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Ellie Coe April 12, 2022

Rendezvous on Earth: The Unlikely Diplomacy of Cosmonauts and Astronauts in the Early Space Age

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Abstract

Rendezvous on Earth: The Unlikely Diplomacy of Cosmonauts and Astronauts in the Early Space Age
By Ellie Coe

My research examines the personal relationships that developed between astronauts and cosmonauts in the late 1960s, focusing on the year 1967 as a turning point in U.S.-Soviet space relations. The American and Soviet space programs did not seem amenable to cooperation in the early years of the Space Race. As the 1960s progressed, however, personal interactions between the cosmonaut corps and astronaut corps contributed to the formation of a scientific partnership that has lasted nearly half a century.

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Introduction

Two weeks before the crew of Apollo 11 launched to the Moon in July 1969, astronaut Frank Borman descended from his Pan American flight towards an Earthly destination as foreign to him as the Moon's Tranquility Base would be to his fellow astronauts: the Sheremetyevo Airport in Moscow, U.S.S.R..[1] While Neil Armstrong and Buzz Aldrin's historic landing brought them face to face with what Aldrin described as the "magnificent desolation" of the lunar landscape, Borman was greeted upon his arrival in Moscow by the Soviet cosmonauts Georgy Beregovoi, Konstantin Feoktistov, and Gherman Titov.[2] As the first American astronaut to visit the Soviet Union, Frank Borman bridged the rival space programs in a "giant leap" for international collaboration in space.[3] Feoktistov and Beregovoi reciprocated the visit three months later, traveling to the United States to follow a busy itinerary that included meeting with President Richard Nixon, touring the Manned Spacecraft Center in Houston, Texas, and spending a day at Disneyland.[4] This photo of the two cosmonauts sporting Mickey Mouse hats at Disneyland, where Nikita Khrushchev himself was barred from visiting ten years earlier, is a testament to the cross-cultural connections that altered the trajectory of the Space Race (fig. 1).

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[1] "Soviet Astronauts Greet Borman as His Visit Begins," *The New York Times* (New York, NY, July 3, 1969), https://www.nytimes.com/1969/07/03/archives/soviet-astronauts-greet-borman-as-his-visit-begins.html.
[2] *Apollo 11 Technical Air-to-Ground Voice Transcription (GOSS NET 1)* (Houston, TX: NASA Manned Spacecraft Center, July 1969), NASA Headquarters Archives, https://www.hq.nasa.gov/alsj/a11/AS11_TEC.PDF, 382; Reuters, *U.S.S.R.: Astronaut Borman In Moscow*, Black and white (British Pathé, 1969).
[3] *Apollo 11 Technical Air-to-Ground Voice Transcription (GOSS NET 1)*, 377.
[4] John Uri, "50 Years Ago: Cosmonauts Visit United States," ed. Kelli Mars, *NASA History*, last modified October 21, 2019, http://www.nasa.gov/feature/50-years-ago-cosmonauts-visit-united-states.

Figure 1. *Cosmonauts Konstantin Feoktistov and Georgy Beregovoi wear Mickey Mouse ears outside the* Flight to the Moon *ride at Disneyland.* Photograph by AP Photos, October 24, 1969. Anaheim, CA. NASA, Washington, D.C. https://www.nasa.gov/feature/50-years-ago-cosmonauts-visit-united-states/.

Tensions ran high between the United States and the Soviet Union in 1967, as the Vietnam War intensified and the two superpowers jockeyed for a greater sphere of influence.[5] Five years after the existential threat of the Cuban Missile Crisis, communism and capitalism clashed on a myriad of fronts – the bloodstained battlefields of the Vietnam War, the ideological allegiance of newly independent nations, the accumulation of nuclear weapons, and the exploration of outer space.[6] Mired in uncertainty, the turbulent late 1960s saw the Civil Rights Movement and the assassination of Martin Luther King Jr., the launch of Mao Zedong's Cultural

[5] Konrad H. Jarausch, Christian Ostermann, and Andreas Etges, *The Cold War: Historiography, Memory, Representation* (Berlin/München/Boston, Germany: Walter de Gruyter GmbH, 2017).
[6] Martin J. Medhurst, ed., *World War II and the Cold War* (Michigan State University Press, 2018).

Revolution in China, and a growing sense of disillusion among young people in Western Europe and the United States.[7] The constant threat of nuclear war, increasing poverty rates, and the draft preoccupied Americans' thoughts.[8] In the Soviet Union, Leonid Brezhnev methodically rolled back the relative freedoms that his predecessor, Nikita Khrushchev, had granted to Soviet citizens before Khrushchev's ouster in 1964.[9] When a movement to reform communist rule gained popularity in Czechoslovakia during the Prague Spring, Brezhnev responded by invading Czechoslovakia and crushing the Warsaw Pact nation's attempt to liberalize. Both the Soviet Union and the United States sought to exert power over their spheres of influence and prove the superiority of their respective ideologies. During this tumultuous time in human history, the United States and the U.S.S.R. engaged in feats of technological expertise in order to intimidate and astonish the entire world.[10]

Just one decade after the launch of Sputnik-1, the technological and ideological posturing of the Soviet and American space programs had reached a fever pitch. However, the Soviet space program as an organization had weakened considerably by 1967. Chief Designer Sergei Korolev, the founder and driving force behind the U.S.S.R.'s human spaceflight program, lost much of his political influence within his own engineering bureau after Khrushchev's 1964 ouster.[11] According to an official complaint letter that cosmonaut Yuri Gagarin sent to Brezhnev on behalf of the cosmonaut corps in October 1965, the Soviet Air Force had taken charge of the

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[7] Gerard J. DeGroot, *The Sixties Unplugged: A Kaleidoscopic History of a Disorderly Decade* (Cambridge, MA: Harvard University Press, 2010).
[8] Annelise Orleck and Lisa Gayle Hazirjian, eds., *The War on Poverty* (Athens, GA: University of Georgia Press, 2011).
[9] Jeremi Suri, "The Promise and Failure of 'Developed Socialism': The Soviet 'Thaw' and the Crucible of the Prague Spring, 1964-1972," *Contemporary European History* 15, no. 2 (2006): 133–158.
[10] Teasel Muir-Harmony, *Operation Moonglow: A Political History of Project Apollo* (New York: Basic Books, 2020), 101.
[11] N.P. Kamanin, *Skrytyi Kosmos: Kosmicheskie Dnevniki Generala Kamanina*, vol. 2 (1964-1967), 4 vols. (Moscow, Russia: Infortekst-IF, 1997), December 30, 1964 entry.

space program, and the military officials only approved missions and spacecraft designs that had "immediate military significance" – a category that excluded human space exploration.[12] In January 1966, Korolev died on the operating table during what was supposed to be a minor surgical operation. His replacement, engineer Vasily Mishin, proved to be an uninspiring leader for the cosmonaut corps while also yielding to the arbitrary and often dangerous decisions of high-ranking government officials without question.[13] Meanwhile, the National Aeronautics and Space Administration (NASA) faced increased scrutiny by the American public in the late 1960s, as more and more Americans viewed the Apollo program as a misuse of government funds that could be better implemented to support the Civil Rights Movement or help families living in poverty.[14]

Neck and neck in a furious race to reach the Moon first, the American and Soviet space programs focused primarily on achieving space exploration "firsts" – the first man in space, the first spacewalk – before their rival could. Every milestone surpassed constituted a victory on the Cold War battlefield of outer space, with the victorious nation flaunting its success while the other nation hurriedly worked to make up ground. The U.S.S.R. placed a high value on secrecy in order to maintain its early lead in the Space Race, to the point that the name of the Soviet space program's Chief Designer, Sergei Korolev, remained unknown even within the U.S.S.R. until the engineer passed away in 1966. The constant threat of NASA overtaking the Soviets in space imbued every mission with a sense of urgency, pushing Soviet officials and engineers to

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[12] Yuri Gagarin et al., "Pis'mo Kosmonavtov Leonidu Brezhnevu (Soviet Cosmonauts' Letter to Leonid Brezhnev)," in *Skrytyi Kosmos: Kosmicheskie Dnevniki Generala Kamanina (Hidden Cosmos: The Space Diaries of General Kamanin)*, by N.P. Kamanin, vol. 2 (1964-1967), 4 vols. (Moscow, Russia: Infortekst-IF, 1997), October 22, 1965 entry.

[13] Mishin's deference to the near-impossible launch deadlines set by the government proved fatal, resulting in the death of cosmonaut Vladimir Komarov aboard the Soyuz 1 mission. See Chapter 2.

[14] David Miguel Molina and P. J. Blount, "Bringing the Moon to Mankind: The Civil Rights Narrative and the Space Age," in *NASA and the Long Civil Rights Movement*, ed. Brian C. Odom and Stephen P. Waring (Gainesville, FL: University Press of Florida, 2019), 45.

eschew genuine technological innovation in favor of propagandistic spectacle and the honor of being "first."

The Soviet space strategy of pairing extreme secrecy with spectacle can be seen in seemingly ambitious missions such as the first-ever launch of a multi-crewed ship in 1964. Soviet engineers developed the Voskhod 1 craft specifically in order to beat the Americans to yet another milestone, cutting as many corners as possible in the ship's design. Described by Korolev's successor, Vasily Mishin, as "a circus act," Voskhod 1 was simply a first-generation Vostok spacecraft with the seats removed so that three cosmonauts could squeeze into the small capsule instead of one.[15] Although "the world applauded" at the cosmonauts' feat, Mishin complained privately that Voskhod 1 barely counted as a new innovation. "It was a circus act, for three people couldn't do any useful work in space. They were cramped just sitting!"[16] Launching a few months later, the multi-crewed American *Gemini* spacecraft – NASA's answer to the Voskhod – was described by historian James Harford as "a major step ahead in spacecraft technology."[17] Despite *Gemini*'s sophisticated engineering, the "built-on-the-cheap Voskhod" won the race for both the first multi-crewed flight and the first spacewalk, setting a dangerous precedent in which an accelerated engineering-to-launch timeline was seen by Soviet officials as more important than a spacecraft's structural stability.[18]

Caught off guard by the launch of Sputnik-1, the United States continually found itself lagging behind the Soviet Union in space exploration throughout the early- and mid-1960s. Founded by President Eisenhower in 1958, NASA prioritized a policy of openness and

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[15] James Harford, "Korolev's 'Circus Act:' Voskhod," in *History of Rocketry and Astronautics: Proceedings of the Thirty-First History Symposium of the International Academy of Astronautics*, ed. George S. James, vol. 26, AAS History Series (Presented at the History Symposium, San Diego, CA: American Astronautical Society, 2005), 211.
[16] Ibid., 215.
[17] Ibid., 219.
[18] B.E. Chertok, *Rakety i Liudi*, vol. 3, 4 vols. (Moscow, Russia: Mashinostroenie, 1999)

transparency as opposed to the secrecy that characterized the Soviet space program. Competition and spectacle converged in American space propaganda and advertising alike, with detailed spacecraft models displayed prominently in television commercials and in news coverage of each American mission.[19] In *Marketing the Moon: The Selling of the Apollo Lunar Program*, authors David Meerman Scott and Richard Jurek wrote that models of American spacecraft "were provided to politicians, dignitaries, subcontractors, astronauts, and flight directors."[20] While NASA engineers did not go so far as to personally seek out their Soviet counterparts to reveal American aerospace research and blueprints, NASA's implementation of "secrecy" was exponentially less strict than that of the Soviets. Both Soviet cosmonauts and American astronauts embarked on countless propaganda trips around the world to draw attention to the victories of their respective nations in outer space. The Soviets held their spacecraft designs close to their chests during these trips, while NASA's public relations staff brought "space models, displays, and pamphlets" on their travels and "arranged space-themed exhibits…to attract the attention of [foreign] government officials."[21]

The constant sense of competition and one-upmanship characterized the Space Race from the late 1950s to the mid-1960s. At the height of their rivalry, the American and Soviet space programs did not consider international collaboration in human space exploration to be a feasible endeavor. The only space-related cooperation between the United States and the U.S.S.R. took place in a scientific, academic context, with American and Soviet research institutes sharing data on geophysics and Earth observations according to a 1962 bilateral agreement between the

[19] David Meerman Scott and Richard Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program* (Cambridge, MA: The MIT Press, 2014), 44.
[20] Ibid.
[21] Teasel Muir-Harmony, *Operation Moonglow: A Political History of Project Apollo* (New York: Basic Books, 2020), 123.

United States and the Soviet Union.[22] The U.S. and Soviet governments only recognized the viability of human space collaboration after the individual participants in the Space Race, the astronauts and cosmonauts, took the initiative to reach across the Iron Curtain and make contact themselves in 1967.

The first contact between cosmonauts and astronauts did not stem from political obligation or Cold War posturing, but rather a genuine empathy for one another on a personal level. Both the astronaut corps and the cosmonaut corps endured the tragic loss of crewmates and close friends in early 1967, with Gus Grissom, Ed White, and Roger Chaffee losing their lives in a fire aboard Apollo 1, and Vladimir Komarov dying in the crash of Soyuz 1. A somber reminder of the dangers of human spaceflight, these tragedies sparked moments of mourning and reckoning that transcended ideological differences, opening up channels of communication between the rival spacefarers.[23] Their initial interactions developed out of a profound sense of shared grief, with the first moments of contact between cosmonauts and astronauts consisting of condolence letters sent to the bereaved. In the wake of tragedy, the American and Soviet governments began to realize the importance of international collaboration to the pursuit of safe space travel. With growing institutional support on both sides beginning in 1967, the relationship between NASA and the Soviet space program blossomed into a partnership that has endured for more than five decades. Later that spring, astronauts David Scott and Michael Collins conversed with cosmonauts Konstantin Feoktistov and Pavel Belyayev at the 1967 Paris Air Show. Their conversation paved the way for future amicable meetings between cosmonauts and astronauts, purposeful cross-cultural interactions that played a major role in the development of détente.

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[22] A.A. Blagonravov and Hugh L. Dryden, "Technical Agreement: U.S. Announces Agreement with the Soviet Union on Cooperation in Peaceful Uses of Outer Space" (United Nations, June 8, 1962).
[23] Colin Burgess, Kate Doolan, and Bert Vis, *Fallen Astronauts: Heroes Who Died Reaching for the Moon* (University of Nebraska Press, 2016).

In a decade of Cold War standoffs, from the Cuban Missile Crisis to the Vietnam War, any friendly interaction between the United States and the Soviet Union in the 1960s helped to buffer the threat of mutual assured nuclear destruction. Exploring the origins of a nearly fifty-year record of international cooperation in outer space, my thesis investigates the role of interpersonal astronaut-cosmonaut relationships in de-escalating ideological tensions between the Soviet Union and the United States.[24] I hope that my research will elicit a new appreciation of the under-explored stories of the astronauts and cosmonauts whose initial rendezvous on Earth paved the way for a legacy of rendezvous in orbit.[25]

[24] Alexei A. Leonov and David R. Scott, *Two Sides of the Moon: Our Story of the Cold War Space Race* (New York, NY: St. Martin's Griffin, 2004).

[25] The phrase "rendezvous in orbit" references the Apollo-Soyuz Test Project of 1975, during which the American *Apollo* craft and the Soviet *Soyuz* craft docked together in a rendezvous that symbolized a new era of *rapprochement* between not only the two space programs, but also the United States and the Soviet Union as a whole.

