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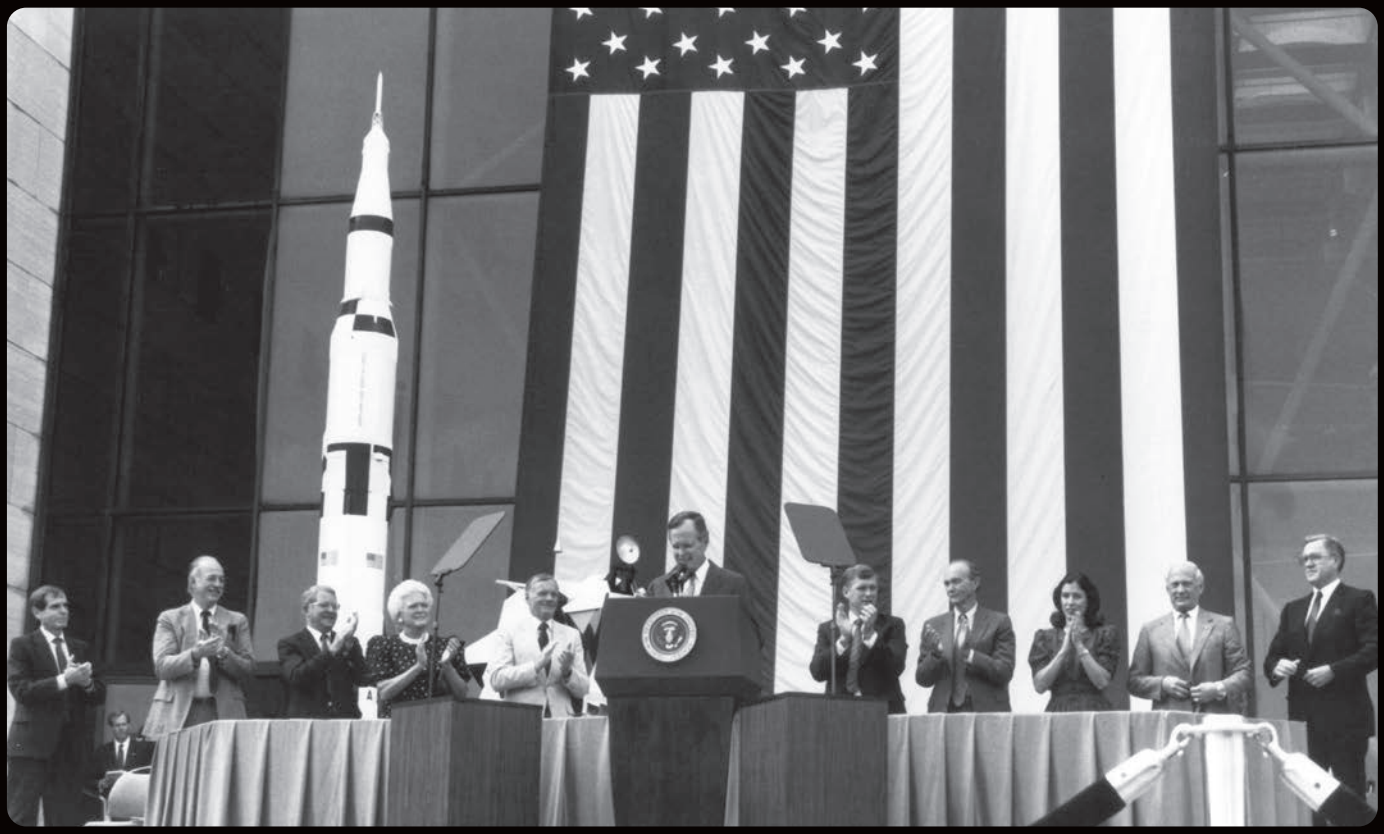
Monographs in Aerospace History No. 58



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Cover photo: President George H. W. Bush speaks at the National Air and Space Museum's 20th anniversary celebration of the Apollo 11 Moon landing. Here, on 20 July 1989, Bush announced his Space Exploration Initiative, which was to complete the Space Station, return astronauts to the Moon, and send humans to Mars for the first time. From left to right are National Air and Space Museum Director Martin Harwit, Smithsonian Secretary Robert McCormick Adams, NASA Administrator Richard Truly, First Lady Barbara Bush, Neil Armstrong, President Bush, Vice President Dan Quayle, Michael Collins, Second Lady Marilyn Quayle, Buzz Aldrin, and Postmaster General Anthony Frank. (NASA Image 89-H-380.)

This publication is available as a free download at *http://www.nasa.gov/ebooks.*

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Acknowledgments

This monograph has a somewhat complicated history. Soon after my 2019 study *Ronald Reagan and the Space Frontier*[1] was published, I began to consider my next project. At my advanced age, I recognized that I likely could not complete a series of separate in-depth studies of space policy during the administrations of the presidents who followed Ronald Reagan. Instead, I came up with the idea of trying to answer the question: "Why has the United States not launched human missions into deep space since Apollo 17 in December 1972, despite the proposals of every president since Ronald Reagan, except Bill Clinton, to undertake new missions of human exploration?" Such a study would involve examining, not the totality of presidential space policy decisions over the past half century, just policies regarding human exploration.

