the United States and the Soviet Union, particularly in terms of programs related to the Moon landing [64]. This reached a high point when he delivered a speech at the United Nations on September 20, 1963, inviting the Russians to work with the United States on a joint Moon landing:

Surely we should explore whether the scientists and astronauts of our two countries—indeed of all the world—cannot work together in the conquest of space, sending some day in this decade to the moon, not the representatives of a single nation, but the representatives of all of our countries [65].

While there was general enthusiasm at the UN over this proposal [66], there is also some debate over what motivated this seemingly incongruous action. After all, the entire thrust of the space program had been for the United States to be first. A RAND report at the time dismisses as primary motivations the pressure Kennedy might have been feeling to achieve the goal before the end of the decade or overcome new budgeting constraints from Congress [67]. Instead, it seemed most likely that he genuinely wanted to pave the way for improvement in the relationship between the United States and the Soviet Union.

In terms of international cooperation, human spaceflight was really the key omission in the various dimensions of space cooperation that had already been launched. Responding to Kennedy's call for a joint Moon landing, NASA put forward new, more ambitious proposals that yet still recognized the need for a piecemeal approach to cooperation. NASA proposed a range of projects involving unmanned dimensions of spaceflight that would support the manned landing, among other things. This involved a proposal first to share detailed data related to previous human spaceflights, which would eventually lead to sharing broadscale information about the two countries' respective ongoing programs in human spaceflight. Ideally, this would then also pave the way for cooperation, avoiding duplication of efforts, on a joint Moon landing. The possibility of Russian scientists providing the booster, while Americans provided the spacecraft was widely discussed within the US government.

While the overarching competition with the Soviet Union over space, and security implications of a joint Moon landing were also regularly noted in the behind-the-scenes discussions, there was also much uncertainty surrounding this. There was an expressed feeling that the Russians were possibly not even “racing” with the US to get to the Moon at all. A secret national security planning paper stated explicitly that,

It should be acknowledged that the USSR has not, so far as we know, committed itself to a race for a manned lunar landing, and may not in fact have set other space goals. In the impression of most people, however, there is a “race,” even if it is unacknowledged by the Soviets [68].

Indeed, on October 26, 1963, Khrushchev made a statement stipulating clearly that the Soviet Union had no intention of participating in a “race to the Moon,” did not have a program to do so, and did not wish to embark upon a plan to achieve this. Kennedy administration officials believed this to be a sincere and truthful statement [69]. As stated in a Department of State memo:

We do not consider Khrushchev’s statement to be play or deception. We believe it to be an authoritative statement of the present Soviet position...With respect to the prospect of cooperation with the Soviets in the space projects, our policy remains as restated by the President at the current session of the UN General Assembly. We are prepared to consider and possibilities for meaningful and workable cooperation with the Soviets in manned as well as unmanned space flight [70].

Also, in reaction to Khrushchev, Joseph B. Weisner, the Chair of the Science Advisory Committee in the Kennedy administration wrote to the president that they the joint Moon landing proposal was now even more within reach

in a way that will not only be in accord with U.S. objectives for peaceful cooperation if accepted by the USSR, but will also decisively dispel the doubts that have existed in the Congress and the press about the sincerity and feasibility of the proposal itself [71].

He went on to propose a division of labor in which the United States would do the mechanics of the Moon landing itself and the Soviet Union would provide unmanned and logistical support. He wrote, “I believe such a program would utilize the combined resources of US and USSR in a technically practical manner, and might, in view of Premier Khrushchev’s statement be politically attractive to him” [72].

Khrushchev accepted the idea of a joint Moon landing in principle [73], and the leaders of the two space agencies signed an agreement to that effect. However, there continued to be a bit of ambiguity on what this entailed. An internal US State Department intelligence memo indicated that, “He appears to regard the President’s suggestion as a vague one, to which he can appropriately

respond in vaguely approving terms without undertaking negotiations or obligations” [74].