Chapter 1

The Foundations

Given the hostile ideological rhetoric that fueled the Space Race, the idea that cosmonauts and astronauts engaged in friendly exchanges at the apex of the Cold War might seem improbable, perhaps even reckless. With the thunder of rocket engines and a "beep heard 'round the world," the artificial satellite Sputnik-I propelled the Soviet Union to the forefront of the space age in 1957.[26] The successful launch of Sputnik spoke to the Soviet Union's scientific and technological preeminence, serving to legitimize socialism as an ideology in the modern age. Interpreted by the United States as a potential military threat, Sputnik marked "a fundamental turning point in military technology, espionage, media, communications and cultural history."[27] Both the U.S.S.R. and the United States turned to human spaceflight as the next stage in space exploration, seeking to bolster what scholar Trevor Rockwell described as having become "the primary symbol of world leadership in all areas of science and technology."[28]

Yuri Gagarin's pioneering spaceflight paved humanity's way to the stars four years after Sputnik orbited the Earth, further "swaying international opinions of the superpowers' scientific, technological, and military capabilities toward a perception of Soviet supremacy."[29] The United States and the Soviet Union portrayed early spacefarers as "going off to do personal combat in the Cold War, standing for their separate nations, political systems, and economic approaches

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[26] David Hitt, Owen Garriott, and Joe Kerwin, *Homesteading Space: The Skylab Story* (University of Nebraska Press, 2008), 47.
[27] Eva Maurer et al., "Introduction: What Does 'Space Culture' Mean in Soviet Society?," in *Soviet Space Culture: Cosmic Enthusiasm in Socialist Societies* (Basingstoke, GB: Palgrave Macmillan, 2011).
[28] Trevor Rockwell, "Space Propaganda 'For All Mankind': Soviet and American Responses to the Cold War, 1957-1977" (Dissertation, University of Alberta, 2012), 7.
[29] Ibid., 8.

against presumed rivals."[30] According to former NASA Chief Historian Roger Launius, the first group of American astronauts "carried on their shoulders all the hopes and dreams and best wishes of a nation as they engaged in single combat the ominous specter of communism."[31] Launius noted that the two superpowers "couldn't shoot their ballistic missiles at each other, at least not without ending human existence on this planet, but they could dispatch their space explorers on them and use them as surrogates for outright war."[32]

More than a Cold War battlefield, outer space served as an area in which to conduct diplomatic theater. Examining US-Soviet space propaganda through the lens of the Cold War, Trevor Rockwell argued that NASA played a major role in a "system of 'total diplomacy' in which American diplomats, scientists, soldiers, and others were…coordinated to communicate positive messages about American foreign policies."[33] The Soviets promoted a similar diplomatic model of space exploration known as "peaceful coexistence."[34] Pioneered by Nikita Khrushchev, this "persistent rhetoric of peace" aimed to "soften" the threats inherent to the Cold War.[35] Eva Maurer posited that cosmonauts "could appear as 'ambassadors of peace' and, at the same time, as representatives of a potentially aggressive superpower."[36] The early rhetoric of both nations surrounding space exploration converged through themes of imperialism, utopianism, and exploration.

In his paper, "Storming the Stratosphere: Space Exploration, Soviet Culture, and the Arts from Lenin to Khrushchev's Times," space historian James Andrews wrote that citizens from "different political arenas were subjected to different propaganda in the Space Race, yet both

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[30] Roger D. Launius, *Reaching for the Moon* (Yale University Press, 2019), 63.
[31] Ibid.
[32] Ibid., 64.
[33] Rockwell, "Space Propaganda 'For All Mankind,'" 10.
[34] Maurer et al., *Soviet Space Culture*, 5.
[35] Ibid.
[36] Ibid., 6.

with a similar type of national message of heroism and conquest whether American or Soviet."[37] Astronauts "emerged as noble champions who would carry the nation's manifest destiny beyond its shores and into space," embraced by the American public as "the personification of heroism and dignity."[38] Soviet narratives of "danger, courage, and sacrifice," popularized by the official newspaper of the Communist Party, *Pravda*, similarly cast cosmonauts as "heroic humans and personifications of peace and progress."[39] Launius noted that astronauts were portrayed as paving the "way for the civilization to go forward, to progress toward a Utopian future elsewhere in the cosmos."[40] Equally, propaganda featuring Soviet cosmonauts evoked the "emergence of man into endless freedom and boundlessness."[41]

The American and Soviet space programs did not seem amenable to collaboration in the early years of the Space Race. Yet as the 1960s progressed, personal interactions between cosmonauts and astronauts contributed to the formation of a scientific partnership that endures to this day. Years of careful *rapprochement*, joint meetings, and barbeque dinner parties proved consequential in propelling the United States and the Soviet Union toward a policy of détente. During the Apollo-Soyuz Test Project of 1975, an American crew and a Soviet crew approached one another, or rendezvoused, in orbit, docked their respective spacecraft, and shook hands in a symbolic gesture of friendship. Apollo-Soyuz and subsequent joint missions owe their success and conception to some of the most visible faces of the Space Age.[42] The impromptu meeting of

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[37] James Andrews, "Storming the Stratosphere: Space Exploration, Soviet Culture, and the Arts from Lenin to Khrushchev's Times," *Russian History* 36, no. 1 (2009), 87.
[38] Launius, *Reaching for the Moon*, 68; 83.
[39] Trevor Rockwell, "They May Remake Our Image of Mankind: Representations of Cosmonauts and Astronauts in Soviet and American Propaganda Magazines, 1961-1981," in *Spacefarers: Images of Astronauts and Cosmonauts in the Heroic Era of Spaceflight*, ed. Michael J. Neufeld (Washington, D.C.: Smithsonian Institution Scholarly Press, 2013), 127.
[40] Roger D. Launius, "Heroes in a Vacuum: The Apollo Astronaut as Cultural Icon," *The Florida Historical Quarterly* 87, no. 2 (2008), 209.
[41] Maurer et al., *Soviet Space Culture*, 5.
[42] Edward Clinton Ezell and Linda Neuman Ezell, *The Partnership: A History of the Apollo-Soyuz Test Project*, The NASA History Series (Washington, D.C.: NASA, 1978), https://history.nasa.gov/SP-4209/toc.htm.

astronaut John Glenn and cosmonaut Gherman Titov at a Washington, D.C. scientific research conference marked the first interaction between astronauts and cosmonauts, although Glenn and Titov did not have the opportunity to converse one-on-one (fig. 2).

Figure 2. *President John F. Kennedy Visits with Gherman Titov and John Glenn in Washington, D.C.* Photograph by Abbie Rowe, May 3, 1962. John F. Kennedy Presidential Library and Museum, Boston, MA.

NASA's working partnership with the Soviet space program was encouraged by the success of David Scott and Michael Collins' spontaneous meeting with cosmonauts Konstantin Feoktistov and Pavel Belyayev at the 1967 Paris Air Show. After the Soviet Union fell, the decades-long friendship of Apollo-Soyuz crew members Thomas Stafford and Alexei Leonov strengthened this partnership as it entered a new, post-Cold War era. Until Russia's invasion of Ukraine in February 2022, NASA's collaboration with the Russian space program has remained strong even at the lowest points of US-Russia relations.[43]

[43] Roald Sagdeev and Susan Eisenhower, "United States-Soviet Space Cooperation during the Cold War," *NASA 50th Magazine*, 50 Years of Exploration (May 19, 2008); Scott Kelly, "I've Been to Space with Russians.

Historiography

Scholars have approached the origins of international space collaboration through the lens of cultural history, international policy, and individual narrative. My contribution to this academic literature focuses on cosmonauts' and astronauts' cross-cultural interactions within the larger histories of the Space Race, 1960s celebrity culture, and Cold War diplomacy. Examining this era as a cultural historian, Teasel Muir-Harmony has written about the large-scale publicity campaigns and goodwill tours organized by NASA in the 1960s, during which astronauts traveled the world after returning from orbit to promote American values in front of massive crowds.[44] Her book, *Operation Moonglow: A Political History of Project Apollo*, concerns the role of Apollo astronauts as representatives of American ingenuity, put on parade for propagandistic purposes. The curator of the Project Apollo collection at the Smithsonian National Air and Space Museum, Muir-Harmony supports her analysis with a methodology of oral histories and archival research.

Space historian Asif Siddiqi has written a comprehensive series of books on the Soviet space program. One of the first Western scholars to gain access to Soviet archives during the *glasnost'* period, Siddiqi offers spectacular insight into the origins and inner workings of Soviet space ingenuity in his monograph, *Challenge to Apollo: The Soviet Union and the Space Race, 1945-1974*.[45] Siddiqi has also written on the popular appeal of space exploration in the U.S.S.R. in his publication, "Cosmic Contradictions: Popular Enthusiasm and Secrecy in the Soviet Space

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Threatening Our Partnership There Is Senseless.," *Washington Post* (Washington, D.C., March 15, 2022). The NASA-Roscosmos relationship seems to have settled back into some semblance of normalcy as of early April 2022 with the successful return of American astronaut Mark Vande Hei to Earth. Tensions, however, remain high.

[44] Teasel Muir-Harmony, *Operation Moonglow: A Political History of Project Apollo* (New York: Basic Books, 2020).

[45] Asif A. Siddiqi, "People and Archives," in *Cold War Space Sleuths: The Untold Secrets of the Soviet Space Program*, ed. Dominic Phelan, Springer Praxis Books (New York, NY: Springer, 2013), 219–255; Asif A. Siddiqi, *Challenge to Apollo: The Soviet Union and the Space Race, 1945-1974* (Washington, D.C.: NASA History Division, 2000).

Program," shedding light on aspects of Soviet space enthusiasm and propaganda previously inaccessible to researchers in the West.[46] Historian Slava Gerovitch analyzes the public and political expectations required of the first Soviet cosmonaut team in his publication about the celebrity status of cosmonauts in the U.S.S.R..[47] *Soviet Space Mythologies: Public Images, Private Memories, and the Making of a Cultural Identity* contributes a valuable perspective of what makes the Soviet cosmonauts "tick," a metaphor which Gerovitch takes to its literal extreme in his publication on the mechanical qualities of the Soviet cosmonaut, *"New Soviet Man" Inside Machine: Human Engineering, Spacecraft Design, and the Construction of Communism.* Gerovitch's close friendship with many of the major players in the Soviet space program lends credence to his careful examination of cosmonauts' experiences, particularly their critiques of the overly automated piloting system of early Soviet spacecraft.[48]

Historians of the American space program such as Roger Launius and Matthew H. Hersch offer insight into the personalities and family lives of Mercury, Gemini and Apollo astronauts, while examining the culture of hero-worship surrounding NASA. Hersch's book, *Inventing the American Astronaut,* demonstrates that the profession of "astronaut" is just a profession like all others, susceptible to all the grievances and frustrations that workplace culture brings.[49] Launius excels in his analyses of the U.S. space program's impact on American culture, effortlessly bridging primary sources and existing scholarship to explain complex trends such as the American public's reaction to the Apollo 11 moon landing.[50] Thomas Ellis' 2018

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[46] Asif A. Siddiqi, "Cosmic Contradictions: Popular Enthusiasm and Secrecy in the Soviet Space Program," in *Into the Cosmos*, ed. Asif A. Siddiqi and James T. Andrews, Space Exploration and Soviet Culture (University of Pittsburgh Press, 2011), 47–76.
[47] Slava Gerovitch, *Soviet Space Mythologies: Public Images, Private Memories, and the Making of a Cultural Identity* (Pittsburgh, PA: University of Pittsburgh Press, 2015).
[48] Slava Gerovitch, "'New Soviet Man' Inside Machine: Human Engineering, Spacecraft Design, and the Construction of Communism," *Osiris* 22, no. 1 (2007): 142.
[49] Matthew H. Hersch, *Inventing the American Astronaut* (London, UK: Palgrave Macmillian, 2012).
[50] Roger D. Launius, *Reaching for the Moon* (Yale University Press, 2019).

dissertation, "Reds in Space: American Perceptions of the Soviet Space Programme from Apollo to Mir 1967-1991," discusses the impact of U.S.-Soviet space collaboration on the American public.[51] My thesis builds on the valuable foundation that these scholars provide as I study the origins of space collaboration through a Soviet lens, bolstered by my proficiency in the Russian language, personal interviews conducted both with Soviet émigrés and cosmonauts from the 1990s, and my familiarity with declassified Soviet documents from this era.

Historical monographs that focus specifically on U.S.-Russian collaboration are few and far between. In 1978, Edward and Linda Ezell published *The Partnership: A History of the Apollo-Soyuz Test Project,* a comprehensive, NASA-sponsored history of Apollo-Soyuz.[52] While this work proved accurate for its time, it lacks hindsight in that the authors had no idea how the U.S.-Soviet relationship in outer space would progress into the next century. More of a collection of facts than a scholarly analysis, *The Partnership* extends an invitation to readers to delve deeper into the events of Apollo-Soyuz, picking up where it leaves off.[53] Debbora Battaglia's "Arresting Hospitality: The Case of the 'Handshake in Space'" analyzes the interplay between the individual cosmonauts and astronauts on the Apollo-Soyuz mission, and the geopolitical significance of every success, mistake, or deviation from the mission "script."[54] "Obsessively rehearsed at enormous expense," she writes, "and at no little risk to human life, such high-stakes political theater could not tolerate even relatively small departures from the 'nominal:' the malfunction of a Soyuz television camera for live broadcasts to Earth was, for example, described by a Soviet commentator as a moment of 'great tension.'"[55] Battaglia uses an

[51] Thomas Ellis, "Reds in Space: American Perceptions of the Soviet Space Programme from Apollo to Mir 1967-1991" (Dissertation, University of Southampton, 2018).
[52] Ezell and Ezell, *The Partnership: A History of the Apollo-Soyuz Test Project*.
[53] Ibid.
[54] Debbora Battaglia, "Arresting Hospitality: The Case of the 'Handshake in Space,'" *The Journal of the Royal Anthropological Institute* 18 (2012): S76.
[55] Ibid., S77.

anthropological lens to describe Apollo-Soyuz as a "technocultural event," examining the idea of humans "welcoming" each other to an unclaimed frontier.[56] Thomas Ellis has also published specifically on collaboration in outer space. His paper, "'Howdy Partner!' Space Brotherhood, Detente and the Symbolism of the 1975 Apollo–Soyuz Test Project," entertains the question of "how the imagery of space brotherhood was used to sell U.S.–Soviet detente," delving into the political motivations of Richard Nixon and Gerald Ford during this time.[57]

My thesis builds off of the historiographical literature outlined above, shifting the spotlight from the Apollo-Soyuz mission itself to the scaffolding of cross-cultural individual and governmental interactions that converged in two superpowers' first "small step" towards a "thaw" in the Cold War.[58] With a strong understanding of the cultural and political factors underlying both the American and Soviet space programs, I analyze the conversations – or lack thereof – between cosmonauts and astronauts, the press, and American and Soviet government officials. Throughout my research, I perused coverage of the Space Race in the *New York Times, Pravda*, and other newspaper archives from the 1960s and 1970s in order to understand how the media portrayed both cosmonauts and astronauts.[59] I also took advantage of the incredible opportunity to explore the David R. and Anne Lurton Scott papers in Emory's Rose Library. Colonel David R. Scott, a test pilot and astronaut who commanded the Apollo 15 lunar mission in 1971, participated directly in the joint meetings about U.S.-Soviet collaboration in space, ultimately serving as Special Assistant for Mission Operations for the Apollo-Soyuz Test

[56] Ibid., S78.
[57] Thomas Ellis, "'Howdy Partner!' Space Brotherhood, Detente and the Symbolism of the 1975 Apollo–Soyuz Test Project," *Journal of American Studies* (March 16, 2018), 747.
[58] *Apollo 11 Technical Air-to-Ground Voice Transcription (GOSS NET 1)*, 377.
[59] "Sketches of the 5 American and Russian Astronauts," *The New York Times*, July 16, 1975.