I took this idea to Doug Loverro, who at that point was NASA's Associate Administrator for Human Exploration and Operations. Doug liked the idea and was willing to provide modest funds to facilitate my research, particularly for travel to the various presidential libraries. Those funds would be managed by the History Office at NASA Headquarters, at that point directed by NASA Chief Historian Bill Barry. Bill asked Manufacturing Technical Solutions, a NASA support contractor in Huntsville, Alabama, to issue a task order for the study.

With that contractual mechanism in place, I began my research in early March 2020 with a productive visit to the George H. W. Bush Presidential Library in College Station, Texas. Then, on March 13, President Donald Trump declared a national emergency related to the rapid spread of the COVID-19 virus. Among the many actions to control the pandemic was the closure of presidential libraries for the indefinite future, effectively making it impossible for me to continue my research as planned. It took me a few months to rethink my plan of study.

Since I had already visited the Bush Library, I decided to focus on the 1989–1993 period, when Vice President Dan Quayle as chair of the reestablished National Space Council and his council staff tried to force NASA into a major organizational transformation aimed at recapturing the innovative spirit that had characterized NASA during the Apollo years. I felt that this attempt at organizational revitalization was an important milestone in the Agency's history that merited a full examination.

I recognized that there were already two book-length studies of that effort. My former student Thor Hogan had turned his doctoral dissertation into a book titled *Mars Wars: The Rise and Fall of the Space Exploration Initiative*[2], and Mark Albrecht, one of the key participants in the attempt at transformational change as Executive Secretary of the National Space Council, provided his perspective in *Falling Back to Earth*.[3] In addition, my colleague Dwayne Day in 2022 published a lengthy essay that in part covered the Space Exploration

1. New York, Palgrave Macmillan, 2019.

2. NASA SP-2007-4410, August 2007.

3. New Media Books, 2011.

Initiative (SEI) period.[4] I was hopeful that, based on documents I found in the Bush Library and NASA files that had not been available to Hogan or Day, plus my acquaintance with most of the individuals involved in the 1989–1993 events, I could add depth of narrative and an independent perspective to these studies. It will be up to the reader to judge whether I have accomplished those objectives.

Progress in research and writing was slow. In October 2021 I moved into a senior living community, and adjusting to that new reality took some time. Along the way, Bill Barry retired and was replaced by a new NASA Chief Historian, Brian Odom. I owe thanks to Doug, Bill, and Brian for their support of my work. I also want to thank James Anderson, Steve Garber, and Jennifer Ross-Nazzal of the NASA History Office; Dwayne Day, a former student now at the National Research Council of the National Academies; Roger Launius, former NASA Chief Historian; and two anonymous reviewers for their helpful comments. On the production end, many thanks go to the professional publications team at NASA's Glenn Research Center, including technical editor Sandra Mason, designer Lorie Passe, editorial assistant Lorraine Feher, and supervisor Danielle Reinhardt. The end result and any errors of fact or misinterpretations of intent are, of course, my responsibility.

John M. Logsdon
Gaithersburg, Maryland
May 2024

4. Dwayne A. Day, "Aiming for the Moon, Crashing on Earth: The Rise and Fall of the 1989 Space Exploration Initiative (Part 1)," *The Space Review,* 24 October 2022, *https://www.thespacereview.com/article/4471/1*; and Part 2, 31 October 2022, *https://www.thespacereview.com/article/4474/1* (both accessed 25 January 2024).

Introduction

Yale policy analyst Gary Brewer, writing in the aftermath of the Space Shuttle Challenger accident, asked, "What do CBS, General Motors, the Bank of America, the U.S. Naval Academy, Yale University, and the horse cavalry have in common with NASA?" In Brewer's view, each of these organizations had at some time in its history been a "perfect place," defined as "the best organization human beings could create to accomplish selected goals." NASA, the National Aeronautics and Space Administration, had "perfected itself in the reality of Apollo." But by the time of Brewer's perceptive analysis, he judged that NASA was "no longer a perfect place. . . . [Apollo's] success is past and the lessons from it are obsolete." Brewer suggested that to regain its excellence NASA "needs new ways of thinking."[1]

The following account describes initial attempts to force a reluctant NASA to adopt such "new ways of thinking." During the administration of President George H. W. Bush (January 1989–January 1993), Bush's Vice President, J. Danforth "Dan" Quayle, and the staff of the National Space Council, a White House organization that Quayle chaired, led an effort to transform NASA from what they perceived to be a stodgy bureaucratic organization into a revitalized source of space achievement and, more broadly, of the technological and economic growth needed to offset the impact of the end of the Cold War on the nation's high technology industrial base.

This effort proceeded in three sequential steps. The initial step was convincing President Bush to propose, on 20 July 1989, the twentieth anniversary of the first steps on the Moon, a bold program of human exploration beyond Earth orbit as an alternative to NASA's existing plans, which were focused on returning the Space Shuttle to regular flights after the January 1986 Challenger accident and developing Space Station Freedom, a research laboratory in low-Earth orbit. This proposal became known as the Space Exploration Initiative (SEI). NASA resisted this shift in program priorities, proposing to stay with its existing plans and to add the new initiative only after Space Station Freedom development was completed. The exploration initiative failed to gather meaningful support in Congress and faded as a White House priority by 1991. The next step was initiating in fall 1990 a comprehensive and critical independent review of NASA's organization and programs that made several recommendations for substantial change. Those recommendations were largely ignored by NASA. The final step, in April 1992, was replacing NASA's top official with an individual of the Vice President's choice who shared his commitment to reforming the Agency. That individual would stay in NASA's top position for almost 10 years and would have meaningful success in leading the Agency's transformation. The following pages describe these steps, the conflicts that