After Kennedy’s assassination, President Johnson continued the efforts of strong cooperation, even repeating the joint Moon landing proposal [75]. This admittedly ambitious proposal was ultimately too much for either side to embrace. As John Glenn put it, “Some misinterpretation of the President’s intent with regard to space cooperation resulted in considerable criticism, with the House of Representatives voting to prohibit funds for joint ventures with the Russians” [76]. The Russian response to the proposal for a joint lunar landing was “that it had been so general and vague that the Russians had nothing to go on” [77].

I would argue that it is often the case that the power of possibility and idealistic aspiration paves the way for other goals, even if they fall short of the original. This bold call for a joint Moon landing, made other forms of cooperation that came into being in the 1970s—such as Apollo-Soyuz—and beyond much more within reach as just the thought of what could be possible had been percolating in the minds of scientists, engineers, and government officials for some time. Indeed, the joint Moon landing proposal led to even broader discussions about cooperation in exploring the universe, especially sharing equipment and research on the lunar surface, and working together to go to Mars and Venus [78]. The initiative is strong evidence of just how seriously the two countries took efforts to cooperate in space, even if it ultimately encountered obstacles.

The joint Moon landing notwithstanding, through 1964 and 1965, various cooperative plans began to bear fruit, such as the Echo satellite. Naturally, some results fell short of the initial goals. But in 1965, things picked up again. American and Soviet officials agreed to engage in joint research on space biology and medicine which resulted in a series of book publications. Significantly, 1965 also marks the year that the Soviet government made international cooperation space an official policy. Of course, the IGY and subsequent efforts through the UN and bilaterally with the United States demonstrate that Soviet willingness to cooperation had certainly pre-dated this. Now, they started to institutionalize this effort. In May 1966, the Soviet Union formed the Council for the International Cooperation in Research and Use of Outer Space (later known as Intercosmos) under the Academy of Sciences. Along with this, numerous bilateral cooperative agreements with other countries besides the United States—France, Sweden, Austria, among others—took off. The United States too supported the development of space programs in multiple countries and helped to launch their satellites into orbit.

III.6. Beyond US-Soviet Cooperation

While the most significant breakthroughs in international cooperation, in light of the Cold War context, clearly occurred between the United States and the Soviet Union, there were continual and robust efforts to bring in participation from third countries. Not only did behind-the-scene discussion in the 1960s repeatedly mention this goal, in public speeches various American political players reiterated this. For example, Senator Clinton Anderson said on January 15, 1963, “We can give validity to this nation’s policy to internationalize space by asserting that the United States will accept offers of support from any nation which can contribute to the space program” [79]. As already mentioned, the 1958 National Aeronautics and Space Act had opened the stage for NASA to cooperate with other countries. Those countries were responsible for the funding of their contributions, and these cooperative projects had to result in open dissemination of all data to the international community [80].

By June 1962, there were three types of cooperative programs: (1) US launches of foreign payloads for the purposes of scientific experimentation, (2) research that involved both ground and space coordination, and (3) scientist exchanges for training [81]. The number of countries involved increased from there, and in all, around fifty-five countries were involved in these programs. The urgency of cooperating on a truly multinational level was also strong on the part of the Russians. Khrushchev wrote to Kennedy that:

all peoples and all mankind are interested in achieving the object of exploration and peaceful use of outer space, and that the enormous scale of this task, as well as the enormous difficulties which must be overcome, urgently demand broad unification of the scientific, technical, and material capabilities and resources of nations...the greater the number of countries making their contribution to this truly complicated endeavor, which involves great expense, the more swiftly will the conquest of space in the interests of all humanity proceed. And this means that equal opportunities should be made available for all countries to participate in international cooperation in this field [82].

The European Space Research Organization (ESRO) and European Launcher Development Organization (ELDO) were particularly interested in cooperation with the United States, and the latter actively encouraged those European countries involved to use US launchers to put their payloads into orbit for the sake of science [83]. Many European scientists and engineers were welcomed in the US where there was mutual sharing of new knowledge about launches and satellites. The Europeans returned home where this new space technology was shared further. The Americans for their part were open to technology transfer and signed a series of MOUs with ESRO to facilitate cooperation [84].