Project.[60] His personal archives offer great insight into the camaraderie that developed between astronauts and cosmonauts in the years before the launch of Apollo-Soyuz.[61]

I examine the cosmonaut-astronaut relationship through a Soviet lens by referencing Russian-language primary sources in my thesis. Having mastered the Russian language to a near-native level, I perused *Soviet Cosmos,* an extensive anthology of Soviet space memos published by the Archive of the President of the Russian Federation, in order to expand my knowledge of the duties expected of a cosmonaut living in the public eye.[62] The Russian space agency, *Roscosmos*, hosts an online collection of declassified historical materials from the Apollo-Soyuz Test Project that offered additional insight into the bureaucratic underpinnings of the early cosmonauts' diplomatic ventures.[63] *East View Information Services,* an online newspaper database that provides access to Russian-language historical publications, allowed me to ascertain the tone and breadth of coverage regarding the cosmonauts' and astronauts' goodwill tours and visits.[64] The audiovisual primary sources hosted on the database, *Socialism on Film: The Cold War and International Propaganda*, helped elicit a greater comprehension of the shifting relationship between NASA and the Soviet space program.[65]

Publications that examine the early U.S.-Soviet collaborative endeavors in terms of their international policy justifications also informed my research. *The Power of the Space Club*, written by Deganit Paikowsky, documents the trend of powerful nations investing in national

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[60] David R. Scott, "The Space Race" (Wende Museum, Los Angeles, CA, December 1, 2016).
[61] *David R. and Anne Lurton Scott Papers, 1962-2019.* Emory University, Stuart A. Rose Manuscript, Archives and Rare Book Library, Atlanta, GA.
[62] Sergei Kudryashov, *Sovetskiy Kosmos [Soviet Cosmos]* (Moscow: Archive of the President of the Russian Federation, 2011).
[63] *"Soyuz-Apollo": 45th Anniversary of the Meeting Above the Elbe* (Roscosmos State Corporation for Space Activities, Moscow, Russia), https://www.roscosmos.ru/28774/.
[64] *East View Information Services Database.* Minneapolis, MN.
[65] *Socialism on Film: The Cold War and International Propaganda* (Adam Matthew Digital).

space programs "as indicators of power and symbols of high standing."[66] Identifying spacefaring nations as part of a "club" that signifies their "elite status," Paikowsky defines the allure of outer space for both superpowers and newly developed nations.[67] Everett Dolman's *Astropolitik: Classical Geopolitics in the Space Age* sheds light on the concept of outer space as a territory that can be "claimed" by nations, analyzing the significance of United Nations treaties such as the Outer Space Treaty of 1967, which states that celestial bodies in outer space "shall be free for exploration and use by all States."[68] Examining the role of space "cooperation in a competitive world," Dolman introduces the reader to the spirit of conquest that has defined humankind's exploration of the cosmos since the launch of Sputnik I.[69] An understanding of the foreign policy underpinnings of these initial partnerships puts their historical origins into context. My thesis traces the development of U.S.-Soviet space collaboration not only through a study of archival documents and personal stories, but also through United Nations treaties and international agreements between NASA and the Soviet space program.

As part of my duties as an intern with the Office of International and Interagency Relations at NASA Headquarters, I analyzed official correspondence and diplomatic agreements relating to the Soviet and American space programs. These documents included the exchanges between President Richard Nixon and Soviet Premier A.N. Kosygin regarding the *Agreement Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes*, an agreement which laid the foundation for the Apollo-Soyuz Test Project.[70] Further analysis of the

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[66] Deganit Paikowsky, *The Power of the Space Club* (Cambridge: Cambridge University Press, 2017), 1.
[67] Ibid., 3.
[68] Everett C. Dolman, *Astropolitik : Classical Geopolitics in the Space Age*, Cass Series: Strategy and History (London, UK: Frank Cass Publishers, 2002), 8; Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, London, Moscow, Washington, D.C., 27 January 1967.
[69] Ibid., 9.
[70] *Agreement on Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes* (Moscow, U.S.S.R.: May 24, 1972).

international accords signed between 1967 and the launch of Apollo-Soyuz in 1975 reveals the enduring respect with which NASA and the Soviet/Russian space program addressed one another. One of my most intriguing discoveries from NASA's electronic repository of inter-governmental agreements, the System for International External Relations Agreements (SIERA), is the enthusiastic scientific cooperation that took place between NASA and the Academy of Sciences of the U.S.S.R. in the early 1960s.[71] Throughout my research, I delved deeper into the political and cultural reasoning behind these lesser-known partnerships as employed by scholars such as Dolman and Paikowsky.

The last perspective informing my research is that of individual narrative. From memoirs and oral histories to secondary works such as biographies, this historiographical method is a genre upon itself. In *Two Sides of the Moon: Our Story of the Cold War Space Race,* astronaut David Scott and cosmonaut Alexei Leonov take turns recounting their experiences at the forefront of US-Soviet cooperation in outer space.[72] I discuss this publication throughout my thesis in connection to the archival papers of David Scott, analyzing the memoir as a primary source. Published in 2002, Thomas Stafford's book, *We Have Capture: Tom Stafford and the Space Race*, presents a treasure trove of stories and recollections from Stafford's career as an astronaut.[73] In tandem with Frank Borman's autobiography, *Countdown*, Apollo-Soyuz crew member Deke Slayton's book, *Deke!: An Autobiography*, and Michael Collins' 1988 autobiography, *Liftoff: The Story of America's Adventure in Space*, Stafford's work sheds light on a unique first-person perspective through which I derived a shared narrative of the astronaut

[71] Bureau of Public Affairs Office of Public Communication, *Department of State Bulletin*, vol. 47, 1214 (Washington, D.C.: U.S. Government Printing Office, 1962), 962.
[72] Leonov and Scott, *Two Sides of the Moon*.
[73] Thomas P. Stafford, *We Have Capture: Tom Stafford and the Space Race* (Washington, D.C.: Smithsonian Institution Press, 2002).

corps' personal experiences in the 1960s and 1970s.[74] Subject to the limits of human memory, memoirs often necessitate special caution. They inhabit an intriguing border between "primary" and "secondary" sources, as they are not contemporary documents from the time period in question.

Along with the memoirs of Apollo astronauts, I also explored the genre of political memoir produced by Soviet cosmonauts. Published in 1962, Gherman Titov's memoir, *Gherman Titov, First Man to Spend a Day in Space: The Soviet Cosmonaut's Autobiography, as told to Pavel Barashev and Yuri Dokuchayev,* filters the cosmonaut's recollections through the editorial pen of two unaffiliated reporters who most likely sought to uphold the party line.[75] "Memoir literature is deemed a particularly useful tool to add credibility to the official account of history," Hiroaki Kuromiya wrote in his publication, "Soviet Memoirs as a Historical Source."[76] Citing the example of World War II, Kuromiya pointed out that "Soviet memoirs, like other Soviet publications, have treated certain topics with candor and enthusiasm," and often faced "distortions and falsifications on the part of editors and censors."[77] Scholar Irina Paperno posited that "autobiographical writing could serve as an instrument for creating subjects for the new, communism-bound society."[78] Released the year after Titov's flight on Vostok 2, *Gherman Titov, First Man to Spend a Day in Space* was almost certainly "enhanced" to fit political norms. Cosmonaut-engineer Konstantin Feoktistov published his autobiography, *Trajectory of Life*,

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[74] Frank Borman and Robert J. Serling, *Countdown: An Autobiography* (New York: Silver Arrow, 1988); Vance D. Brand, *Flying Higher and Faster* (Chesterfield, MO: Mira Digital Publishing, 2015); Michael Collins, *Liftoff: The Story of America's Adventure in Space* (New York, NY: Grove Press, 1988).
[75] Gherman Titov, *Gherman Titov, First Man to Spend a Day in Space: The Soviet Cosmonaut's Autobiography, as Told to Pavel Barashev and Yuri Dokuchayev* (Crosscurrents Press, 1962).
[76] Hiroaki Kuromiya, "Soviet Memoirs as a Historical Source," *Russian History* 12, no. 2/4 (1985): 296.
[77] Ibid., 296; 305.
[78] Irina Paperno, *Stories of the Soviet Experience: Memoirs, Diaries, Dreams* (Ithaca: Cornell University Press, 2011), 14.

nearly a decade after the fall of the Soviet Union.[79] Although no longer subject to Soviet censure, Feoktistov's 2000 publication must be read while keeping in mind that "in order to realize their intentions of 'self-revelation,' a memoirist often 'reveals the most intimate facts…' which may or may not be remembered correctly by the author."[80]

The most exciting primary sources comprising my research are the oral histories of cosmonauts and astronauts. While their reliance on human memory poses the risk of subjectivity regarding historical events, oral histories capture my interest as living, extemporaneous primary sources. During a March 2022 interview, astronaut David Scott spoke enthusiastically about his meeting with Soviet cosmonauts at the 1967 Paris Air Show fifty-five years earlier. In August 2021, I personally interviewed Lieutenant General Thomas Stafford about his experiences working with Soviet cosmonauts leading up to the Apollo-Soyuz Test Project. The Johnson Space Center also hosts an online archive of oral histories, including interviews with astronauts, flight directors, and other major players in the space program.

Steeped in cultural history, my thesis examines how interpersonal relationships between astronauts and cosmonauts developed out of purposeful cross-cultural interactions between the two space programs, and how these individual relationships were promoted by the American and Soviet governments and media in order to further détente. I engaged in three major historiographical methods to gather and interpret historical documents in Russian and English, and my background in international space policy helped me interpret NASA's historical agreements and memos. The personal narrative aspect of space history is what originally attracted me to this field, and I relished the opportunity to engage with the archives and

[79] Ibid., 18.
[80] Konstantin Petrovich Feoktistov, *Trajectory of Life* (Moscow, Russia: Vagrius, 2000).

recollections of cosmonauts and astronauts as I explored the camaraderie that they shared at the height of the Cold War.

Chapter 2

Space for Humanity

The year 1967 marked a watershed moment for U.S.-U.S.S.R. space collaboration, as members of the astronaut and cosmonaut corps experienced shared grief and engaged in cross-cultural exchanges. Tragedy struck both the American and Soviet space programs that year, a somber reminder of the dangers inherent to human spaceflight that transcend ideological differences. The loss of the three-man Apollo 1 crew in January and the fatal crash of Soyuz 1 in April encapsulated moments of mourning and reckoning for both nations.[81] Grieving the loss of their fallen crewmates, a delegation of astronauts approached their Soviet counterparts for a cordial meeting at the Paris Air Show in May 1967.[82] Initiating friendly, informal conversation outside the stilted greetings common to diplomatic protocol, astronauts David Scott and Michael Collins and cosmonauts Konstantin Feoktistov and Pavel Belyayev paved the way for greater collaboration between the Soviet Union and the United States on both a personal and international level.

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[81] Colin Burgess, Kate Doolan, and Bert Vis, *Fallen Astronauts: Heroes Who Died Reaching for the Moon* (University of Nebraska Press, 2016).

[82] David R. Scott, Notes on Meeting with Cosmonauts at 1967 Paris Air Show, May 25, 1967, Box 4, David R. Scott and Anne Lurton Scott papers (MSS 1511), Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University, Atlanta, GA.

Apollo 1

On January 27, 1967, the crew of Apollo 1, Gus Grissom, Ed White, and Roger Chaffee, lost their lives in a fire nearly a month before their planned launch during a routine test of the electrical connections inside their spacecraft. Composed of pure oxygen, the air inside the craft was extremely flammable. When a stray spark emanated from the spacecraft's exposed wiring, the cockpit caught fire immediately, killing the entire crew before they could open the hatch to escape.[83] In his book, *Fallen Astronauts: Heroes Who Died Reaching for the Moon,* space historian Colin Burgess attributed the three astronauts' deaths to NASA management's push for an accelerated launch schedule, as well as disorganization among the contractors responsible for engineering the Apollo craft's hardware. He noted that much of this urgency stemmed from the administration's concerns about falling behind in the Space Race:

> There was growing pressure at NASA (though few would admit it) to push [Apollo 1] to a satisfactory completion for the scheduled delivery date. The haste was intensified by a worrying silence from the Soviet Union. The superpower had not flown a manned mission during the entire Gemini program and intelligence reports – which were correct as history was to prove – were suggesting that the Soviet Union was planning their own lunar landing program to beat the United States to the moon.[84]

A few months before the planned launch date of Apollo 1, Gus Grissom had noticed technical problems in the spacecraft's engineering. He "became increasingly vocal about the lax state of preparedness and safety concerns," expressing his "impatience with the people involved in [the craft's] design and systems."[85] Despite his concerns, the organizational culture at NASA was such that if an astronaut "backed off and chose not to fly," he risked both his astronaut career and his standing in the military.[86] As professional test pilots, the Apollo 1 crew "determined that they

[83] Burgess, *Fallen Astronauts*.
[84] Ibid., 121.
[85] Ibid., 123.
[86] Ibid., 121.

were going to fly whatever spacecraft management put in front of them, regardless of the consequences, even if their own lives were on the line."[87]

Burgess wrote that many of Grissom's fellow astronauts "concurred that the spacecraft was thoroughly substandard and unfit to be flown."[88] Astronaut Michael Collins recalled in his 1988 memoir, *Liftoff: The Story of America's Adventure in Space*:

> The paperwork documenting the frequent changes to…the spacecraft had been sloppily maintained, and the accident board was never able to satisfy itself that it knew precisely which wires were inside at the time of the fire, which had been removed, which had been capped. The final nail in the crew's coffin was the design of the hatch…[The hatch] was a primitive design, two separate hatches actually, and the inner, pressure-sealing one required the removal of several dozen bolts with a wrench before it could be pulled inside the spacecraft.[89]

The disorganization, rushed work, and lack of attention to detail that Grissom had often criticized doomed the crew to a tragic death. In his 2002 memoir, *We Have Capture*, astronaut Thomas Stafford discussed the cause of the fire:

> A possible electrical short in the lower left forward bay…had caused bare wires to burn and melt; in the hyper flammable, pure oxygen atmosphere, flames had quickly spread to the Velcro and netting inside the spacecraft, turning it into an inferno within seconds.[90]

Along with the "issues of flammability and the hatch," Stafford noted that indirect responsibility for the Apollo 1 accident lay with "NASA decision-making, safety procedures, and quality control and documentation. There wasn't even a fire extinguisher inside [the spacecraft] that day, and the test hadn't even been classified as 'hazardous.'"[91] He bemoaned the overconfidence that NASA had developed after five years of successful crewed missions, musing, "I wonder how we could have been so gung-ho that we overlooked fire, especially since we used pure oxygen."[92]

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[87] Ibid.
[88] Ibid.
[89] Michael Collins, *Liftoff: The Story of America's Adventure in Space* (New York, NY: Grove Press, 1988), 136.
[90] Thomas P. Stafford, *We Have Capture: Tom Stafford and the Space Race* (Washington, D.C.: Smithsonian Institution Press, 2002), 105.
[91] Ibid., 106.
[92] Ibid., 104.