1. Garry Brewer, "Perfect Places: NASA as an Idealized Institution" in Radford Byerly, Jr., ed., *Space Policy Reconsidered* (Boulder, CO: Westview Press, 1989), 158–160, 169.

they produced, and their lasting impacts. It is a case study "of bureaucratic infighting, personality clashes, cultural struggles, and a deeply flawed policy process."[2]

The singular event that, to many, dramatized the need for significant change in NASA was the 28 January 1986 accident that destroyed the Space Shuttle Challenger, killing its seven-person crew. In the aftermath of this catastrophe, criticism of NASA, for many years largely muted, soon emerged. *The New York Times* editorialized: "The loss of NASA's Challenger shuttle was no accident, striking a well-run agency like a bolt from the blue. It sprang directly from 15 years of hidden mismanagement, waste and fraud that have become routine in NASA operations. . . . NASA needs a new policy, a new direction, and renewed dedication and competence."[3] Longtime space policy analyst W. Henry Lambright noted that NASA in the aftermath of the Challenger accident was seen by many as a "bloated bureaucracy pursuing missions that took too long, cost too much, and used technology that was old by the time it was put into space."[4] The trade weekly *Aviation Week and Space Technology* observed, "The United States is at a historic juncture with its space program and is in critical need of positive action. . . . Saying that the U.S. space program is in shambles overstates the case, but not by much. . . . A malaise pervades the U.S. space program."[5]

Criticisms such as these had little short-term impact. There were three years left in Ronald Reagan's presidency at the time of the Challenger accident. The White House response to the tragedy focused primarily on deciding whether to build a replacement Shuttle orbiter, on crafting a policy for future Shuttle use, and on convincing skeptical members of Congress to support Space Station Freedom, Reagan's major spaceflight initiative. Policy supporters gave short shrift to what critics were arguing were more fundamental problems with NASA.[6]

One reason that the criticisms had little impact was the views of the individuals chosen to manage NASA in the post-Challenger years. President Reagan, after the accident, persuaded a reluctant James Fletcher, who had been NASA's Administrator from 1971 to 1977, to return to the Agency's top job. Fletcher had headed the Agency during the final three lunar landing missions, the 1973 launch of the Apollo-derived Skylab, and the 1975 Apollo–Soyuz "handshake in space." He had been a force behind the 1972 decision to develop the Space Shuttle as NASA's next human spaceflight effort. As he returned to NASA, Fletcher chose Dale Myers, who had headed NASA's Office of Manned Spaceflight from 1970 to 1974, as Deputy Administrator; like Fletcher, Myers was thus a veteran both of Apollo and of the early years of the Shuttle program. Fletcher and Myers selected Rear Admiral Richard Truly to manage the Space Shuttle recovery effort. Truly had been a NASA astronaut from 1969 to 1983, flying on three unpowered landing tests of the Shuttle orbiter and on two of the Shuttle's early orbital missions.

These three NASA veterans did not agree with the assessment that NASA was close to being in "shambles" and subject to "malaise." As the Space Shuttle returned to flight in 1988, Truly commented, "When

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2. These words are from the back cover of Thor Hogan, *Mars Wars: The Rise and Fall of the Space Exploration Initiative* (Washington, DC: NASA, SP-2007-4410, August 2007).

3. Editorial, "Escape the NASA Nightmare," *The New York Times*, 25 April 1986, A34.

4. W. Henry Lambright, *Transforming Government: Dan Goldin and the Remaking of NASA,* The PricewaterhouseCoopers Endowment for the Business of Government, March 2001, 11.

5. Craig Covault, "Fletcher Cites 'Turf Battles' in Space Program Decision Delays," *Aviation Week & Space Technology,"* 15 September 1986, 77–78.

6. For a discussion of the Reagan administration reaction to the Challenger accident, see John M. Logsdon, *Ronald Reagan and the Space Frontier* (New York: Palgrave Macmillan, 2019).

we look back at 1986–1988, we will see it as a time when NASA and the country took an unwanted, but necessary, breather in the space program. During this time, we took a hard look at ourselves and what we hoped to accomplish in space. What we saw was solid."[7] This belief, widely shared among the NASA leadership, would prove to be a significant obstacle to those who believed that sweeping NASA reform was needed.

Soon after George H. W. Bush entered the White House in 1989, he nominated Truly as NASA Administrator, putting at the head of the Agency an individual who was not convinced of the need for major change. Brewer from his critical perspective suggests that those with long experience in NASA, not only Truly but also other senior NASA leaders, were likely to exhibit "flawed decision-making, self-deception, introversion, and a diminished curiosity about the world outside the perfect place. . . . As every signal from the outside world shouts 'change'. . . the institution plows resolutely along. . . . Those locked into perfect places have trouble seeing and reacting to flawed practices and failing performance."[8]

The tension between the view that NASA was "solid" and the view that it required a major transformation to once again be a "perfect place," well matched to new realities, first became manifest during the George H. W. Bush administration. Despite significant changes at NASA since 1989, that tension has persisted, with varying degrees of intensity, over the past three-and-a-half decades. This case study describes and analyzes how it first became evident; that analysis may suggest why the tension has been so difficult to resolve.