Through all this discussion at the state level, international institutions were part of this backdrop. At the United Nations, in 1958 first a temporary and then a permanent committee was established, known as the UN Committee on the Peaceful Uses of Outer Space or COPUOS. It had two subcommittees designed to oversee international cooperation in space [86]. Subsequently, the UN formalized many aspects of international cooperation in space [86]. Most prominent are the 1963 UN Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space and the 1967 UN Outer Space Treaty, both codified the spaceflight idea [87]. And by 1966, the International Astronautical Federation which had first brought all the rocket societies together in 1950 had grown, representing thirty-two countries and fifty rocket societies [88]. The spaceflight movement was no longer comprised mainly of amateur enthusiasts, as in the 1920s, and was taken much more seriously than before. A culture of sharing space science across borders had solidified at the nonstate level, helping to amplify the spaceflight idea, and strengthening space diplomacy.

In 1968, specifics on the creation of an orbital space station after the Apollo Moon landing was under serious discussion at NASA. There was a strong understanding of the need to conduct experiments in space to assess the human capacity to be in space on longer missions. Detailed proposals were drafted outlining the necessity and benefit of having a permanent presence in orbit [89]. By 1969, *international* cooperation on the space station came into the picture. The concern was that in order to get it approved, it would have to be a “demilitarized” project and contribute to State Department goals of internationalizing space, rather than under theegis of the Defense Department, which did not find the space station to be a high priority [90]. After the Moon landing, in November 1969, NASA Administrator T. O. Paine sent a letter to the president after a three-day trip to Germany, France, and the United Kingdom as well as a conference in Washington, DC, with forty-three representatives from Europe that there was strong interest in international cooperation on the space shuttle and space station programs. Paine also noted that he would be going to Canada, Australia, and Japan to extend similar offers of international participation [91].

III.7. The Moon Landing

The Moon landing itself on July 20, 1969, although often portrayed as purely American, was performed with an international mindset on many levels. In terms of symbolism, the plaque commemorating the event which still sits on the Moon reads, “Here men from the planet Earth first set foot upon the Moon, July 1969, A.D. We came in peace for all mankind” [92], along with messages

from seventy-three heads of state, an Apollo 1 mission patch, and medals from two Russia cosmonauts.

On a scientific level, the first video images of the first Moon walk were picked up by Australian antennae. The first of six experiments that Armstrong and Aldrin performed on the surface was funded and provided by the Swiss—a solar wind experiment that actually had to be launched even before they planted the US flag on the surface [93]. In addition, hundreds of pounds of Moon rocks were brought back to Earth and distributed all over the world for scientific knowledge.

On a psychological level too, the Moon landing automatically inspired a sense of common humanity. Command Module pilot Michael Collins described the astronauts' experience on their subsequent world tour: "Wherever we went people instead of saying 'well, you Americans did it,' everywhere they said, 'We did it. We, humankind, we, the human race, we people did it'" [94]. In more ways than one, the Apollo 11 landing was just as important in terms of looking back at Earth and realizing that we are all one civilization—the overview effect [95].

III.8. Competition Over Cooperation

In analyzing the trajectory from the IGY to the Moon landing, international cooperation underpinned competition in diverse and important ways. At the same time, the spaceflight idea was front and center in the minds of the key players. Interestingly, the idea was at times so strongly held that there was even a sense of competition over cooperation itself. Russian and American leaders jockeyed to see who could be stronger or leading the way in terms of international cooperation. Perhaps to the annoyance of some in the Kennedy administration, Khrushchev tended to take credit for originating the idea of US-Soviet cooperation in space. For example, in a letter to Kennedy in March 1962, Khrushchev wrote that,

As far back as the beginning of 1958 the Soviet Government proposed the conclusion of a broad international agreement on cooperation in the field of the study and peaceful use of outer space and took initiative in raising this question for examination by the United Nations. In 1961, immediately after the first space flight by man had been achieved in the Soviet Union, we reaffirmed our readiness to cooperate and unite our efforts with those of other countries, and most of all with your country...The Soviet Government considers and has always considered the successes of our country in the field of space exploration as achievements not only of the Soviet people but of all mankind [96].