The Apollo 1 fire shocked and saddened both Americans and Soviets alike. David Scott shared his recollections of flying from California back to Houston on the night of the crew's death, "in shock…and [his] mind spinning with questions."[93] He described the words of sympathy that air-traffic controllers shared with him as he flew:

> All the air-traffic controllers knew that there had been a fire and the crew had been killed. Normally communications with air-traffic control was very terse and correct, but this time it was different. Since joining the astronaut corps, whenever we flew we used a NASA call sign. So the guys on the ground knew who we were. They wanted to show their sympathy. All along the route we got messages from air-traffic controllers like 'Sorry to hear about what happened' and 'Good luck to you guys.' Their comments seemed to reflect how just about everyone across the country felt that night.[94]

The day after the fire, the head of the Soviet cosmonaut corps, Nikolai Kamanin, recorded in his diary the shock he felt upon hearing the news:

> I knew that heavy casualties and losses in the battle for space are just as inevitable as losses in war, but this accident proved unexpected for all. The entire series of dazzling successes of Russian cosmonauts and shining achievements of Americans in the Gemini program created the impression of a certain easiness of "space jaunts:" many began to think not about overcoming the difficulties of space flights, but rather how to avoid or obscure these difficulties. The successes of the Gemini program went to the Americans' heads – they decided that Apollo and Saturn 5 already guaranteed them superiority in their quest for the Moon and decided to force the lunar program.[95]

Kamanin's thoughts mirrored those of Stafford, criticizing the excessive confidence that the American space program had developed after launching so many successful missions. Citing NASA's hubris as the contributing factor to the tragedy, Kamanin emphasized the pitfalls of the Americans' hurry to reach the Moon, stating that "haste has always led to unfortunate consequences: the astronauts Grissom, White and Chaffee became the first casualties of space exploration."[96] His words would take on a more somber meaning three months later, as the

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[93] Alexei A. Leonov and David R. Scott, *Two Sides of the Moon: Our Story of the Cold War Space Race* (New York, NY: St. Martin's Griffin, 2004), 191.
[94] Ibid.
[95] N.P. Kamanin, *Skrytyi Kosmos: Kosmicheskie Dnevniki Generala Kamanina [Hidden Cosmos: The Space Diaries of General Kamanin]*, vol. 3 (1967-1968), 4 vols. (Moscow, Russia: Infortekst-IF, 1997), January 28, 1967 entry.
[96] Ibid.

Soviet space program faced a similarly rushed launch schedule and political pressure to reach the Moon at all costs that ultimately led to the death of cosmonaut Vladimir Komarov in April 1967.

In *Two Sides of the Moon*, cosmonaut Alexei Leonov described the reaction of the cosmonaut corps to the news of the fire:

> The tragedy of Apollo 1 was widely reported in the Soviet Union, and our government sent condolences to the families of the men who had died. The cosmonaut corps also expressed its sympathy by sending letters to the families. Although we did not know any of the men personally, we felt an affinity with them.[97]

This sense of personal connection sparked Leonov's interest in cooperation with the Americans. He stated that "from a professional point of view," he viewed the astronauts' deaths as "a sacrifice which would later save the lives of others."[98] In his memoir, however, he expressed anger at the American engineers involved in Apollo 1, decrying their "stubbornness" for using a pure oxygen atmosphere in the spacecraft.[99] Referencing the unfortunate 1961 death of cosmonaut Valentin Bondarenko, who had died in a fire while training inside a chamber with a pure oxygen atmosphere, Leonov stated that he "couldn't understand why [NASA] had not switched to the system we adopted after Bondarenko's death."[100] "The Americans must have known of the tragedy that had befallen Bondarenko," wrote Leonov in *Two Sides of the Moon*. "He had been given a big funeral, and the American intelligence services would not have been doing their job properly if they had not informed NASA about what had happened."[101]

Leonov underestimated the extent to which his own nation covered up this tragedy of the early space age. In *Fallen Astronauts*, Burgess wrote that "the news of [Bondarenko's] death was immediately suppressed [by the Soviet Union] and became a state top secret. No one would

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[97] Leonov and Scott, *Two Sides of the Moon*, 192. Sadly, I was unable to find any record of the Soviet cosmonauts' condolences in the archives that I perused.
[98] Ibid.
[99] Ibid.
[100] Ibid.
[101] Ibid.

know of Bondarenko's death beyond those who had…witnessed the accident, treated the dying man, or had professional connections with the cosmonauts. The incident remained a top Soviet secret for the next twenty-five years."[102] Had the U.S.S.R. publicly shared information about Bondarenko rather than hiding it, perhaps NASA would have known to change the concentration of oxygen in the Apollo craft's atmosphere, and the crew of three could have survived.[103] Resolving to learn from NASA's mistake, Soviet engineers lept into action to ensure that a fire would never break out in one of their ships. Leonov wrote that "the accident made us analyze our own systems again very carefully…Every aspect of our spacecraft [was] reviewed to minimize the risk of fire. Extra insulation was added to exposed wiring, and television lamps which caused too much heat were replaced."[104]

Rocket scientist Boris Chertok wrote in his book, *Rockets and People*, that "we were all shaken by the news of the death of three American astronauts…They did not die during a spaceflight, but rather burned alive on Earth during training."[105] He recommended that Soviet leadership prepare a statement about the reliability of Russian spaceflight as soon as possible, especially in the light of sensationalist media coverage in the West:

> The American media didn't skimp on describing the details of the tragedy. NASA leadership endured severe criticism. We deemed it necessary to urgently prepare a conclusion stating that [this accident] would be impossible on our ships.[106]

Leonov reported that the American press "speculated about the possibility [of] the American space program being canceled as a result of the Apollo 1 fire."[107] Soviet media mused that the

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[102] Burgess, *Fallen Astronauts*, 234.
[103] John Charles, "Could the CIA Have Prevented the Apollo 1 Fire?," *The Space Review*, January 29, 2007, https://www.thespacereview.com/article/797/1.
[104] Leonov and Scott, *Two Sides of the Moon*, 192.
[105] B.E. Chertok, *Rakety i Liudi*, vol. 3, 4 vols. (Moscow, Russia: Mashinostroenie, 1999), 301. An alternative English translation was published by the NASA History Office in 2005: B.E. Chertok, *Rockets and People*, trans. Asif Siddiqi, 4 vols., The NASA History Series (Washington, D.C.: NASA, 2005).
[106] Chertok, *Rakety i Liudi,* vol, 3, 302.
[107] Leonov and Scott, *Two Sides of the Moon*, 192.

tragedy would cause extreme delays in NASA's lunar program, and made much of the fact that the astronauts died on the ground rather than in outer space. The official newspaper of the Soviet government, *Izvestiia*, stated:

> America is experiencing the death of [the astronauts] as a national tragedy. For the first time, three astronauts have died in the line of duty – died, by an irony of fate, on the ground, a few feet from rescuers, proving that even dry land, alas, does not guarantee the pioneers of outer space against risk.[108]

The article emphasized what it deemed the "irony" or even "futility" of this tragedy by quoting Gus Grissom himself, translating his words into Russian: 'It is worth risking your life to conquer space.' *Izvestiia* directly followed this quote by pondering the extent to which Apollo 1 would delay the American space program in the race to the Moon:

> [Grissom] died without having reached the moon, which was thought to be two or three years away. How much longer will it take for the Americans to get to the Moon after the Apollo 1 disaster? …The official goal is to land on the Moon by 1970. Unofficially, it was thought possible to achieve this at the end of 1968 or the beginning of 1969. The tragedy at the launchpad has disrupted this entire objective.[109]

Izvestiia's coverage of Apollo 1 showed that the Soviet government not only had the advantage in the Space Race in the early months of 1967, but also had no qualms about letting the world know. A close examination of Soviet and American newspapers revealed that neither the American nor the Soviet press brought up the topic of international cooperation in the wake of the Apollo 1 fire. The U.S. and Soviet governments were nowhere near ready to discuss the possibilities of close collaboration in human spaceflight. In fact, the two nations had only recently signed the Outer Space Treaty drafted by the United Nations, which decreed that "the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind," and that "outer space shall be free for

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[108] S. Kondrashov, "Tuman Posle Tragedii (Fog After Tragedy)," *Izvestiia* (Moscow, Russia, January 30, 1967), issue 26.
[109] Ibid.

exploration and use by all States…[and] is not subject to national appropriation by claim of sovereignty, by means of use or occupation."[110] The United Nations proclaimed that outer space belonged to all of humankind, and could not be colonized or divided into territories belonging to a single nation. Upon signing the treaty, President Johnson remarked that "we are just beginning to consider taking the first firm step toward keeping outer space free forever from the implements of war."[111] While the treaty laid the foundation for future international partnerships in space, it did not have an immediate impact on human space exploration.

Incidentally, the Outer Space Treaty was officially signed by the United Nations on January 27, 1967, the same day that Grissom, White, and Chaffee died in the Apollo 1 fire at Cape Kennedy. NASA administrator James Webb was at the White House earlier that day with other "top Gemini and Apollo corporate officials," witnessing President Johnson's signing of the treaty.[112] He decided to stay in Washington, D.C. after hearing the news of the astronauts' deaths.[113] Only after the Apollo 1 and Soyuz 1 tragedies did government officials truly begin to realize the paramount, strategic importance of international collaboration between the two superpowers in space. bolstered by interpersonal connections. The pioneers of this collaboration were the astronauts and cosmonauts themselves.

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[110] United Nations General Assembly, "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies" (United Nations, January 27, 1967), https://www.unoosa.org/pdf/publications/STSPACE11E.pdf.
[111] Lyndon B. Johnson, "Remarks at the Signing of the Treaty on Outer Space" (LBJ Presidential Library, January 27, 1967), https://www.lbjlibrary.org/object/text/remarks-signing-treaty-outer-space-01-27-1967.
[112] Courtney G. Brooks, James M. Grimwood, and Loyd S. Swenson, *Chariots for Apollo: A History of Manned Lunar Spacecraft*, NASA History Series NASA SP 4205 (Washington, D.C.: U.S. Government Printing Office, 1979).
[113] Ibid.

Soyuz 1

In April 1967, cosmonaut Vladimir Komarov died as his Soyuz 1 capsule crashed into the ground, its parachutes having fatally malfunctioned. A veteran spacefarer, Komarov had commanded the Voskhod 1 craft in 1964 with crewmates Konstantin Feoktistov and Boris Yegorov, beating the United States to the milestone of launching a multi-crewed ship into orbit. Nikolai Kamanin, the head of the Soviet cosmonaut corps, selected Komarov in 1966 to pilot the first-ever mission of the Soyuz spacecraft.[114] Six months before launch, Kamanin wrote in his diary, *Skrytyi Kosmos (Hidden Cosmos)*, that the Soyuz was unreliable, shoddily designed, and insufficiently tested for a crewed flight. The OKB-1 engineering bureau (Experimental Design Bureau) faced extreme political pressure from Leonid Brezhnev to launch the Soyuz in time for the anniversary of Vladimir Lenin's birthday on April 22, as well as to take advantage of the American space program's setback after the Apollo 1 tragedy.[115] Kamanin lamented the fact that the chief engineer in charge of the Soyuz project, Vasily Mishin, "gave in" to the Soviet government's insistence on an accelerated launch schedule, noting that Mishin "shortened the testing period [of the Soyuz craft] and thus massively reduced the reliability and quality of the spacecraft's preparation."[116] As rocket scientist Boris Chertok rather brusquely detailed, "common sense was suppressed by the ambition, for ideological reasons, to obtain outstanding results by the anniversary and demonstrate the reliability of our technology while in the United States, astronauts are burning alive on the ground."[117]

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[114] N.P. Kamanin, *Skrytyi Kosmos: Kosmicheskie Dnevniki Generala Kamanina (Hidden Cosmos: The Space Diaries of General Kamanin)*, vol. 2 (1964-1967), 4 vols. (Moscow, Russia: Infortekst-IF, 1997), November 21, 1966 entry.
[115] David S.F. Portree, *Mir Hardware Heritage*, Johnson Space Center Reference Series NASA RP 1357 (Houston, TX: NASA Information Services Division, 1995), 10.
[116] Kamanin, *Skrytyi Kosmos*, vol. 2 (1964-1967), December 8, 1966 entry.
[117] Chertok, *Rakety i Liudi*, vol. 3, 305.

These regrets prove especially chilling in their chronological proximity to the Apollo 1 tragedy, when both Chertok and Kamanin specifically drew attention to the role of hastiness in the astronauts "burning alive on the ground."[118] The Soviet space program learned from NASA's mistakes involving pure oxygen and flammable spacecraft contents, and engineers implemented the proper precautions against a fire. Nobody implemented any precautions against the most critical and insidious cause of the Apollo 1 fire – impossible launch deadlines, and the resulting temptation to cut corners during the engineering and testing process. This lack of awareness on the part of both the Soviet government and the engineering bureau's leadership was directly responsible for Komarov's untimely death.

Vladimir Komarov launched into orbit to great fanfare aboard the Soyuz 1 craft on April 23, 1967. His spacecraft faced technical problems almost immediately. One of the solar panels on the ship had failed, as well as the steering mechanism and the automatic orientation system – the flight computer designed to calculate Komarov's location among the stars.[119] After Komarov spent nearly twenty-seven hours without sleep trying to fix the severe problems with his craft, mission control finally asked the cosmonaut to return home.[120] With his instruments unable to pinpoint the ship's location and orientation, Komarov aligned the defective Soyuz capsule into the correct position for re-entry manually, using the Sun and stars for navigation. Tragically, he would not survive the return to Earth. Due to Soyuz 1's rushed launch schedule, the parachute system was plagued by shoddy engineering and inadequate testing. Komarov's parachute tangled as he descended, and the backup parachute failed to open to slow the cosmonaut's fall. The Soyuz 1 capsule crashed into the steppe along the Russian-Kazakh border,

[118] Ibid.
[119] Burgess, *Fallen Astronauts*, 243.
[120] Ibid., 243-244.

where Vladimir Komarov lost his life upon impact on April 24, 1967. He holds the dubious honor of being the first man to die during a spaceflight, and the shock of his death stopped the Soviet space program in its tracks.[121]

The Soviets were loath to disclose information about their failures in outer space. "In our quest to be the first to send a man into space, we had a fundamental advantage over the Americans—the secrecy of our program," wrote Boris Chertok.[122] However, Chertok admitted that "the ideological attitudes of that time forced us to describe only successes and hide failures. That policy of unnecessary secrecy did more harm than good."[123] In *Fallen Astronauts: Heroes Who Died Reaching for the Moon,* Colin Burgess wrote that this "inherent secrecy of the Soviet space program," compounded by "the Soviet Union's traditional practice of gross exaggeration, lying, 'reinventing' events, and retouching official photos," left Vladimir Komarov's legacy abroad in the hands of the oft-misinformed Western press.[124] In his memoir, Thomas Stafford noted the meager extent of his knowledge of Komarov's death: "I heard very few of the details, even by the standards of the time, since I was representing NASA and the American space program in Montreal, Canada, at Expo '67. All I knew about Komarov's tragedy was what I read in the newspapers."[125] Burgess drew attention to "an ugly string of rumors about Komarov's death" that developed out of sensationalized American "retellings" of the cosmonaut's final moments:

> It was said that [Komarov's] wife, Valentina, had been brought to mission control to bid an emotional, tearful farewell to her doomed husband. American listening stations were reported to have listened to Komarov's pitiful cries while he plummeted to Earth, cursing

[121] Chertok, *Rakety i Liudi*, vol. 3, 314. Komarov's capsule landed in Orenburg Oblast, 65 kilometers from the city of Orsk.
[122] Chertok, *Rockets and People*, trans. Asif Siddiqi, vol. 3, 251.
[123] Chertok, *Rakety i Liudi*, vol. 2 (Moscow, Russia: Mashinostroenie, 1999), 253.
[124] Burgess, *Fallen Astronauts*, 245.
[125] Stafford, *We Have Capture*, 108.