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7. Richard Truly, *Space Shuttle: The Journey Continues* (Washington, DC; NASA, NP-117, 1988), 19.

8. Brewer, "Perfect Places," 166, 159.

Chapter 1

First Steps

The push for change at NASA during the George H. W. Bush administration came primarily from the National Space Council, a newly recreated body within the Executive Office of the President. The Space Council was chaired by Vice President James Danforth "Dan" Quayle; it included the heads of White House and Executive Branch agencies involved in space activities and was set up to coordinate national space policy and programs. Quayle was supported in his space policy role by a small but activist staff dedicated to fixing what they perceived as major problems with the civilian space effort.[1]

Why a Space Council?

Ronald Reagan's final space-related act in his eight years as President was signing, on 17 November 1988, the fiscal year (FY) 1989 NASA Authorization Act. Most of that Act provided policy guidance to NASA and set target ceilings for the Agency's budget for the fiscal year that would begin on 1 October 1989. But the brief Title V of the Act specified, "Effective February 1, 1989, there is established in the Executive Office of the President the National Space Council, which shall be chaired by the Vice President.[2]

There was historical precedent for such a body. A White House-level National Aeronautics and Space Council to oversee space (and aeronautics) policy development and execution had existed from 1958 to 1973. When it was established by congressional initiative in 1958, in the same legislation that created NASA, President Dwight Eisenhower was to chair the council. However, Eisenhower thought that this new body was not needed and made only limited use of the council in his remaining time in the White House. John F. Kennedy as he became President in 1961 requested Congress to change the law to make Vice President Lyndon Johnson, rather than himself, the council chair. Johnson was an active chair, using the council and its staff to help shape the space program of the 1960s. Vice Presidents Hubert Humphrey and Spiro Agnew followed Johnson as Space Council chairs but did not make the council an influential

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1. This study draws heavily on three previous accounts of space policy during the H. W. Bush administration. One is the previously cited *Mars Wars*, a scholarly work by my former student Thor Hogan, now a professor at Earlham College in Richmond, IN. The second is a firsthand account by a key White House player, Mark Albrecht, who was Executive Secretary of the National Space Council during most of the Bush administration. Albrecht's book is *Falling Back to Earth: A First Hand Account of the Great Space Race and the End of the Cold War* (New Media Books, 2011). Third is the previously cited two-part essay by Dwayne A. Day, "Aiming for the Moon, Crashing on Earth." I will cite these studies when I quote directly from them, but they also were key resources for establishing the flow of events described in this study. I am, of course, responsible for any misreading of these three works.

2. *National Aeronautics and Space Administration Authorization Act, Fiscal Year 1989*, Public Law 685, 100th Congress, 2nd Session (17 November 1988).

participant in space policymaking. In January 1973, as he began his second term as president, Richard Nixon abolished the Space Council as no longer needed. From 1976 to 1982, the Office of Science and Technology Policy had the lead White House role on most space issues, but in 1982 that control was wrested from that office and assigned to the National Security Council (NSC) for the rest of the Reagan administration.[3]

Frustrated by the lack of access to space policy deliberations carried out under the auspices of the secretive NSC, in 1986 the Democratic majority in Congress passed legislation to reestablish a National Space Council (aeronautics was deleted from the group's jurisdiction), with the Vice President continuing as the council chair. The council staff would be headed by an executive secretary appointed by the President and confirmed by the Senate. President Reagan in November 1986 vetoed this legislation as being an unwarranted congressional intrusion into the organization of the Executive Branch. Congressional advocates of the council did not give up; the NASA Authorization Act for 1989 once again called for reestablishing a Space Council but this time did not require Senate confirmation of the executive secretary. The bill also deferred establishing the Space Council until Reagan's successor was in office. President-elect George H. W. Bush, breaking with the Reagan administration, had already in November 1987 promised to establish a Space Council if he were to become President. With Bush elected and with revisions acceptable to the White House, President Reagan signed the bill.

Quayle to Chair Space Council

It would thus be George H. W. Bush's Vice President, Dan Quayle, who would be the Bush administration's point person for space policy. Quayle's selection as Bush's running mate was a surprise to many. In 1988 Quayle was in his second term as the junior senator from Indiana. He was 41 years old; when he was first elected to the Senate in 1980, he was the youngest-ever senator from his state. In his time in the Senate, Quayle had specialized in national security and arms control issues. During the campaign, Quayle became portrayed by the media as an intellectual lightweight, prone to gaffes, and with a controversial military record. Questions were raised about his qualifications to assume the presidency, should something happen to Bush. Though these concerns weakened Quayle's standing, none of them was troubling enough to lead Bush to remove Quayle from the Republican ticket, and the two were elected, carrying 40 states with 53.4 percent of the popular vote.

Quayle was enthusiastic about his Space Council assignment, believing that "the space program . . . was vital to maintaining American leadership in the world." He had been particularly supportive of the space aspects of Ronald Reagan's 1983 proposal for a Strategic Defense Initiative (SDI). Quayle had had limited involvement with the civilian space program during his time in the Senate. Even so, he had become concerned that "our investment in defense was not accompanied by a corresponding push for the [civilian] space program." He saw his role as the top White House space policy official as a "chance to correct that" and "to bring the space program out of the doldrums."[4]

In addition to his belief in the link between space achievement and U.S. global leadership, there were likely other reasons why Quayle was eager to take on the Space Council job. Doing so would carve out

3. For background on the National Aeronautics and Space Council, see John M. Logsdon, "Is Creating a National Space Council the Best Choice?" *The Space Review*, 3 January 2017, *https://www.thespacereview.com/article/3137/1* (accessed 1 February 2024).