At the same time, American officials also wanted to be seen as the first to initiate cooperation. They sometimes even expressed it behind-the-scenes in strategic terms: “It would be better if we made the offer first. If we made such an offer and it were rejected, and we then won the race, we would gain doubly” [97]. So, some of the competitive drive with the Soviet Union, ironically, was over who would be the better *cooperator*. This was of course alongside other motivations that sincerely aimed to reduce the tensions of the Cold War and instead to “open up possible routes of communication, association, and groundwork areas of cooperation which could eventually bear on world peace” [98].

Efforts at cooperation also inadvertently opened new areas of competition, and there was a sense that cooperation itself might improve the chances of out-competing the other. An example, of this seemingly contradictory logic is the 1958 “Preliminary US Policy on Outer Space.” This policy stipulated that the United States should be open about providing information on its space programs specifically because it believed that the Soviet Union was in the lead [99]. As Ezell and Ezell put it, “On the one hand, Kennedy genuinely wanted to cooperate in this arena with the Soviets; on the other hand, military and technical superiority had to remain with the United States” [100].

IV. Conclusion

Despite the Cold War, and the numerous points at which the Soviet Union and the US were at the brink of actual war, the superpowers treated space as a categorically different domain of activity. This chapter has shown how cooperation was a serious aim, with space diplomacy persisting even during some of the toughest moments of the Cold War. Indeed, John Krige argues that, “Since 1960 NASA has embarked on something like four thousand international projects. It is extraordinary that so few people realize this or understand its place in the panorama of NASA’s, and the US government’s activities” [101]. The same could be said of the Soviet Union, with Russian scientists continually engaged with their counterparts from other countries, and more often than not aiming for common goals in space. Other countries around the world formed fledgling space programs oftentimes specifically to engage in cooperation in space initiatives.

To be sure, competition during the space race was certainly present, but the main actors involved kept returning to the original spaceflight idea—that space should be a peaceful domain for all of mankind. At the end of the day, it was a productive kind of competition. The space race was helpful in that it reflected and encouraged increased public interest in space, it justified unprecedented levels of government spending on space, and it created a kind of sportsmanship vis-

à-vis space achievements. The various advancements in space technology were achieved in record time.

The Moon landing itself had an important impact in terms of politics, culture, and society. The period from 1957 to 1969 can be understood as encompassing the height of the Cold War when tensions ran highest. As such, it is a hard test for the emergence and implementation of international cooperation, especially between the United States and Soviet Union. After the Moon landing, these early efforts and aspirations paid off further with cooperation accelerating through the 1970s. Some of the biggest projects included, Spacelab launched in 1973, a reusable space transportation system that represented a joint US-European project was launched [102]. Two years later, the joint US-Soviet Apollo-Soyuz Mission achieved the capacity for space rescues through a compatible docking system. It paved the way for the Shuttle-Mir mission, which was so collaborative that many declared that there was an actual *détente* in space. And in May 1977, formal discussions for the International Space Station itself began [103], although the idea was floated much earlier, with an “eyes only” memo circulated in June 1974 [104]. Once the Soviet Union began to fall apart, international cooperation intensified further, and the first stage of the ISS began in 1998.

Thus, space diplomacy and its ability to enable cooperative achievements in science has been ahead of politics in terms of fulfilling the goals of peace and global governance. In terms of culture and society, the Apollo program and the Moon landing inspired generations of people to embrace the power of possibility and pursue careers in science. The psychological impact of seeing humans in outer space cannot be discounted. Even as it became far easier to send robots or probes into space, since the Moon-landing images spread across the globe, society has valued *human* exploration. In 1986, for example, just after the space shuttle disaster, 80 percent of Americans polled still thought that the space program should be manned. And in 1988, 49 percent (versus just 15 percent opposed) thought that astronauts and cosmonauts should land on Mars together [105].