> and renouncing a government that had ordered him to carry out a flight in a trouble-plagued craft that was launched well before it was ready.[126]

Nikolai Kamanin wrote in his diary about the hurt and frustration he felt upon hearing these rumors: "Vladimir Komarov is the first casualty among the Soviet cosmonaut corps. We are all painfully enduring this loss, and we don't want to have to 're-educate' American liars during these days of grief."[127] Alexei Leonov wrote that Komarov "was always very serious. He was a first-class test pilot. Everyone understood that this first flight was a high-risk mission…"[128] A *Pravda* article written collectively by the members of the Soviet cosmonaut corps described Komarov as "a humble man, an attentive and sensitive comrade, a good family man – he was always a role model of integrity and discipline."[129] Painting an experienced test pilot as unstable, panicked, and unpatriotic, the hyperbole and overly dramatic storylines of the Western rumors are an insult not only to Vladimir Komarov's memory, but also to the grieving family and crewmates that he left behind (fig. 3).

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[126] Burgess, *Fallen Astronauts*, 245.
[127] Kamanin, *Skrytyi Kosmos*, vol. 3 (1967-1968), May 4, 1967 entry.
[128] Leonov and Scott, *Two Sides of the Moon*, 195.
[129] Soviet Cosmonaut Corps, "U.S.S.R. Pilot-Cosmonaut Vladimir Mikhailovich Komarov," *Pravda* (Moscow, Russia, April 25, 1967), issue 115.

Figure 3. *Vladimir Mikhaylovich Komarov (1927-1967), his wife Valentina Komarov, and their daughter Irina in Moscow.* Photograph by United Press International, 1967. Smithsonian Institution Archives, Washington, D.C.[130]

Western media still propagates these rumors today without any regard to their scientific accuracy. NPR science correspondent Robert Krulwich falsely claimed in 2011 that Komarov "crashed into Earth [while] crying in rage."[131] However, the ionized air surrounding Komarov's capsule during re-entry would have caused what Colin Burgess described as a "radio blackout lasting several minutes, a perfectly normal occurrence for any returning spacecraft."[132] The cosmonaut would not have been able to transmit anything from the Soyuz, let alone "cries of

[130] The most viewed photograph of Vladimir Komarov is that of his charred body recovered after the crash of Soyuz 1. That graphic photo shows up first – and multiple times thereafter – in the search results for "Vladimir Komarov" on Google Images. I included a photo of Komarov with his family so as to humanize him, as he was so much more than his tragic death.
[131] Robert Krulwich, "Cosmonaut Crashed Into Earth 'Crying In Rage,'" *NPR*, March 18, 2011.
[132] Burgess, *Fallen Astronauts*, 245.

rage," as he re-entered the atmosphere. At the time of his last radio communication, Komarov was still in low Earth orbit, having successfully completed a difficult piloting maneuver to position his ship for re-entry. He could not have known that his parachutes would fail just a few moments later. In fact, the last words that he transmitted to the ground were, "I am feeling well, everything is fine. Separation [of the descent module] has occurred."[133] Having experienced radio blackouts themselves while returning from their respective missions, the NASA astronauts were able to disregard the sensationalized stories that emerged after Komarov's death despite the Soviet Union's reluctance to offer more public insight. "Reflecting on [the cosmonauts'] loss, I felt a strong sense of brotherhood with those men," David Scott wrote in *Two Sides of the Moon*.[134] The strength of the astronauts' and cosmonauts' shared experience allowed both groups to look past their nations' propagandistic bluster and connect on a more personal level.

In most cases, the false narrative of Komarov's death stemmed from a lack of knowledge about Soyuz 1, rather than any purposeful anti-Soviet prejudice. However, some Americans reacted to the news of the Soviets' tragedy with narrow-minded, anti-Communist rhetoric, a mindset reminiscent of the Red Scare era fifteen years earlier. The *Washington Post* reported on April 25, 1967, that a Florida state senator "proposed a resolution expressing sorrow at the death of Soviet cosmonaut Vladimir Komarov, but withdrew it when fellow senators objected."[135] One of the opposing senators' aides justified their objection, saying that they "didn't want to be put in the position of debating the resolution because Komarov was a Communist."[136] The politicians' refusal to honor a fallen cosmonaut simply because of ideological differences shows that many

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[133] Artyem Krechetnikov, "Vladimir Komarov: Pervaia Zhertva Pokoreniia Kosmosa (Vladimir Komarov: First Casualty of Space Exploration)," *BBC News Russian Service*, April 24, 2017, https://www.bbc.com/russian/features-39696506; Chertok, *Rakety i Liudi*, vol. 3, 314.
[134] Leonov and Scott, *Two Sides of the Moon*, 314.
[135] "State Senate Drops Tribute to Komarov," *The Washington Post, Times Herald (1959-1973)* (1967): A13.
[136] Ibid.

Americans proved unreceptive to any gesture of goodwill between the U.S.S.R. and the United States in space. The astronauts' displays of genuine kind-heartedness went against the norm.

After hearing of Komarov's death, the American astronaut corps sent a condolence telegram to the cosmonaut's bereaved friends and family. They sent this expression of sympathy via official channels, the telegram distributed by the NASA Public Affairs Officer for Manned Space Flight and received by the U.S.S.R. National Academy of Sciences. Signed collectively by "the forty-seven American Astronauts," the condolence letter reads as particularly empathetic and heartfelt:

> We are very saddened by the loss of Col. Komarov. We feel comradeship for this test pilot because we have met several of his fellow cosmonauts and we know that we are all involved in a pioneering flight effort which is not without hazard. We particularly want to express our deep sense of sympathy to Mrs. Komarov, their children and his fellow cosmonauts.[137]

Having mourned three of their own crewmembers just a few months earlier, the astronauts felt an acute sense of identification with the grief their Soviet counterparts must be feeling. They understood the risks of space exploration and, by virtue of their shared identity as spacefarers, took the time to send this very personal telegram expressing their condolences. With this simple but meaningful action, the astronaut corps endeared itself to the cosmonaut corps and the cosmonauts' families through unpretentious language, stepping away from the stilted parlance generally used in international diplomacy. This telegram is a testament to the impact that personal connections were already beginning to have in encouraging collaboration between the two space programs.

The death of Komarov had an immediate impact on the educated American public, marking a shift in the way many journalists and artists thought about the competitive aspect of

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[137] NASA Astronaut Corps, "Telegram from American Astronauts to National Academy of Sciences, Moscow," Telegram, April 24, 1967, NASA.

the space race. In his 2018 dissertation, "Reds in Space: American Perceptions of the Soviet Space Programme from Apollo to Mir 1967-1991," Thomas Ellis examined the American response to the Soyuz 1 tragedy through the pop culture of the era. Analyzing space-age television shows and films such as *Star Trek* and Stanley Kubrick's *2001: A Space Odyssey*, Ellis emphasized the "space chivalry" that began to appear in "wider Apollo-era culture" – narratives that "depicted Soviet or Russian space travelers as partners, comrades, or fallen rivals worthy of respect rather than villainous antagonists."[138] He wrote that despite the sensationalized rumors that grew out of the Soviet Union's strict policy of secrecy, the "spaceflight tragedies of 1967 added a poignant undercurrent to space brotherhood by fostering a sense of mutual vulnerability that cut across ideological boundaries."[139] Ellis' conclusions underline the impact that the losses of both the Apollo 1 crew and Soyuz 1 had on the American psyche of the time:

> The Soviet tragedy coming so soon after NASA's own was a bleak coincidence that made it easy for Americans to empathize with their Cold War rivals, enforcing a brutal sense of equivalence as the superpowers were united in vulnerability and grief. The predominant American response [to Komarov's death] was…characterized by empathy. Americans knew all too well how it felt to lose a space hero.[140]

Instead of giving in to the allure of false rumors or sensationalized speculations, reputable newspapers such as the *New York Times* approached Soyuz 1 with the empathy and sense of "space brotherhood" that Ellis described. Offering a respectful tribute to the fallen cosmonaut, the *New York Times* likened the Soyuz 1 tragedy to that of the Apollo 1 crew and declared Komarov's death a loss for humankind that surpassed national boundaries:

> The death of the Russian cosmonaut Vladimir Komarov brings a shared sorrow to Americans, who saw three of our own astronauts die just three months ago. The dangers

[138] Thomas Ellis, "Reds in Space: American Perceptions of the Soviet Space Programme from Apollo to Mir 1967-1991" (Dissertation, University of Southampton, 2018), 42.
[139] Ibid., 39.
[140] Ibid., 39-40.

> that astronauts faced were sensed by everybody, but the presence of death puts a special emphasis on the risks being daily run. Until this year fortune was favoring the brave…[141]

The article criticized the breakneck speed and nationalistic urgency of the space race as having dangerous consequences for both sides, lamenting:

> Both nations are duplicating costly and dangerous work. Thus good and brave men die unnecessarily, vast sums are wasted, and without doubt the progress that humanity could make through cooperation in the thrilling quest for knowledge of the universe is being hampered by pride, prestige and the nebulous possibility of strategic gain.[142]

Rather than vilifying human space exploration as a whole, the *New York Times* wisely pointed out that the competitiveness intrinsic to the space race discourages mankind from pursuing scientific innovation for its own sake. Instead of "duplicating" each other's work unnecessarily, NASA and the Soviet space program should cooperate to push the envelope of human knowledge exponentially further.[143]

Official NASA communication regarding Komarov's death also contemplated whether the loss of Soviet and American astronauts could have been avoided if the space programs had been in closer communication. A few hours after news of the Soyuz 1 crash reached the United States, the NASA Assistant Administrator for Public Affairs, Julien Scheer, sent out a memo to other departments within NASA Headquarters about the grave need for greater collaboration with the Soviets:

> We...feel that at this dawn of the space age man has the duty to seek cooperation between nations such as the U.S.S.R. and the United States on a realistic basis. We at NASA want to make every realistic effort. Could the lives already lost have been saved if we had known each other's hopes, aspirations and plans? Or if full cooperation had been the order of the day? I very much hope that the dramatic events which have already occured in 1967 will be looked at against the background of the many statements made by the leaders of both nations to the effect that cooperation is something both nations should

[141] "Death of a Cosmonaut," *The New York Times*, April 25, 1967.
[142] Ibid.
[143] Ibid.

> seek. I know President Johnson is ready to match his actions with his strongly expressed desire for more effective cooperation.[144]

It is sobering that four men had to die before the American and Soviet space programs started to seriously consider shifting their attitudes towards cooperation.

NASA Administrator James Webb first proposed a partnership between NASA and the Soviet space program at a press conference shortly after news of the cosmonaut's tragedy first broke. He began his speech by paraphrasing the astronauts' condolence telegram, emphasizing that the astronauts identified with Komarov as "a fellow test pilot engaged in a hazardous undertaking, a pioneering undertaking."[145] Webb's description of space flight as both "hazardous" and "pioneering" drew his audience's attention to the human aspect of space exploration rather than the political. He referenced the telegram to portray the astronauts' understanding that they and the cosmonauts are risking their lives in similar ways for a similar patriotic cause. Speaking about the benefits of collaboration to the safety of crews in space, Webb stated that "we are both struggling with the same difficult problems of understanding the laws of nature, the re-entry physics problem, and the control of energy where there is no air or water for a propeller to push against…" The laws of physics are the same no matter one's ideology, and James Webb stressed the necessity of putting ideological differences and Cold War paranoia to the side in favor of mutual trust:

> The large requirement for knowledge, information, know-how, and technical information can contribute in a cooperative effort if people will be willing to talk about their plans and be willing to match the things that we can do together to the plans. The problem of cooperation is accentuated when you don't know what the other fellow's plans are.[146]

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[144] Julian Scheer, *Memorandum on Komarov to Heads of Headquarters Program and Staff Offices*, Memorandum (National Aeronautics and Space Administration, April 24, 1967), NASA. The words emphasized in the quotation were underlined in the original document.
[145] James E. Webb, "Russian Accident Statement" (National Aeronautics and Space Administration, April 24, 1967), NASA.
[146] Ibid.

When asked by a reporter whether he thinks it "would be practical for the United States and Russia to cooperate together," Webb responded by citing the importance of one-on-one personal interactions as the first step towards cooperation, a critical precursor to exchanging more technological information:

> If there is a desire to cooperate, if people will begin to talk about their plans, their hopes, and aspirations, what they would like to do, then you can begin [to] talk about how to go forward to do it. I don't think it is realistic to talk about technological interchange in this sort of thing. You first have to get on a basis where you know what they want to do, and they know the same about us, and we begin to ask ourselves how can we both gain from working together, find a small part for cooperation and work to enlarge it.[147]

Webb did not directly reference astronaut-cosmonaut exchanges during the press conference, but his mention of the condolence telegram at the beginning of his speech and his focus on the human cost of the space program implied the astronaut corps' potential role in these early talks. He warned against focusing too much on the big picture, as connecting the entirety of both space programs in a shared dialogue would prove meaningless if attempted without a genuine interest in working together: "But to join the efforts is too grandiose here. You have got to join the desires first."[148]

The desire for cosmic collaboration with the American space program had not yet made its way into the Soviet press and governmental affairs, at least not to the same extent as NASA-Soviet collaboration had in the United States after the death of Komarov. Reaching across the Iron Curtain was not a priority for the Soviet space program in early 1967. Rather, the Soviet government focused more on spreading Communism to the third world and forging alliances with newly decolonized countries. Although Soviet officials received the astronauts' telegram a few hours after Komarov's death, the Americans' words were not published in *Pravda*, the

[147] Ibid.
[148] Ibid.

official mouthpiece of the Soviet Communist Party, until the day after Komarov's funeral on April 27.[149] Even then, the astronauts' message was relegated to the very bottom of the third page, barely an afterthought compared to a prominently displayed condolence message from Ho Chi Minh.[150] The Vietnamese president's words were followed by statements from leaders of nations as diverse as Mali and India, countries that the Soviet Union hoped to bring into the Communist sphere of influence. At the height of the Vietnam War, it is clear that *Pravda* – and thus the Communist Party – made strategic use of Komarov's tragedy in order to convey a sense of international Communist solidarity. *Pravda*'s coverage of the fallen cosmonaut's funeral ultimately gave more importance to the ceremonial well-wishes of Party officials and heads of state than the budding personal connection between the cosmonauts and astronauts themselves.