4. Dan Quayle, *Standing Firm: A Vice Presidential Memoir* (New York, Harper Collins, 1994), 178–179.

an area of high-visibility government activity as his specific responsibility. Finding such areas had often been a problem for prior vice presidents. Quayle as an ambitious and still-young politician was probably looking forward to contending for the presidency in 1996, at the end of the anticipated two Bush terms in the White House. He saw as a "political dividend" that "being involved with the space program could be glamorous and could identify me with what is most important for any national leader: the future." Quayle told a media gathering in March 1989 that "for the first time in a long time there will be a space advocate in the White House—and that will be me."[5]

A Pro-Space President

One target of Quayle's advocacy would be President Bush. Only with presidential support could the changes at NASA that Quayle and his staff quickly came to think were needed be made. Bush would turn out to be very supportive of the space program, and he gave Quayle and the Space Council staff the freedom to push for transforming NASA.

During his eight years as Ronald Reagan's Vice President, Bush had seldom participated actively in administration space policy discussions. Bush's adopted hometown, Houston, was home to NASA's Johnson Space Center, and he was certainly aware of NASA's activities. As far back as January 1971, when he was the U.S. Ambassador to the United Nations, Bush had traveled to the Kennedy Space Center for the launch of the Apollo 14 lunar landing mission. In 1986, he took a lead role in consoling the families of those killed in the Challenger accident. Bush had declared his intent to run for the presidency in October 1987; a few weeks later he set out his views on the space program in a speech at NASA's Marshall Space Flight Center in Huntsville, Alabama. Bush called for, in words he would echo as President two years later, "a long-term commitment to manned and unmanned exploration of the solar system," saying that "there is much to be done—further exploration of the Moon, a mission to Mars."[6]

It did not take long after he entered the White House for Bush to identify the future of the space program as a focus for attention by his administration. He outlined his overall goals as President in a 9 February 1989 address delivered to a joint session of Congress. Regarding space, Bush proclaimed: "The space program should always go 'full throttle up.' And that's not just our ambition; it's our destiny."[7] He noted that he had submitted that day a FY 1990 budget proposal that included a $2.4 billion increase for NASA. This was the largest percentage increase he was requesting for any major federal agency. Two months later, in a handwritten note to a White House visitor who had urged him to support a strong space effort, Bush wrote, "I am determined that we have a broad-visioned approach to space."[8]

Bush was asked about his space plans after a luncheon speech in Houston on 16 March. He replied, "I have not reached a conclusion on whether the next major mission should be a manned mission to Mars. . . . We're asking the space council that has been reconstituted . . . to come forward with its recommendations. The Vice President's chairing it. . . . I will make that decision when I get their recommendations." He added "a word of caution: Even though we've . . . requested that NASA's budget be increased,

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5. Quayle, *Standing Firm*, 178. Hogan, *Mars Wars*, 52.

6. Remarks by Vice President George Bush, George C. Marshall Space Flight Center, 29 October 1987, Box 1, Ed Goldstein Files, White House Office of Policy Development, George H. W. Bush Presidential Library, College Station, TX (abbreviated hereafter B41L).

7. The text of Bush's speech can be found at *https://bush41library.tamu.edu/archives/public-papers/51* (accessed 26 January 2024).

8. Handwritten note from "The President" to Ed Finch, 10 April 1989, Box 1, Outer Space Files, B41L.

there are constrained resources that I have to deal with as President, and so, I can't pledge instant commissioning of this follow-on mission to Mars."[9]

Bush's response set the stage for a conflict it is doubtful he anticipated. He indicated that he would look to the Space Council, not NASA, for recommendations on the future of the civilian space program. It turned out that Quayle and his staff had in mind a very different future for NASA than did NASA's leaders.

Staffing the Space Council

Quayle's first action as incoming Space Council chair was to select the council's executive secretary, the top staff position. He spent several weeks searching for a suitable candidate. Among those considered were former astronauts Rick Hauck and John Fabian; Courtney Stadd, former head of the Department of Transportation's Office of Commercial Space Transportation; and Ambassador Henry Cooper, the chief U.S. negotiator for arms control. Cooper was rumored to be the front-runner for the position but was "rejected out of fear that he might be . . . linked to the innuendo and hearsay that had surrounded the nomination of Bush's defense secretary John Tower. Vicious rumors about Cooper's actions overseas had surfaced."[10] These rumors were later discredited, but the damage had been done. In late February, Quayle chose instead 38-year-old Mark Albrecht, who for the preceding six years had been the top national security staff assistant to Senator Pete Wilson (R-CA) and who had been actively seeking a high-level national security position in the Bush administration. Before coming to the Senate staff, Albrecht had worked on strategic defense issues, including several years at the Central Intelligence Agency; he held a doctorate in public policy analysis from the RAND Graduate Institute.