Today, there is a tendency to caricature the space race as an integral component of military competition. In many ways, this can be attributed to the international relations scholars who have tried to fit this sequence of events into a mainstream, theoretical mold after the fact. It might be easy to dismiss these misperceptions as part of an ivory tower debate, but I would argue that they have also had a real impact on the policy world creating the danger of a self-fulfilling prophecy. IR specialists are often called upon in the media and advisory councils to explain events and offer solutions. With the current plans to create a US Space Force as a sixth branch of the military, and the new proposals to create militarized space forces in other countries, there is cause for grave concern. While we

know that militaries around the world have long been using satellites to support their operations, space is still not weaponized. In order to preserve it as a peaceful domain for human exploration, it is important to understand the efforts at international cooperation, even against all odds, during the space race, and why actors have for so long held cherished the spaceflight idea.

References and Notes

- [1] For example, see Walter McDougall, *The Heavens and the Earth: A Political History of the Space Age*, (New York: Basic Books, 1985).
- [2] John Krige, Angelina Callahan, and Ashok Maharaj, *NASA in the World: Fifty Years of International Collaboration in Space*, New York: Palgrave, 2013; Mai'a K. Davis Cross, "The Social Construction of the Space Race: Then and Now," November 2019. *International Affairs* 95(6).
- [3] Rip Bulkeley, *The Sputniks Crisis and Early United States Space Policy*, London: Macmillan, 1991, p. 120.
- [4] NASA headquarters, the European Space Agency, Boeing, and John F. Kennedy Presidential library.
- [5] Bulkeley, *The Sputniks Crisis*, p. 15.
- [6] Letter from President John F. Kennedy to Albert Thomas, September 23, 1963. US-USSR International Cooperation Documentation 1958–64, File 15571, NASA HQ Archives.
- [7] Memo from John Glenn to McGeorge Bundy "Proposal Concerning Space Flight Information Negotiations with the Russians," November 4, 1963, Box 308, National Security Files, JFK Presidential Archives.
- [8] Waltz, Mearsheimer.
- [9] Robert Jervis, "Was the cold war a security dilemma?" *Journal of Cold War Studies* 3.1 (2001): 36–60.
- [10] Jervis, "Was the cold war a security dilemma?"
- [11] Lisa Martin (1992) "Interests, Power, and Multilateralism," *International Organization* 46 (Autumn): 765–792.
- [12] Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton: Princeton University Press, 1984.
- [13] MJ Peterson, *International regimes for the final frontier*, New York: State University of New York Press, 2005.
- [14] Cross, "The Social Construction of the Space Race."
- [15] Dimitrios Strokos. "Engineering world society? Scientists, internationalism, and the advent of the Space Age," *International Politics* 55: 1, January 2018; Asif A. Siddiqi, "Making spaceflight modern: A cultural history of the world's first space advocacy group," in Steven J. Dick and Roger D. Launius, eds., *Societal impact of Spaceflight* (Washington, DC: NASA Office of External Relations, 2007), pp. 513–537.
- [16] Matthew Lieberman, *Social: Why our brains are wired to connect* (Oxford University Press, 2013); Jeremy Rifkin, *The empathic civilization: The race to global consciousness in a world in crisis* (New York: Tarcher/Penguin, 2009).