International cooperation in outer space was indeed on the Soviets' minds in the spring of 1967, just not cooperation with the Americans. An examination of the May 1967 volume of the Soviet popular science magazine, *Aviation and Cosmonautics*, offers insight into a more specialist-oriented understanding of space collaboration in the aftermath of Komarov's death. The publication included a lengthy tribute to the fallen cosmonaut, with eulogies penned by cosmonauts Yuri Gagarin and Pavel Popovich. After that, readers were treated to an interview with the Soviet Minister of Communications, Nikolay Psurtsev, in an article entitled, "Prospects of the Development of Radio Communications Satellites."[151] In response to the question, "What place do satellites occupy in the general communications system of our nation?," Psurtsev first discussed the role of "long-range communications systems" in connecting "remote and hard-to-

[149] "Vechnaia Slava Geroiu (Eternal Glory to the Hero)," *Pravda* (Moscow, Russia, April 27, 1967), issue 117.
[150] Ibid.
[151] "Perspektivy Razvitiia Kosmicheskoi Radiosviazi (Prospects of the Development of Radio Communications Satellites)," *Aviatsiia i Kosmonavtika*, May 1967.

reach regions" within the Soviet Union.[152] He then turned to the topic of international collaboration:

> The use of satellites opens up broad prospects for the creation of international radio communications systems, helping to implement the decisions adopted by the UN General Assembly on the creation of a worldwide communications system. The Soviet Union has always endeavored and will endeavor to develop international collaboration in the field of space communications. The agreement between the Republic of Cuba and the U.S.S.R. on the construction of communications stations with Moscow via artificial satellites could serve as an example of this, as well as the collaboration between the U.S.S.R. and France in the organization of joint broadcasts of black-and-white and color television programs via the Soviet communications satellite "Molniya-1."[153]

Psurtsev discussed the U.S.S.R.'s collaboration with the newly Communist nation of Cuba, as well as collaboration with France, a founding member of NATO. According to his interview, international collaboration in space through radio communications systems comprised a major initiative for the Soviet government in 1967, and had the added benefit of turning the U.S.S.R. into a communications hub that connected the world. An intriguing nuance here is that none of this collaboration involved human spaceflight. The Soviets clearly still viewed human spaceflight as being about international *competition*, not *cooperation.*

The U.S.S.R.'s lack of interest in engaging with the American space program in the spring of 1967 is exemplified by the Soviet government's refusal to allow a delegation of American astronauts to attend Vladimir Komarov's funeral. The *Boston Globe* reported:

> The Soviet Union has rebuffed a U.S. proposal to send two American astronauts to the funeral of Komarov. Julian Scheer, assistant NASA administrator for public affairs, said plans to send L. Gordon Cooper and Frank Borman to the funeral…were dropped when the Soviets replied that the funeral would be an internal affair. U.S. officials were somewhat surprised by the Soviet rebuff. One of them called it "a rather strange sort of response" to what was intended as a friendly and sympathetic gesture.[154]

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[152] Ibid.
[153] Ibid.
[154] "Cosmonaut Rites Today In Moscow," *Boston Globe (1960-)* (Boston, MA: Boston Globe Media Partners, LLC, April 26, 1967).

Borman and Cooper flew all the way to Copenhagen where, when their plane stopped to refuel, "the Russians informed [them] that [they] would not be allowed to attend" the funeral.[155] Deke Slayton, an astronaut who served as the director of Flight Crew Operations in the 1960s after being grounded by NASA for a heart problem, recalled in his memoir:

> We thought it would be polite to send representatives to Komarov's funeral, and had Frank Borman and Gordo Cooper all ready to go. But the Soviets sent back word that the funeral was a "private matter," so no American astronauts attended. Komarov was buried in the Kremlin Wall and the Russians were right back where we were.[156]

In the aftermath of the two space tragedies of 1967, a certain divergence of empathies emerged between how the astronauts and cosmonauts viewed one another, and how the American and Soviet governments viewed the cosmonauts and astronauts, respectively. The memoirs of Alexei Leonov, Thomas Stafford, and David Scott demonstrate a shared sense of grief and outrage towards the officials who ordered faulty spacecraft to launch with men on board. Cosmonauts and astronauts had never had much reason to interact before, but the act of sending condolence telegrams and letters opened up new channels for the rival spacefarers to connect with one another as fellow test pilots. After Komarov's death, the American government expressed interest in reaching out to Soviet cosmonauts, with NASA administration grappling with the possibility that the Apollo 1 crew could have survived had U.S.-Soviet collaboration begun earlier. The Soviet government proved much less willing to engage with American astronauts, perhaps out of shame or paranoia regarding state secrets, though Soviet cosmonauts such as Leonov welcomed the opportunity to meet their counterparts.

The tragic deaths of Gus Grissom, Roger Chaffee, Ed White, and Vladimir Komarov were entirely preventable. Their legacies live on, as NASA focused on reforming its work culture

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[155] James Schefter, *The Race: The Complete True Story of How America Beat Russia to the Moon* (New York, N.Y.: Doubleday, 1999).
[156] Donald K. Slayton and Michael Cassutt, *Deke!: An Autobiography* (Macmillan, 1995), 198.

to promote what Grissom described as "good work" – quality engineering and attention to detail rather than speed.[157] In the wake of Komarov's death, Soviet engineers devoted themselves to investigating and rectifying the Soyuz's many malfunctions. Fifty-five years later, the Soyuz is widely considered the world's safest, most reliable spacecraft – the workhorse of human space exploration, successfully ferrying cosmonauts and astronauts to and from low Earth orbit.[158] The significant role of the Soyuz in modern spaceflight is an enduring tribute to Komarov's memory and legacy. Komarov, Grissom, Chaffee, and White also contributed to one of the most meaningful aspects of space exploration, albeit unknowingly. Their deaths led to the first personal interactions between astronauts and cosmonauts, sparking the beginning of a decades-long partnership between the former Soviet Union and the United States in outer space.

[157] Neal Thompson, *Light This Candle: The Life and Times of Alan Shepard* (New York, N.Y.: Crown Publishers, 2004), 239.
[158] Robin McKie, "Why the Soviet Space Workhorse Soyuz Is Still Going Strong – 50 Years On," *The Guardian* (London, UK, December 11, 2016).

Chapter 3

First Contact

In the spring of 1966, David Scott and Neil Armstrong launched into space and rendezvoused with, or approached, an uncrewed Agena rocket during the Gemini VIII mission. After reaching the same orbital velocity as the Agena, the crew successfully docked with their target. Describing the rendezvous process in their *Life* magazine article, "A Case of Constructive Alarm," the two astronauts wrote:

> After our first orbit, Neil began the maneuvers required to bring us to a rendezvous with the previously launched Agena rocket. These require a series of burns on our thrusters that would put us into precisely the same orbit with the Agena. When we had closed the distance to about four miles, we could see it glowing in the sunlight…[159]

Scott and Armstrong drew closer to the rocket and finally made contact, their docking and rendezvous in orbit marking yet another milestone on the United States' road to the Moon.[160] One year later in Paris, France, David Scott took the first step towards closing the distance between the astronaut corps and the cosmonaut corps in a "rendezvous on Earth." Striking up a conversation with Soviet cosmonauts Konstantin Feoktistov and Pavel Belyayev at the 1967 Paris Air Show, Scott and fellow astronaut Michael Collins entered into "precisely the same orbit" as their Soviet counterparts. This initial connection between the two space programs on a personal level would ultimately spark a successful partnership between NASA and the Russian space program, as well as long-lasting friendships between many of the cosmonauts and astronauts.

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[159] Neil Armstrong and David Scott, "A Case of Constructive Alarm," *Life*, April 8, 1966.
[160] Ibid.

The Paris Air Show

Dating back to 1909, the Paris Air Show has long served as a "stage for the latest…technology," and as a "commercial showcase" for the aviation industry to market new products.[161] At the height of the Cold War, the United States and the Soviet Union utilized the Paris Air Show as a technological battlefield, each prominently displaying their most impressive aircraft to demonstrate their technological superiority.[162] Space historian Teasel Muir-Harmony wrote in her book, *Operation Moonglow: A Political History of Project Apollo*, that the US began sending spacecraft to the air show "two days after Kennedy proposed sending Americans to the Moon" in 1961.[163] The United States Information Agency (USIA), established by President Eisenhower to boost the reputation and influence of the US abroad, described its reasoning for exhibiting Alan Shepard's flown spacecraft, *Freedom 7*, at the Paris Air Show:

> The prestige race against the Soviets is a contest with no small importance. Over a million people at the world's largest international exposition on aviation and space will see this symbol of the latest American space success.[164]

In addition to showing off its technological accomplishments to the world, the United States used the Paris Air Show and similar exhibitions around the world as a means to project the appearance of openness and transparency within its space program. Muir-Harmony wrote:

> When [John] Glenn's capsule was put on display [in 1962], the USIA included engineering diagrams of its interior workings along with other exhibit components. This exhibit, as well as most US space exhibits in this period, highlighted scientific and technological information as a demonstration of openness and a symbol of liberal democratic values.[165]

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[161] "The Paris Air Show and the Colourful History of Flight," *Aerospace Technology*, June 14, 2009, https://www.aerospace-technology.com/features/feature57382/.
[162] Ibid.
[163] Teasel Muir-Harmony, *Operation Moonglow: A Political History of Project Apollo* (New York: Basic Books, 2020), 101.
[164] Ibid.
[165] Ibid., 110.

Rather than provide a mere model of the capsule to the exhibits, the USIA put actual NASA spacecraft on display.[166] This directly contrasted with the Soviets' strict policy of secrecy, under which the Soviet exhibits could only showcase simplified spacecraft models and "photographs of the Vostok [capsule] veiled underneath a cover."[167] A Politburo decree on publicity for Yuri Gagarin's flight ordered that the "State Committee of the U.S.S.R. Council of Ministers for Cultural Ties with Foreign Countries" prepare "special display stands about the Soviet Union's mastery of space for demonstration at international exhibitions."[168] Rocket scientist Boris Chertok noted that the only information about Soviet space technology available to the public, both abroad and within the U.S.S.R., was "so diluted and far from real technology and its problems that experts regarded it as fit for elementary school students."[169] Essentially, the Vostok-1 educational materials were over-simplified in every way, except for the name of the State Committee tasked with their creation.

The popular appeal of a "capsule laid bare before the eyes of people from around the world" granted the US a much-needed advantage on the propaganda front in the early years of the Space Race.[170] Capitalizing on its success with international exhibits, the American government started inviting NASA astronauts to the Paris Air Show in the mid-1960s. In a March 2022 interview, David Scott stated that the first of these trips took place after the Gemini 4 mission in June 1965.[171] Gemini 4 had seen Ed White leave his spacecraft and perform an extravehicular activity, or "spacewalk," becoming the first American to float outside his capsule

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[166] Ibid., 109.
[167] Ibid.
[168] Asif Siddiqi, ed., "Excerpt from Minutes Nº 325 of the April 26, 1961, Meeting of the CPSU CC Presidium, 'On the Further Commemoration and Popularization of the First Flight of a Soviet Man in Space'"," trans. Gary Goldberg and Angela Greenfield (History and Public Policy Program Digital Archive, April 26, 1961), https://digitalarchive.wilsoncenter.org/document/260546.
[169] B.E. Chertok, *Rakety i Liudi*, vol. 3, 4 vols. (Moscow, Russia: Mashinostroenie, 1999), 185.
[170] Muir-Harmony, *Operation Moonglow*, 118.
[171] David R. Scott, interview with Tracy L. Scott, Jacksonville, FL, March 6, 2022.

in the vacuum of space.[172] Soviet cosmonaut Alexei Leonov had beaten NASA to this milestone by three months as part of the Voskhod-2 mission, later writing in his memoir that he "had no time or desire to contemplate such conflict [of the Space Race]. As far as I was concerned I was there to prove to my fellow man what human beings were capable of."[173] After NASA's second-place finish, President Johnson wanted to prove to his "fellow man" the capabilities of the American space program. In his interview, David Scott recalled the suddenness of Johnson's invitation to the Gemini 4 crew:

> The first big [international] trip I heard anybody go on was after Jim [McDivitt] and Ed [White] on Gemini 4. Jim and Ed White went to the White House for dinner, and [President] Johnson said, "Why don't we go to the Paris Air Show?" And overnight that decision was made, overnight. Jim and Ed and the wives were at the White House, "Okay, pack your bags and get whatever clothes you want, we'll go to the Paris Air Show tomorrow."[174]

Muir-Harmony described President Johnson's thought process in *Operation Moonglow*:

> As Johnson told the story, he looked at the astronauts and their families sitting in his living room and thought, "What finer representation, what greater ambassadors, what more appealing personalities could this country send out to the world than these astronauts?" It happened to be the same week as the Paris Air Show. Inspired, he asked them to fly to Paris that very night to represent the United States at the opening day of the air show. The astronauts and their wives had planned only for a dinner at the White House and not a trip to Paris, so they had not packed the necessary clothing. Lady Bird Johnson solved this problem by taking the astronauts' wives to her and her daughters' closets, where she gathered up enough dresses and gowns for their trip…The astronauts and their wives boarded a 3:00 a.m. flight to Paris and, according to Johnson, "performed a very valuable service to their country."[175]

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[172] Bob Granath, "Gemini IV: Learning to Walk in Space," Text, *NASA*, May 29, 2015, http://www.nasa.gov/feature/gemini-iv-learning-to-walk-in-space.
[173] Alexei A. Leonov and David R. Scott, *Two Sides of the Moon: Our Story of the Cold War Space Race* (New York, NY: St. Martin's Griffin, 2004), 107.
[174] David R. Scott, interview with Tracy L. Scott, Jacksonville, FL, March 6, 2022.
[175] Muir-Harmony, *Operation Moonglow*, 132.

Political Expectations

At the 1965 Paris Air Show, McDivitt and White encountered not only a "pared-down, simplified version of the [Vostok] capsule," but also the cosmonauts Yuri Gagarin and Gherman Titov.[176] Neither the astronauts nor the cosmonauts made any overtures of friendship, however, perhaps due to the spontaneity of the astronauts' trip to Paris or the "large crowds" that mobbed McDivitt and White as they arrived at the airport.[177] In late April, the Soviets had discussed sending Pavel Popovich, who flew aboard Vostok-4, to the Paris Air Show in mid-June – but decided against it. Nikolai Kamanin, the head of the cosmonaut corps, described his reservations in the April 30, 1965 entry of his diary:

> Colonel-General Braiko expressed his doubt about the merits of Popovich for involvement in this trip… I know very well that Pavel Romanovich sometimes displays excessive lightness in his behavior and rashness in his speeches (as was the case in Cuba and in Austria). I will have to have a serious talk with him…[178]

Contrasting the Soviet method of selecting cosmonaut "ambassadors" with the American method offers a fascinating insight into the cultural differences and similarities between the two space programs. According to Kamanin's diary, Soviet military officials began deliberating weeks in advance about which cosmonauts to send to international events, basing their decisions on recommendations from officials and the likelihood of a cosmonaut to "behave properly."[179] If a cosmonaut did not "behave" – that is, if they "showed lightness in their demeanor," spoke in haste, or became drunk and disorderly, that cosmonaut would be overlooked for future opportunities to represent the Soviet space program abroad.[180] These stringent standards of

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[176] Ibid.
[177] Ibid., 133.
[178] N.P. Kamanin, *Skrytyi Kosmos: Kosmicheskie Dnevniki Generala Kamanina [Hidden Cosmos: The Space Diaries of General Kamanin]*, vol. 2 (1964-1967), 4 vols. (Moscow, Russia: Infortekst-IF, 1997), April 30, 1965 entry.
[179] Ibid.
[180] Ibid.

behavior served to mold the Soviet cosmonaut into an aspirational, larger-than-life Communist figure, the "New Soviet Man."[181] Defined by Slava Gerovitch as "an icon of communism" and an "exemplary Soviet citizen," the New Soviet Man embodied an "ideological prototype, [the] precursors of the people who would inhabit the future."[182] In this role, cosmonauts "played the role of mediator between the top of society and ordinary people," inspiring a new "moral code" designed to guide the patriotic formation of Soviet citizens.[183]

Published by the Communist Party approximately six months after Yuri Gagarin's April 1961 flight, the Moral Code of the Builder of Communism "articulated collectivist values and patriotic commitments that youth were expected to manifest" in the cosmic era.[184] This code, "committed to memory by the Cold War generation," defined the main responsibilities of a well-raised Soviet citizen:[185]

> [The Moral Code included] devotion to the communist cause; love of the socialist motherland and of the other socialist countries; conscientious labor for the good of society…a high sense of public duty; intolerance of actions harmful to the public interest; and collectivism and comradely mutual assistance.[186]