President Bush announced Albrecht's appointment on 1 March. He also said that the Space Council would "oversee national space policy formulation"; address "major-related policy issues in the two governmental [space] sectors—civil and national security; and "foster cooperation, coordination, technology and information exchange among the sectors." *The Washington Post* reported that the combination of Quayle's and Albrecht's national security backgrounds had "heightened concern among civilian space advocates on Capitol Hill that White House policy would tilt toward military interests." This was not Dan Quayle's intent. He had formed the impression during his time in the Senate that NASA was "still living off the glory it had earned in the 1960s"; he saw Albrecht as "just the sort of guy who could shake it [NASA] up." By hiring Albrecht with a mandate to make needed changes in NASA's organization, programs, and way of doing business, Quayle set the stage for the Space Council–NASA conflicts that would characterize the next three years.[11]

Richard Truly to Be NASA Administrator

One important matter in which Quayle as Space Council chair was only peripherally involved was the choice of a new head for NASA. Administrator James Fletcher submitted his letter of resignation on 12 March; a month later, the President announced that he would nominate as Fletcher's successor Richard Truly, a Navy rear admiral and former astronaut who had led the Space Shuttle program during the

9. Bush's comments can be found at *https://bush41library.tamu.edu/archives/public-papers/186* (accessed 26 January 2024).

10. Day, "Aiming for the Moon," Part 1.

11. Theresa Foley, "Bush Assigns Space Council Civil, Defense Jurisdiction," *Aviation Week & Space Technology,* 6 March 1989, 14; Kathy Sawyer, "Concern Rises Over Space Council's Direction," *The Washington Post*, 6 March 1989, A23; Quayle, *Standing Firm*, 179.

vehicle's return to flight after the Challenger accident. Truly in 1989 was NASA's Associate Administrator for Space Flight. Bush, in announcing Truly's selection, noted that it marked "the first time in its distinguished history that NASA will be led by a hero of its own making." Truly was described as "not a 'Right Stuff' astronaut who takes lots of chances, nor . . . particularly charismatic." The President also announced that he would nominate J. R. Thompson, then serving as Director of NASA's Marshall Space Flight Center in Alabama, as Deputy Administrator. Thompson had also been considered for the appointment to the top NASA job. Both Truly and Thompson were NASA veterans, and both would turn out to be very protective of the Agency's prerogatives and programs.[12]

Truly had been recommended to the President for the top NASA job by Bush Chief of Staff John Sununu. Sununu was technologically savvy—unusually so for a senior White House official. He had used a NASA grant to earn a doctorate in engineering from the Massachusetts Institute of Technology. Truly first met with Sununu on 20 March; at Sununu's request, the next day he sent the Chief of Staff a one-page statement titled "A View of the President's Opportunity in Space." After saying that Space Station Freedom would be "the major civil space project to be achieved in the 1990's," Truly noted:

> Decisions on projects and goals of the 21st century will also be upon us during the next few years. This is simply a result of the long lead times required to develop new engines, new materials and technologies, and new spacecraft for the adventures and explorations of the 21st century. . . . The civil space program . . . will be ready for Presidential decisions concerning future goals at some point in the next 3–5 years.
>
> The choices for the future range widely, and the key decisions and opportunities will, in my mind, occur on President Bush's watch. It seems to me that when the time is right, he can direct NASA to bring options forward and make the historic decisions that will shape the future of our civil space program well into the 21st century.[13]

It is worth noting that while Truly anticipated that it would fall to President Bush to make the basic decisions on what NASA should do after developing Space Station Freedom, he thought that those choices would not be on the President's agenda until several years in the future. He certainly did not anticipate they would come in the next few months. He also suggested that it would be NASA, not the nascent Space Council, that would define for the President the options for the future.

Sununu passed Truly's paper on to President Bush, who responded positively both to Truly's ideas and to the appointment of Truly as NASA Administrator. Sununu told Truly that before his nomination was submitted, he should meet with Vice President Quayle, given Quayle's new role as the chair of the not-yet-formally-established Space Council. Truly "thought it was a little late in the process" of choosing the future NASA leader to be introducing Quayle into the discussion.[14]

According to Truly, he and Quayle met on 31 March at the Johnson Space Center in Houston. (Mark Albrecht says that the first Truly–Quayle meeting occurred aboard Air Force Two in Cleveland, Ohio.) "It

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12. Warren Leary, "Bush Chooses Former Astronaut to Head NASA, in a First," *The New York Times*, 13 April 1989, A24. The "Right Stuff" quote is this author's as cited in Leary's article.

13. Letter from Richard Truly to the Honorable John Sununu, 21 March 1989, with attached "A View of the President's Opportunity in Space," Papers of Richard Truly, Regis University Library, Denver, CO.

14. Admiral Truly shared with me in May 2021 a draft chapter discussing his time as NASA Administrator, taken from an autobiography intended for his family, and gave me permission to cite the chapter. Quotations from this chapter will be cited as "Richard Truly,

was a good meeting," Truly would later write. "Quayle was engaging and very friendly. I was struck by his blue eyes." But Quayle "didn't seem to know much about NASA's programs. Nor did he appreciate what the Agency had been through since the Challenger accident." Quayle apparently said little in response to Truly's description of the state of NASA; in describing the meeting to his wife, Truly commented, "I felt that I was talking to a blue-eyed tree." After the Houston meeting, Quayle let Sununu know that he had no objections to Truly becoming NASA Administrator. Quayle in retrospect noted that "Truly got the job by default: he didn't have the sort of negatives that might make news and sink the nomination." Quayle would come to regret that he had not had more of an opportunity to get to know Truly before signing off on the nomination, writing in his memoir, "I think I made a mistake in not trying to block his [Truly's] appointment."[15]

Sununu called Truly on 3 April, as Truly and his wife were preparing to fly to London to visit their daughter, to tell him that the President had approved his nomination as Administrator, together with J. R. Thompson's nomination as Deputy Administrator. A White House ceremony to announce the nominations was set for 12 April, after Truly's return from England.