- [17] Frank White, *The overview effect: Space exploration and human evolution* (Boston: Houghton Mifflin, 1987).
- [18] Asif A. Siddiqi, "Making spaceflight modern: A cultural history of the world's first space advocacy group," in Steven J. Dick and Roger D. Launius, eds., *Societal impact of Spaceflight* (Washington, DC: NASA Office of External Relations, 2007), pp. 513–537.
- [19] Dimitrios Stroikos. "Engineering world society? Scientists, internationalism, and the advent of the Space Age," *International Politics* 55: 1, January 2018, p. 81.
- [20] Stroikos, "Engineering World Society?" p. 84; Siddiqi, "Sputnik 50 years later"; McDougall, *The heavens and the earth*, p. 118.
- [21] Clement J. Zablocki, "Forward" in Harold Bullis, *The Political Legacy of the International Geophysical Year* (Washington: U.S. Government Printing Office, 1973).
- [22] Bulkeley, *The Sputniks Crisis*, p. 131.
- [23] Sullivan, *Assault on the Unknown: The International Geophysical Year* (New York: McGraw Hill Book Company, 1961), p. 29.
- [24] Fae L. Korsmo, "The Genesis of the International Geophysical Year," *Physics Today*, 60:7, July 2007, p. 41.
- [25] Korsmo, "The Genesis of the International Geophysical Year."
- [26] Sullivan, *Assault on the Unknown*, pp. 34–5.
- [27] Hugh Odishaw, organizer of US IGY contributions, as quoted in Sullivan, *Assault on the Unknown*, p. 4.
- [28] For more detail on this, see Cross, "The Social Construction of the Space Race."
- [29] Sullivan, *Assault on the Unknown*, Acknowledgements.
- [30] Launius, "An unintended consequence of the IGY," pp. 257–8.
- [31] As quoted in Launius, "An unintended consequence of the IGY," p. 258.
- [32] John F. Kennedy, "If the Soviets Control Space ... They Can Control Earth," *Missiles and Rockets*, Oct. 10, 1960, pp. 12–13 as cited in Edward Ezell and Linda Ezell, *The Partnership: A History of the Apollo-Soyuz Test Project*, NASA Special Publication-4209 in the NASA History Series, 1978. Available at <https://www.hq.nasa.gov/office/pao/History/SP-4209/ch2-3.htm#source43>.
- [33] Democratic Advisory Council, "Position Paper on Space Research: Prepared for Senator Kennedy," September 7, 1960, JFK Presidential Archives, Box 197 DNC 1960 Campaign.
- [34] Dwight D. Eisenhower, *The White House years: waging peace, 1956–1961* (Doubleday and Co., 1965).
- [35] Carl Kaysen, "Summary of Foreign Policy Aspects of the US Outer Space Program," June 5, 1962, JFK Presidential Archives, National Security Files Box 377.
- [36] Kaysen, "Summary of Foreign Policy Aspects of the US Outer Space Program," June 5, 1962.
- [37] US Information Agency, "Potomac Cable No. 244—The US Lead in Space," October 10, 1962, JFK Presidential Archives, National Security Files Box 377.
- [38] Kaysen, "Summary of Foreign Policy Aspects of the US Outer Space Program," June 5, 1962.

- [39] Letter from Richard W. Porter, US National Academy of Sciences, to Professor Federov, Academy of Sciences of the USSR, December 15, 1959, JFK Presidential Archives, National Security Files Box 334.
- [40] Letter from Professor Federov, Academy of Sciences of the USSR, to Richard W. Porter, US National Academy of Sciences, March 16, 1960, JFK Presidential Archives, National Security Files Box 334.
- [41] Democratic Advisory Council, "Position Paper on Space Research: Prepared for Senator Kennedy," September 7, 1960, JFK Presidential Archives, Box 197 DNC 1960 Campaign.
- [42] Ezell and Ezell, "Competition Versus Cooperation: 1959–1962," *The Partnership*.
- [43] Memorandum for James Webb from McGeorge Bundy, February 23, 1962, JFK Presidential Archives, National Security Files Box 334.
- [44] Klaus-Dieter Kroeber report from Moscow, "Joint Efforts in Space Possible," April 11, 1962, NASA Archives, File 15570.
- [45] "National Security Action Memorandum No. 129," February 23, 1962 (revised February 27, 1962), JFK Presidential Archives, National Security Files Box 334.
- [46] "National Security Action Memorandum No. 129."
- [47] Department of State Memorandum for the President, "US-USSR Cooperation in Exploration of Space," March 6, 1962, JFK Presidential Archives, National Security Files Box 334.
- [48] Letter from Khrushchev to Kennedy, March 20, 1962, JFK Presidential Archives, National Security Files Box 377.
- [49] Research Memorandum, "Recent Soviet Statements on Outer Space," March 21, 1962, JFK Presidential Archives, National Security Files Box 334.
- [50] Hugh Dryden, "US-Soviet Space Cooperation Talks," March 27, 28, 30, 1962, JFK Presidential Archives, National Security Files Box 334.
- [51] NASA, "Status of US/USSR Bilateral Space Talks," April 21, 1962. JFK Presidential Archives, National Security Files Box 334.
- [52] Letter from the President of the Academy of Sciences of the USSR, M. V. Keldysh to James Webb, October 12, 1962, JFK Presidential Archives, National Security Files Box 334.
- [53] USSR International Affairs, "USSR Seeks Accord on Space with US," April 5, 1962, NASA Archives, File 15570.
- [54] Memorandum for the President, "Bilateral Talks Concerning US-USSR Cooperation in Outer Space Activities," July 5, 1962, JFK Presidential Archives, National Security Files Box 334.
- [55] NASA News Release 62-257, "US-USSR Join in Outer Space Program," 5 Dec. 1962 as cited in Edward Ezell and Linda Ezell, *The Partnership: A History of the Apollo-Soyuz Test Project*, NASA Special Publication-4209 in the NASA History Series, 1978. Available at <https://www.hq.nasa.gov/office/pao/History/SP-4209/ch2-3.htm#source43>.
- [56] Tass International Service, Dec. 8, 1962 as cited in Ezell and Ezell, *The Partnership*.
- [57] Letter from Hugh Dryden to Blagonravov, December 5, 1962, JFK Presidential Archives, National Security Files Box 334.
- [58] Letter from NASA Administrator James Webb to President Kennedy, September 1963, JFK Presidential Archives, National Security Files Box 342.
- [59] "US-USSR Cooperation in Space Research Programs," (1963/64—not specifically dated) JFK Presidential Archives, National Security Files Box 342.