A declassified document from September 1960 listed "character references" for the "core group of six cosmonauts" training for spaceflight.[187] Even in its infancy, the Soviet space program sought to recruit cosmonauts who could serve as inspiring Communist role models. These

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[181] Slava Gerovitch, "'New Soviet Man' Inside Machine: Human Engineering, Spacecraft Design, and the Construction of Communism," *Osiris* 22, no. 1 (2007): 142.
[182] Slava Gerovitch, *Soviet Space Mythologies: Public Images, Private Memories, and the Making of a Cultural Identity* (Pittsburgh, PA: University of Pittsburgh Press, 2015), 50.
[183] Anna Eremeeva, "The Regional Dimension of Space Propaganda," in *Soviet Space Culture: Cosmic Enthusiasm in Socialist Societies*, ed. Eva Maurer et al. (Basingstoke, GB: Palgrave Macmillan, 2011), 146. On the creation of a new moral code, see Trevor Rockwell, "They May Remake Our Image of Mankind: Representations of Cosmonauts and Astronauts in Soviet and American Propaganda Magazines, 1961-1981," 136.
[184] Donald J. Raleigh, *Soviet Baby Boomers: An Oral History of Russia's Cold War Generation*, 67.
[185] Ibid.
[186] Trevor Rockwell, "The Molding of the Rising Generation: Soviet Propaganda and the Hero-Myth of Iurii Gagarin," 14.
[187] Asif Siddiqi, ed., "Top Secret Service and Character References for Core Group of Six Cosmonauts Training for the First Human Spaceflight," trans. Gary Goldberg and Angela Greenfield (History and Public Policy Program Digital Archive, September 27, 1960), https://digitalarchive.wilsoncenter.org/document/260536.

propagandistic priorities are exemplified by the document's appraisal of Yuri Gagarin's ideological character:

> He is calm and cheerful by nature. He reacts correctly to criticisms. He treats the collective with respect. He participates in the social life of the subunit. [He] is politically developed and ideologically steadfast. He is able to keep a military secret. He is devoted to the cause of the Party and the socialist Motherland. During [his] time in the Center he has shown himself to be one of the best-prepared students.[188]

Nikita Khrushchev stated in 1962:

> Hero-cosmonauts are people who even now already embody the wonderful traits of the member of the communist society. [Exhibiting] high intellectual culture, moral purity, and perfect physique, [cosmonauts'] deeds are driven by the love for Motherland, sense of public duty, and noble ideals of communism.[189]

Saddled with expectations for how to behave and even think, only the Soviet cosmonauts whose personal and public lives satisfied Kamanin's high standards were selected to represent the Soviet Union abroad – after much deliberation by military officials and leadership. This contrasted with the spontaneity of American astronauts' first appearance at the 1965 Paris Air Show, which David Scott summed up as President Johnson saying, "Okay, pack your bags and get whatever clothes you want, we'll go to the Paris Air Show tomorrow."[190]

Despite the spontaneity of these trips to Paris, the American astronauts faced strict behavioral standards of their own. These standards were more often than not unspoken, and were not explicitly codified by the government as with the Soviets' "Moral Code." In "'Some People Call Me A Space Cowboy:' The Image of the Astronaut in *Life* Magazine, 1959-1972," historian Edward Salo described the role of *Life* magazine in ascribing aspirational qualities to the astronauts.[191] He posited that *Life* portrayed the American astronaut as "a combination of

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[188] Ibid.
[189] Gerovitch, *Soviet Space Mythologies*, 81.
[190] Scott, interview, March 6, 2022.
[191] Edward Salo, "Some People Call Me a Space Cowboy: The Image of the Astronaut in *Life* Magazine, 1959-1972" (Masters Thesis, Middle Tennessee State University, 1998).

explorer, military man, breadwinner and technocrat:" essentially, a man who could "do it all."[192] These expectations developed out of the American public's thoughts on what an astronaut "should be," on which both *Life* magazine and NASA Public Affairs quickly capitalized. Astronaut Gene Cernan wrote in the foreword to *Marketing the Moon*:

> Along the way, and totally unexpected by us, we astronauts became very visible public figures. This wasn't NASA's initial intent, but they adapted quickly. It was the press, and in turn the public, who declared us "heroes," and from that followed the inevitable responsibility to "market" the space program, both to Congress and to the public that elected it.[193]

Serving as ambassadors for their countries during the Space Race, both astronauts and cosmonauts faced lionization by their countrymen. All too often, they were perceived as larger-than-life embodiments of their respective nations rather than individuals. Cosmonauts and astronauts shared similar frustrations with their "celebrity status" and the expectation to "personify" the aspirations and dreams of the general public. The similarities of their life experiences contributed to the ease with which David Scott and Michael Collins conversed with Pavel Belyayev and Konstantin Feoktistov at the 1967 Paris Air Show.

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[192] Ibid., 4.
[193] Eugene A. Cernan, "Foreword," in *Marketing the Moon: The Selling of the Apollo Lunar Program*, by David Meerman Scott and Richard Jurek (Cambridge, MA: The MIT Press, 2014), vi.

Rendezvous on Earth

In May 1967, the Soviet Union unveiled its Vostok rocket to the world for the first time. At risk of losing the upper hand in the transparency of its space program, and still grieving the loss of the Apollo 1 crew, the United States government asked Michael Collins and David Scott to "represent NASA" at the Paris Air Show. In *Two Sides of the Moon*, Scott wrote that "the idea was to show the world that we were back on track after the [Apollo 1] fire. Both NASA and the Soviets had big pavilions; each was trying to impress the world with its space capabilities. This was the first time, for instance, that the Soviets unveiled their Vostok booster."[194] The State Department cautioned the two astronauts that some cosmonauts would be present at the air show:

> The State Department [warned], "Watch out because they," the Soviets, "Will try to embarrass you," and that was what was going on both sides. Just embarrass you, right? And one of the things they told us was that they heard there will be a couple of cosmonauts there. "Don't meet with them because they'll stand you up and embarrass you."[195]

This undercurrent of distrust towards the Soviets had permeated space affairs since the launch of Sputnik. However, in the wake of Apollo 1 and the death of Komarov aboard Soyuz 1, the State Department's worst-case scenario of "embarrassment" proved rather tame. David Scott wrote in his memoir:

> Somehow, we let it be known that we would like to meet the cosmonauts…We had been fighter pilots, after all, and fighter pilots are always greatly curious about each other. They want to know how the other guy does things, even if, or especially if, they are fighting on different sides.[196]

[194] Leonov and Scott, *Two Sides of the Moon*, 202.
[195] Scott, interview, March 6, 2022.
[196] Leonov and Scott, *Two Sides of the Moon*, 202.

According to NASA's official itinerary for May 25, 1967, the astronauts were to tour the US Pavillion with their wives beginning at 2:15 p.m., then speak at a press conference later that afternoon.[197] However, Scott recalled:

> We heard somebody say, the rumor is that the cosmonauts will be at their pavilion at 3:00 p.m. So Mike and I talked about it, "Well, we can't do that, they told us not to meet the cosmonauts." And we thought, "How can we not do that?" It was supposed to be a big secret, that [the cosmonauts] were going to be there. So, the embassy guys said, "Yeah, okay fine. We'll go over and just casually go over to their pavilion and maybe they'll be there. *Maybe*, we don't know that." This was really secret stuff. So, Mike and I got all ready and took the wives, went over to tour the pavilion, we could do that, no big deal.[198]

That day, David Scott and Michael Collins toured the Soviet pavilion and spoke with two Soviet cosmonauts for the first time (fig. 4).

Figure 4. *Michael Collins (left), Konstantin Feoktistov (second from left), David Scott (third from left), and Pavel Belyayev (right) tour the Soviet pavilion at the 27th Paris Air Show.* Photograph by AP Photos, May 25, 1967. Le Bourget Airport, Paris, France.

[197] David R. Scott, Thursday 25 May – Paris Air Show Itinerary, May 25, 1967, Box 4, David R. Scott and Anne Lurton Scott papers (MSS 1511), Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University, Atlanta, GA.
[198] Scott, interview, March 6, 2022.

Later that night, Scott jotted down his recollections of the meeting on the back of his copy of the itinerary:

> This afternoon we met [Pavel] Belyayev and [Konstantin] Feoktistov. The US pavilion (Denis) had informed the U.S.S.R. pavilion that we would visit… When we arrived we were met immediately by _____ the director of the display (who spoke German, apparently minimum) and _____ (who later appeared to be a "den mother" type for B[elyayev] and F[eoktistov]) who spoke English. They informed us that the Cosmonauts would like to meet us and within 2-3 minutes F appeared and was introduced. He is quiet, short, thin, greying, wears glasses and appears to be about 40. They looked for B, and said he would be along but since he was wearing the uniform had been detained signing autographs. He arrived within 5 minutes and was obviously the center of attention, a leader, and had considerable authority. By then we were surrounded by the press at least 7 or 8 deep, and posed for a number of handshakes and greetings, all of which were warm, friendly, and spontaneous.[199]

Clearly, the State Department had been overly cautious. Rather than embarrassing the Americans, Belyayev and Feoktistov "came out to greet [Scott and Collins], all smiles."[200] Whatever veneer of "secrecy" the astronauts thought they had to preserve immediately vanished (fig. 5). "And then, every photographer in Paris showed up," Scott recalled. "Was that a secret? That was not a secret."[201] Scott noted that since Belyayev was wearing his military uniform, he "had been detained signing autographs."[202] Feoktistov, as a civilian in civilian clothing, enjoyed a semblance of anonymity in comparison. This observation demonstrates the similarities between the cosmonauts' and astronauts' experiences with fame and celebrity.

[199] David R. Scott, Notes on Meeting with Cosmonauts at 1967 Paris Air Show, May 25, 1967, Box 4, David R. Scott and Anne Lurton Scott papers (MSS 1511), Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University, Atlanta, GA.
[200] Leonov and Scott, *Two Sides of the Moon*, 203.
[201] Scott, interview, March 6, 2022.
[202] Scott, Notes on Meeting with Cosmonauts at 1967 Paris Air Show.

Figure 5. *David Scott (center) Greets Soviet Cosmonauts Konstantin Feoktistov (left) and Pavel Belyayev (right) at the 27th Paris Air Show.* Still from archival footage by British Pathé, May 25, 1967. Le Bourget Airport, Paris, France.

Managing to evade the press, Belyayev led the astronauts and their wives to a commercial airliner on display, the Russian TU-104 jet.[203] Scott marveled that the cosmonauts "had it all set up – they had the stewardesses out there to meet us, [we] went up the ladder, sat down. [The plane] had two rows of seats, had caviar, vodka, the whole nine yards."[204] The astronauts, their wives, and the cosmonauts sat "in the front two sets of seats with a table between each pair on each side of the aisle. A Russian stewardess served two glasses each, a bottle of vodka and a bottle of water per table, and a tray of caviar on bread."[205] Scott pointed out that Belyayev and Feoktistov "were either well prepared for any contingency or had planned on

[203] Leonov and Scott, *Two Sides of the Moon*, 203.
[204] Scott, interview, March 6, 2022.
[205] Scott, Notes on Meeting with Cosmonauts at 1967 Paris Air Show.

our acceptance of their invitation."[206] The fact that the plane was already set up for a conversation over drinks shows that the cosmonauts were equally interested in connecting with their counterparts at the air show, despite any resistance or hesitation on the part of their governments. In his interview, Scott recalled:

> [Feoktistov] didn't talk, Belyayev talked a lot, with an interpreter. The four of us, [sitting] across from each other, had [a] conversation, and the ladies were over here – [they] weren't paying any attention but it was very pleasant, very pleasant. And we got to talking about all sorts of things, a lot of technical stuff.[207]

Up until this point, the Soviet space program had held information about its spacecraft close to its chest. The interpersonal connections that Scott, Collins, Belyayev, and Feoktistov forged at the air show allowed for an intimate exchange of information that had previously been undisclosed. Belyayev discussed "the Vostok on display and…shared several details about the Proton [spacecraft] including weight, size, and amount of data returned."[208] He also revealed details that the U.S.S.R. had long kept hidden regarding the earliest Vostok flights. Scott described his takeaways from this conversation in *Two Sides of the Moon*:

> The Russians were catapulted out of their spacecraft before they touched down on Earth. We knew their craft were designed to touch down on land, rather than splash down in the ocean as ours were, but I had not realized that before that they returned to Earth on their own personal parachutes…[209]

This revelation proved especially illuminating, as Soviet press releases had always omitted the fact that Yuri Gagarin did not land inside his spacecraft.[210] In actuality, the Vostok had never been designed to land with a cosmonaut inside, and Gagarin "ejected at 20,000 feet" before

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[206] Ibid.
[207] Scott, interview, March 6, 2022.
[208] Scott, Notes on Meeting with Cosmonauts at 1967 Paris Air Show.
[209] Leonov and Scott, *Two Sides of the Moon*, 204.
[210] Cathleen Lewis, "Why Yuri Gagarin Remains the First Man in Space, Even Though He Did Not Land Inside His Spacecraft," *National Air and Space Museum*, April 12, 2010. https://airandspace.si.edu/stories/editorial/why-yuri-gagarin-remains-first-man-space-even-though-he-did-not-land-inside-his.

landing 1.5 kilometers away from his capsule.[211] The Soviets kept this information from the world because at the time, the Fédération Aéronautique Internationale (FAI) required a pilot to land inside their craft in order for the spaceflight to count as legitimate.[212] According to space historian Cathleen Lewis, the FAI "reworked the parameters of human spaceflight" only after the second Soviet cosmonaut, Gherman Titov, admitted that he landed outside his spacecraft in August 1961. The FAI retroactively "recognized that the great technological accomplishment of spaceflight was the launch, orbiting and safe return of the human, not the manner in which [the human] landed."[213]

David Scott emphasized the fact that the 1967 Paris Air Show took place at the height of the Space Race, when "there was real secrecy in the Soviet Union about what was going on."[214] Despite the tension between the two space programs, the cosmonauts and astronauts engaged in meaningful conversation that touched on both lighthearted and serious elements. Scott recalled a particularly humorous moment:

> When we asked Belyayev how much time the cosmonauts had to spend making speeches, studying or flying their simulators, he joked that he spent most of his time hunting and fishing. It was the only time Feoktistov showed a sense of humor, indicating that Belyayev had a bruise on his arm from the number of times he marked the length of the fish he caught.[215]

Later, the four men solemnly drank a toast in honor of Apollo 1 and Soyuz 1, "to the hope that there would be no more accidents on either of our programs:"[216]

> Mike and I knew that a few weeks earlier a cosmonaut named Komarov had lost his life. We did not know how, and did not ask. But when Belyayev inquired how the wives of

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[211] Ibid.; Anatoly Zak, "Landing of the Vostok Spacecraft," *Russian Space Web*, last modified April 12, 2021, http://www.russianspaceweb.com/vostok1_landing.html.
[212] Lewis, "Why Yuri Gagarin Remains the First Man in Space, Even Though He Did Not Land Inside His Spacecraft."
[213] Ibid.
[214] Scott, interview, March 6, 2022.
[215] Leonov and Scott, *Two Sides of the Moon*, 203-204.
[216] Ibid., 204.