There was one roadblock to Truly's being quickly confirmed as NASA Administrator. The 1958 Space Act that created NASA had specified that the Agency's top official should be appointed from "civilian life." Although he was working at NASA, Truly was still an active duty Navy officer. He was not willing to give up his Navy pension from 30-plus years of military service; for Truly to take the NASA position but maintain his Navy pension, both houses of Congress would have to pass a waiver to the Space Act.

James Fletcher retired as NASA Administrator on 8 April, and Deputy Administrator Dale Myers became Acting Administrator. Myers left the Agency on 13 May; the next day, Truly was named Acting Administrator. It was not until late June that the necessary waiver allowing Truly to retire early from the Navy but keep his pension was passed by Congress. He was quickly confirmed as the eighth NASA Administrator by a 99–1 vote on 23 June and sworn into office on 1 July 1989.

Truly recalls, "When we were chosen by President Bush to lead the Space Agency, J. R. and I had big plans to improve it, but we knew that NASA needed some breathing room. . . . The Agency had just gone through multiple reorganizations, reform, and critical oversight after the Challenger accident. NASA needed steady leadership, management stability, and success." Instead, "what NASA actually got was Vice President Quayle and behind him Mark Albrecht. Although I didn't realize it at the start, Quayle and Albrecht came in believing that NASA should again be reformed."[16]

Space Council Gets Started

During March and April, Albrecht spent much of his time getting his office organized, negotiating its relationship to the other elements of the White House and the Executive Office of the President, and getting himself up to speed on the issues requiring early Space Council attention. He quickly discovered that while Congress had mandated that the council be created, the White House Office of Management and Budget (OMB) had made no provision in the White House or Executive Office budgets for Space Council staff

unpublished manuscript." A copy of the draft chapter can be found in the NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 2, "Chapter 1."

15. Richard Truly, unpublished manuscript; Albrecht, *Falling Back to Earth*, 26–27; Quayle, *Standing Firm*, 181. This is one of several inconsistencies in the description or timing of events between the account in Albrecht's book and other material consulted in preparing this narrative.

16. Richard Truly, unpublished manuscript.

salaries or operations. The legislation establishing the council had provided for up to seven professional staff positions, but at least at its start, the council would have to be staffed by people on loan from and paid for by other agencies and organizations. For the first weeks of council operation, the only two professional staff were Liz Prestridge from the American Enterprise Institute, a conservative think tank, who handled the Space Council's external relations, and an Air Force colonel on loan from the Pentagon. First in that role was Roger DeKok, who had handled space policy as a National Security Council staffer during the final years of the Reagan administration. As Reagan left office, DeKok had returned to the Pentagon, but he came back to the White House to help the Space Council get started. DeKok was soon succeeded by James Beale. Beale and Prestridge were shortly joined by another Air Force officer, Lieutenant Colonel Simon Worden, widely known as Pete.

Beale and Worden were quite different in background and style. Beale was from the mainstream Air Force and had spent time at the secretive National Reconnaissance Office. Worden was an unconventional thinker with a doctorate in astrophysics earned under Air Force sponsorship; early in his career he had become a protégé of General Bernard Schriever, father of the early Air Force space programs. Worden had spent 1983–1986 at the newly formed Strategic Defense Initiative Organization (SDIO), an office within the Pentagon that fostered the advanced technology and innovative thinking needed to implement Reagan's Strategic Defense Initiative (SDI) vision. The organization applied a "faster, better, cheaper" approach to its research and development activities, testing and retesting ideas early on in their development. Worden retained links to the innovative approaches and creative thinking of individuals engaged in the startup of the SDI, and he and Albrecht, also familiar with SDI from his time in the Senate, hoped to bring similar thinking to NASA.

As the "new kid on the block" within the Executive Office of the President, reporting to the Vice President rather than the President, Albrecht had the challenging task of establishing the organization's influence in White House policymaking. Leaders of long-established elements of the Executive Office such as the OMB, the National Security Council, and the Office of Science and Technology Policy took a "wait and see" attitude toward their relationship with the council and its staff. Albrecht apparently made an early attempt to transfer authority with respect to formulating the NASA budget from the powerful OMB to the Space Council. This idea died a quick death, but it did not get OMB–Space Council staff relations off to a positive start.