- [60] Eugene Rabinowitch, "Progress in Space Cooperation with USSR," Editorial, *Bulletin of the Atomic Scientists*, May 1963, NASA Archives File 15570.
- [61] "Incoming Telegram from Geneva to Secretary State, Outer Space," Department of State, May 31, 1962. Box 308 National Security Files, JFK Presidential Archives.
- [62] "National Security Policy Planning Paper: Implications of Outer Space in the 1970's," May 31, 1963, Box 308 National Security Files, JFK Presidential Archives.
- [63] "National Security Policy Planning Paper: Implications of Outer Space in the 1970's."
- [64] John F. Kennedy, "National Security Action Memorandum No. 271," November 12, 1963, JFK Presidential Archives, National Security Files Box 342.
- [65] John F. Kennedy speech to the United Nations, September 20, 1963, as quoted in Alton Frye, "The Proposal for a Joint Lunar Expedition: Background and Prospects," January 1964, The RAND Corporation, NASA Archives, File 15570.
- [66] "Moon-Trip Plan Stirs Enthusiastic Reaction," *The Evening Star*, September 21, 1963, NASA Archives, File 15570.
- [67] Alton Frye, "The Proposal for a Joint Lunar Expedition," p. 6.
- [68] "National Security Policy Planning Paper: Implications of Outer Space in the 1970's," May 31, 1963, Box 308 National Security Files, p. vii, JFK Presidential Archives.
- [69] Later, when documents were declassified in Russia from this period, it was shown that the Soviet Union had attempted two manned lunar landing programs. William P. Barry, "The Missile Design Bureau and Soviet Manned Space Policy 1953-1970," Oxford University D. Phil dissertation, 1996.
- [70] Memorandum to P/PG—Mr. Herron from SCI—Robert F. Packard, "Khrushchev's October 26 Statement on the Race to the Moon," October 28, 1963, JFK Presidential Archives, National Security Files, Box 308, Space Activities.
- [71] Jerome B. Weisner, "Memorandum for the President: The US Proposal for a Joint US-USSR Lunar Program," October 29, 1963, JFK Presidential Archives, National Security Files, Box 308, Space Activities.
- [72] Weisner, "Memorandum for the President."
- [73] "Memorandum for Mr. McGeorge Bundy from the White House," November 7, 1963, JFK Presidential Archives, National Security Files, Box 308, Space Activities.
- [74] "Intelligence Note: Khrushchev's obscure and noncommittal statements about Moon shots," The Director of Intelligence and Research, Department of State, To the Secretary From INR- Thomas L. Hughes, November 5, 1963. Box 308, National Security Files, JFK Presidential Archives.
- [75] Alton Frye, "The Proposal for a Joint Lunar Expedition," p. 15.
- [76] "Proposal Concerning Space Flight Information Negotiations with the Russians," NASA Manned Spacecraft Center memo from Lt. Colonel John H. Glenn, Jr, to McGeorge Bundy, Special Assistant to the President, November 4, 1963, Box 308, National Security Files, JFK Presidential Archives.
- [77] "Proposal Concerning Space Flight Information Negotiations with the Russians."
- [78] Howard Simons, "Vast US, Red Space Ventures Behind JFK Bid," *The Washington Post*, September 25, 1963. NASA Archives, File 15570.
- [79] "US-USSR Cooperation in Space Research Programs," (1963/64—not specifically dated) JFK Presidential Archives, National Security Files Box 342.