> the lost Apollo 1 crew were doing, we asked how Komarov's widow was. Not too well, Belyayev indicated. She visited his grave, he said, every day.[217]

Finally able to mourn their fallen crewmates together, Feoktistov, Belyayev, Scott, and Collins readily bonded with each other over their shared experiences as fighter pilots and spacefarers. Scott later said that "with the cosmonauts, politics disappeared." He emphasized that "we all had the same goals, the same background, the same interests, just great experiences and we all became really good friends.[218] Reflecting on this encounter in *Two Sides of the Moon*, Scott wrote:

> For us to be able to sit down in a casual, private environment like this was a very big deal…I had never expected to meet a cosmonaut, yet we had had the chance to sit down and really talk turkey. I didn't feel any animosity. Any feelings of rivalry were subsumed by our mutual interest in what the other guys were up to. It was as if we were all members of an elite club. Being a member of that club dominated all other considerations. It subsumed politics. It rose above the bitter fray of the Cold War.[219]

The astronauts' and cosmonauts' personal interest in meeting with one another overcame the distrust and paranoia inherent to the Cold War. Politics set aside, untethered from the expectations of their nations and countrymen, four former fighter pilots chatted away in the aisle of a Soviet jet, having reached a close enough orbit to bring their two nations together in a rendezvous on Earth.

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[217] Ibid.
[218] Scott, interview, March 6, 2022.
[219] Leonov and Scott, *Two Sides of the Moon*, 205.

Conclusion

In the 1960s, the United States and the Soviet Union viewed astronauts and cosmonauts as canvases on which to project the hopes and dreams of entire nations. NASA tasked the astronaut corps with public relations duties, requiring the former fighter pilots and test pilots to travel the United States while playing the role of an affable American everyman and celebrity "hero." In his March 2022 interview, David Scott emphasized that when he applied to NASA, he "never had an inkling" that he would have to do public relations tours as an astronaut.[220] "When I got in, the program was 'go fly,' that was the whole idea. Go fly, right?"[221] He said that unless an astronaut was assigned to the primary crew of an upcoming mission, "NASA headquarters would schedule us for a week [of PR tours]. We called it 'week in the barrel.'"[222] The U.S. government required that astronauts remained active on the PR circuit, while the press was a constant presence in the neighborhoods where the Gemini and Apollo astronauts' families lived. Reporters and photographers from *Life* magazine ensconced themselves in these families' private lives, depicting the astronauts' homes as perfect American households and framing the space program as an enclave of inspiring, all-American values.[223] The lives of the astronauts were not their own; rather, the government and the press ascribed an external significance to the astronauts' lives and communities so as to craft a propagandistic fantasy about the American space program and the power of the nation it represented.

In the U.S.S.R., state propaganda depicted cosmonauts as the human embodiment of Soviet technological triumphs. Lionized by the Soviet press, early cosmonauts were expected to

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[220] Scott, interview, March 6, 2022.
[221] Ibid.
[222] Ibid.
[223] *The United States Astronauts and their Families: A Pictorial Presentation,* 1965, OP 4, David R. and Anne Lurton Scott Papers (MSS 1511), Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University, Atlanta, GA.

manifest the heroic qualities of a model Communist, the "New Soviet Man."[224] The Soviet government routinely treated the cosmonaut corps as if they were machines, molding them into tireless, ideologically loyal, exemplary Soviet citizens with "qualities of self-control and the ability to carry out orders."[225] According to Slava Gerovitch, engineers and officials in the space program often considered the cosmonauts mechanical extensions of the spacecraft itself:

> Cosmonauts were "designed" as part of a larger technological system; their height and weight were strictly regulated, and their actions were thoroughly programmed. Korolev viewed the cosmonaut as… a part that had to obey the logic of system operations as faithfully as any other part.[226]

Forged of titanium, the *Monument to Yuri Gagarin* is the ultimate incarnation of this mechanized, superhuman ideal. Towering 140 feet above the Moscow skyline, the statue stands in a superhero stance, eyes lifted to the heavens (fig. 6).

[224] Slava Gerovitch, "'New Soviet Man' Inside Machine: Human Engineering, Spacecraft Design, and the Construction of Communism," *Osiris* 22, no. 1 (2007): 142.
[225] Slava Gerovitch, *Soviet Space Mythologies: Public Images, Private Memories, and the Making of a Cultural Identity* (Pittsburgh, PA: University of Pittsburgh Press, 2015), 64.
[226] Ibid., 49; 55.

Figure 6. *Pamiatnik Pervomu Kosmonavty Zemli Yu.A. Gagarinu (Monument to the First Cosmonaut of Earth, Yuri A. Gagarin).* Photograph by Feud50, September 13, 2014. Leninsky Prospekt, Moscow, Russia. Creative Commons License (CC BY-SA 4.0), https://creativecommons.org/licenses/by-sa/4.0/.

As space-age celebrities and informal ambassadors of their respective nations, astronauts and cosmonauts faced constant scrutiny and expectations from the public, the press, and the government.[227] The Soviet space program demanded impeccable behavior from the cosmonaut corps, who were accompanied and surveilled by senior officials even while vacationing at the beach with their families.[228] In order to "market" the American space program to the public, NASA granted *Life* magazine unfettered access to the astronauts' personal lives, allowing the men and their families no respite from the public eye.[229] The portrayal of astronauts and cosmonauts as larger-than-life heroes came at the expense of their individuality and even humanity. Where NASA attempted to "smooth the astronauts' rough edges" and "sanitize" their

[227] Kamanin, *Skrytyi Kosmos*, vol. 2 (1964-1967), April 30, 1965 entry.
[228] Ibid., December 21, 1964 entry.
[229] Scott and Richard Jurek, *Marketing the Moon: The Selling of the Apollo Lunar Program*, 19.

language, the Soviets reprimanded the cosmonauts for even the slightest deviation from their public relations "script."[230] Nikolai Kamanin proved particularly dismayed by the cosmonauts' "mistakes," complaining in his diary whenever members of the cosmonaut corps behaved "tactlessly" or uttered "hasty, careless statements" that painted the Soviet space program in a less than positive light.[231]

Fueled by genuine human emotion, the camaraderie that developed between the cosmonauts and astronauts in 1967 stood in direct contradiction to the "lionized and sanitized" image of spacefarers that both the United States and the Soviet Union sought to create.[232] The first act of correspondence between the astronauts and cosmonauts was a condolence letter, a gesture of sincere empathy steeped in one of the most profound of emotions – grief. Following the Apollo 1 and Soyuz 1 tragedies, the astronauts and cosmonauts reached across the Iron Curtain not because of any political ulterior motive or Cold War posturing, but rather out of shared grief and concern for one another on a personal level. This initial connection broke the ice between the Space Race rivals, setting the stage for an in-person meeting at the 1967 Paris Air Show. Worried that the Soviets would "embarrass" the astronauts and thus the United States by association, officials from the U.S. State Department warned David Scott and Michael Collins against meeting with the cosmonauts in Paris. Collins and Scott decided on their own to visit the Soviet pavillion anyway.[233] Cosmonauts Konstantin Feoktistov and Pavel Belyayev must have expressed interest in meeting with the astronauts on their own accord, given that they already had vodka and plates of caviar set up in the Soviet fighter jet. As the four spacefarers took advantage

[230] Mark E. Byrnes, *Politics and Space: Image Making by NASA* (Greenwood Publishing Group, 1994), 53.
[231] Kamanin, *Skrytyi Kosmos*, vol. 2 (1964-1967), October 14, 1965 entry.
[232] Byrnes, *Politics and Space: Image Making by NASA*, 53.
[233] Scott, interview, March 6, 2022.

of the opportunity to commune face-to-face in the wake of their crewmates' deaths, the human aspect of spaceflight prevailed over the political tensions of the Space Race.

The cosmonauts' and astronauts' meeting in Paris proved meaningful not just to the individuals involved, but also to the people of the world, who had endured an eventful year dominated by the Vietnam War and the resulting anti-war protests, the Civil Rights Movement, the constant threat of nuclear destruction, the Cultural Revolution in China, and Soviet political repression. In *Two Sides of the Moon*, Scott described the moment he first saw the cosmonauts outside the Soviet pavilion, marveling that "the world's press seemed to be there, too. I've never seen so many cameras in my life."[234] The press did not act out of malice when mobbing Scott, Collins, Belyayev, and Feoktistov in front of the Soviet pavilion. Rather, the media swarmed the cosmonauts and astronauts out of the belief that the world *needed* this footage. Photographers and reporters hoped that the image of these rival spacefarers engaging in friendly conversation would inspire hope for the future of Cold War relations in the midst of a turbulent decade.

The Paris Air Show sparked genuine, lasting camaraderie between the cosmonauts and astronauts. Astronaut Frank Borman visited the Soviet Union at the cosmonauts' invitation in July 1969, and Konstantin Feoktistov and Georgi Beregovoi toured the United States three months later. In October 1970, cosmonauts Andriyan Nikolayev and Vitaly Sevastyanov visited Houston "at NASA's invitation" – although it seems more likely that the astronauts themselves pushed for the visit rather than the NASA higher-ups.[235] After Nikolayev and Sevastyanov toured the Manned Spacecraft Center, astronaut Jim McDivitt invited them to a barbeque cookout in his yard, and David Scott personally hosted the cosmonauts at his home (fig. 7).

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[234] Ibid.
[235] John Uri and Kelli Mars, "50 Years Ago: Soviet Cosmonauts Visit the United States," Text, *NASA*, October 20, 2020, http://www.nasa.gov/feature/50-years-ago-soviet-cosmonauts-visit-the-united-states.

Figure 7. *Astronauts with Cosmonauts [Andriyan] Nikolayev and [Vitaly]* Sevastyanov. October 1970. McDivitt Yard, Houston, TX. David R. Scott and Anne Lurton Scott Papers, 1962-2019. Stuart A. Rose Manuscript, Archives and Rare Book Library, Emory University, Atlanta, GA.

After the visit, Nikolayev penned a thank you note in English to the Scotts on October 23, 1970, expressing his gratitude for the warm welcome and amazing hospitality he had enjoyed:

> What a wonderful evening! Dinner at the McDivitt's and comradery at your home with the American Astronauts. That alone would make our visit to America a success… We are sure Astronauts and Cosmonauts are on the same wavelength and that were our wives to meet they, too, would feel that same common bond.[236]

High-ranking NASA officials such as James Webb had publicly expressed interest in U.S.-Soviet collaboration in space, but seemed reluctant to take any steps towards this goal. The success of

[236] Andriyan Nikolayev, Letter to Lurton and Dave, October 23, 1970, Box 4, David R. Scott and Anne Lurton Scott papers (MSS 1511), Stuart A. Rose Manuscript, Archives, and Rare Book Library, Emory University, Atlanta, GA.

the 1967 Paris Air Show meeting, as well as the informal tours and visits between the cosmonauts and astronauts, convinced NASA leadership that a partnership between the American and Soviet space programs would indeed be politically feasible.

Developing out of this collaboration, the Apollo-Soyuz Test Project succeeded immensely as the culmination of years of rapprochement and meetings between NASA and the U.S.S.R. Three astronauts, Thomas Stafford, Deke Slayton, and Vance Brand, docked their Apollo spacecraft in orbit with a Soyuz spacecraft piloted by Alexei Leonov and Valery Kubasov. Rivals no longer, Stafford and Leonov shook hands through the open hatch of their connected ships, officially ending the Space Race and ringing in a new era of détente. The Apollo-Soyuz Test Project sparked a sense of optimism for the future, as illustrated by a celebratory sticker from 1975 (fig. 8). Bright and colorful, the bilingual sticker shows Snoopy, a symbol of American culture and a mainstay of NASA's PR campaigns, sitting atop a smiling Apollo spacecraft.[237] A Russian bear waves at Snoopy from atop a smiling Soyuz craft, quoting the excited exclamation uttered by Yuri Gagarin during his launch in 1961, *"Poyekhali!,"* which translates to "Let's go!" The merging of American and Soviet space symbolism in such an endearing design demonstrates the childlike wonder and cross-cultural enthusiasm kindled by the Apollo-Soyuz Test Project at the beginning of détente.

[237] David R. Scott and Anne Lurton Scott Papers, 1962-2019. Stuart A. Rose Manuscript, Archives and Rare Book Library, Emory University, Atlanta, GA.

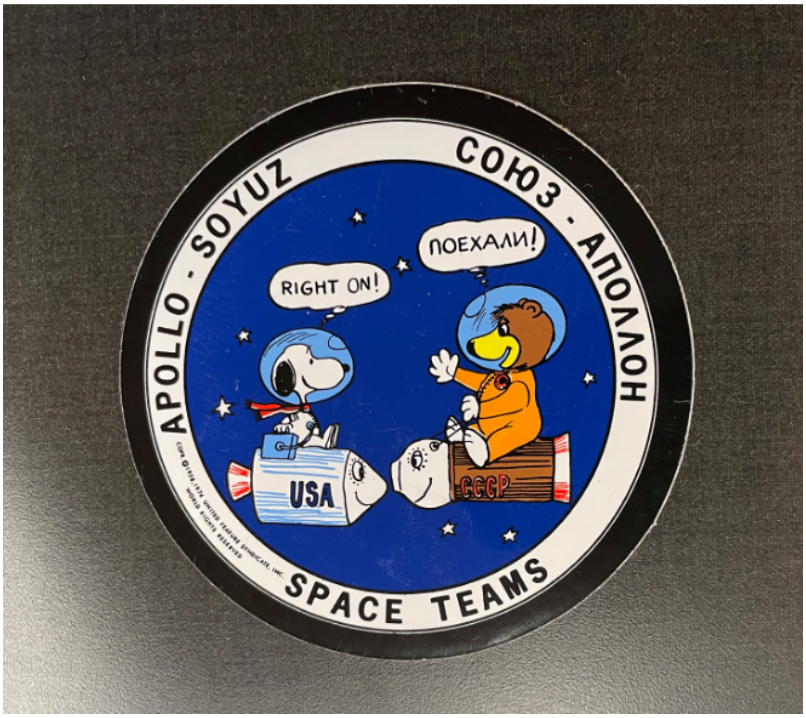

Figure 8. *Apollo-Soyuz / Союз-Аполлон Space Teams.* 1975. David R. Scott and Anne Lurton Scott Papers, 1962-2019. Stuart A. Rose Manuscript, Archives and Rare Book Library, Emory University, Atlanta, GA.

The Apollo-Soyuz Test Project represented a great victory for U.S.-Soviet space collaboration. When the era of détente ended in the 1980s, however, so did NASA's partnership with the U.S.S.R. Only after the fall of the Soviet Union did NASA and the newly independent Russian Federation recommence their collaboration in outer space. From 1993 to 1998, Russian cosmonauts flew with American crews aboard the Space Shuttle, and astronauts worked with Russians aboard the MIR Space Station on long-duration missions. Shuttle-MIR laid the foundation for a more ambitious collaborative program, the International Space Station (ISS). Fifteen nations collaborated to build the ISS, and international crews hailing from approximately twenty countries have occupied the space station continuously since 2000.

At the time of this writing, U.S.-Russian relations have reached their lowest point since the Cuban Missile Crisis. Increasing international tensions threaten to sever one of the United States' last remaining diplomatic ties with Russia – the collaboration between astronauts and

cosmonauts on the International Space Station. While state diplomacy remains important for de-escalating international conflict, an understanding of the origins of Soviet-American collaboration in outer space can shed light on underexplored avenues for cooperation in a tense time. At the height of the Cold War, American astronauts and Soviet cosmonauts reached out to one another out of genuine empathy. These interpersonal connections, forged by individuals on a personal level rather than an institutional or national level, opened up channels of communication between the two space programs that have endured for more than fifty years. In order to maintain a diplomatic relationship between the United States and Russia, preserving the bastion of peaceful collaboration, the International Space Station, is of utmost importance. In order to preserve the ISS, one must look back to the cosmonauts and astronauts of the Space Age and remember the importance of human initiative. We cannot let these channels of communication close.

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