- [80] Beyond the UN setting, there were of course other international regimes devoted to space—although not exploration—the World Meteorological Organization and the International Telecommunications Union.
- [81] Kaysen, “Summary of Foreign Policy Aspects of the US Outer Space Program,” June 5, 1962.
- [82] Letter from Khrushchev to Kennedy, March 20, 1962.
- [83] Kaysen, “Summary of Foreign Policy Aspects of the US Outer Space Program,” June 5, 1962.
- [84] European Space Agency archives; Eligar Sadeh, “Dynamics of International Space Cooperation: Evaluating Missions for Exploring Space and Protecting the Earth,” Doctoral Dissertation, Colorado State University, 1999.
- [85] For more on the negotiations surrounding UN involvement in space, see: M. J. Peterson, *International Regimes for the Final Frontier*, State University of New York Press, 2005.
- [86] Yun Zhao, “The Role of bilateral and multilateral agreements in international space cooperation,” *Space Policy*, 36 (2016): 12–18.
- [87] Its full name is, “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.”
- [88] Geppert, “Space Personae,” p. 282.
- [89] NASA, “Post Apollo Earth Orbital Manned Space Flight Program Options to Post Apollo Advisory Group,” February 15, 1968. NASA Archives, Folder 9164, Space Station 1968–1969.
- [90] Alfred Eggers, “The Space Station and International Collaboration,” March 17, 1969, NASA Archives, Folder 9164, Space Station 1968–1969.
- [91] Letter from T. O. Paine to the President, November 7, 1969, NASA Archives, File 9165, Space Station 1968–1989.
- [92] As cited in Alexander C. T. Geppert, “pace Personae: Cosmopolitan Networks of Peripheral Knowledge, 1927–1957,” *Journal of Modern European History*, 6:2, 2008, pp. 262–286. p. 262.
- [93] Krige, Callahan, and Maharaj, *NASA in the World*, pp. 3–4.
- [94] David McNab, Christopher Riley, *In the Shadow of the Moon* (film), MagellanTV, 2007.
- [95] White, “The overview.”
- [96] Letter from Khrushchev to Kennedy, March 20, 1962.
- [97] p. vii.
- [98] “Proposal Concerning Space Flight Information Negotiations with the Russians,” NASA Manned Spacecraft Center memo from Lt. Colonel John H. Glenn, Jr, to McGeorge Bundy, Special Assistant to the President, November 4, 1963, Box 308, National Security Files, JFK Presidential Archives.
- [99] Kaysen, “Summary of Foreign Policy Aspects of the US Outer Space Program,” June 5, 1962.
- [100] Ezell and Ezell, “Competition Versus Cooperation: 1959–1962,” *The Partnership*. <https://www.hq.nasa.gov/office/pao/History/SP-4209/ch1-4.htm#source35>.
- [101] Krige, Callahan, and Maharaj, *NASA in the World*, p. 6.

- [102] "Europe to Build Spacelab for U.S. Reusable Space Shuttle," NASA News Release No. 73-191, September 24, 1973, File 8864, NASA HQ.
- [103] "U.S. and Russia Announce Talks on Operating Space Station in '80s," *New York Times*, 18 May 5, 1977, Page A 15. NASA HQ Archives.
- [104] File 15523, NASA HQ.
- [105] "Public Opinions and NASA 1969–1971," File 6717 NASA HQ Archives.