At some point in this early period, Albrecht and Truly had their initial contact. They remember it differently. Truly, as noted earlier, remembers his first meeting with Quayle as taking place on 31 March at NASA's Johnson Space Center. Albrecht was not present at that meeting. Albrecht suggests that Truly's initial meeting with Quayle took place in Cleveland, Ohio, aboard Air Force Two, the Vice President's airplane, and that he was present at that meeting. Albrecht recalls, "My initial reaction to Truly was surprise. From his resume I expected a more imposing figure, with more test pilot swagger and assertiveness." Instead, Truly was "a relatively soft-spoken and somewhat shy or hesitant person. His gentle Southern accent and compact frame combined to create the impression of a friendly neighbor in a small southern town." Albrecht adds, "I really didn't have a chance to get to know Truly well for another month, until after he was confirmed by the Senate in May." (That confirmation did not actually happen until late June.)[17]

When he heard of Albrecht's appointment, Truly looked forward to meeting him, particularly since, as Truly notes, "I [had] recently had a long conversation with Vice President Quayle in Houston and had gotten the impression that Quayle didn't know much about NASA programs." Truly recalls, "I don't

17. Albrecht, *Falling Back to Earth*, 26–27.

remember exactly when I first met Mark [Albrecht]" but thinks the meeting took place in his office at NASA Headquarters in Washington. Truly was "disappointed," observing that Albrecht seemed to be "self-important, full of himself, and . . . didn't seem interested in NASA status or programs. . . . Mark talked a lot but didn't seem to listen very well." The meeting, thought Truly, "was not a good start" to the NASA–Space Council relationship.[18]

President Bush issued an Executive Order formally establishing the National Space Council on 20 April 1989. As he signed the document, he said, "I plan to sign this Executive Order with one objective in mind: to keep America first in space. And it's only a matter of time before the world salutes the first men and women on their way outward into the solar system. All of us want them to be Americans." The new Space Council would have 11 members in addition to its chair, Vice President Quayle; they were the Secretaries of State, Treasury, Defense, Commerce, and Transportation; the Director of the OMB; the President's Chief of Staff; the Assistant to the President for National Security Affairs; the Assistant to the President for Science and Technology; the Director of Central Intelligence; and the Administrator of NASA. The council was to "advise and assist the President on national space policy and strategy" and "monitor and coordinate implementation of the President's national space policy by executive departments and agencies." While the council would meet fairly frequently at the principals' level in the months to come, most of its work would be carried out by representatives of member agencies interacting with the slowly growing council staff.[19]

An Opportunity to Be Seized

Given his lack of prior in-depth exposure to NASA and the civilian space program, Albrecht during his early months on the job consulted widely with people in the space community. He heard little that was positive about the current state of NASA. NASA had not been a high priority during the Reagan administration and had stayed at the same low share of the federal budget that had been established after Apollo. The Space Shuttle had not lived up to its original expectations of operating routinely and less expensively than prior space vehicles. NASA was still recovering from the January 1986 Challenger accident and was struggling politically, technically, and in management terms to get started with the development of Space Station Freedom, which Reagan had approved in January 1984. Albrecht met with individuals of the emerging commercial space community, who were eager to challenge the NASA monopoly on space launch and orbital activities, and with various activists who had expansive visions of a future in space and a belief that NASA was an obstacle to, rather than an enabler of, the changes needed to achieve their visions.

Albrecht could also draw on several studies of human exploration beyond Earth orbit carried out during the Reagan administration. Congress in 1984 had mandated a study of future goals for NASA. The Agency assembled a prestigious group chaired by former NASA Administrator Tom Paine to carry out the study. The result, published in 1986 in the wake of the Challenger accident, was a report titled *Pioneering the Space Frontier* that discussed a return to the Moon and missions to Mars. Following a recommendation of that report, NASA in 1987 established a small Office of Exploration, initially headed by former astronaut Sally Ride. Ride and her colleagues produced the report *NASA Leadership and America's Future in Space,*

18. Richard Truly, unpublished manuscript.

19. Bush's remarks can be found at *https://bush41library.tamu.edu/archives/public-papers/341* (accessed 26 January 2024). The other information about the National Space Council is available from Congressional Research Service, "The National Space Council," 12 December 2006, *https://www.everycrsreport.com/reports/R44712.html#_Toc529375790* (accessed 26 January 2024) and Hogan, *Mars Wars,* 56–57.

which also discussed lunar and Martian missions. During 1988, the last year of the Reagan administration, the Office of Exploration, by then under the leadership of NASA veteran engineer John Aaron, continued to examine options for human spaceflight beyond Earth orbit.[20]

The need for clearly stated and challenging goals for NASA as a way of revitalizing the organization was the conclusion of two blue-ribbon reports also available to Albrecht. The National Academy of Sciences and the National Academy of Engineering had made the future of the space program the focus of a study group these two prestigious bodies commissioned in fall 1988 in anticipation of the arrival of a new President. One reason for initiating the report was "the lack of consensus regarding the long-term goals of the civil space program." In forwarding the group's report "Toward a New Era in Space: Realigning Policies to New Realities" to President-elect Bush in December 1988, the heads of the two academies pointed out that "long-term, durable, and widely accepted goals are essential . . . to match the pace and direction of the space program with the larger set of national priorities." The report concluded that "the most controversial decisions concern our goals for human activity in space. The will to explore is a fundamental trait of mankind, and the aspiration to extend human presence beyond the Earth's orbit will lend meaning and support to many aspects of the space program." The report was critical of NASA, describing it as "an aging institution, with an urgent need for physical and human revitalization. The agency has shown an organizational culture resistant to change." It added that "the new President has a historic opportunity to create a space program that will continue and expand the role of the United States as a leading spacefaring nation."[21] This analysis seems to have had a particularly strong impact on Albrecht as he formed his view of NASA.

A second study had been carried out under the auspices of the Washington, DC-based Center for Strategic and International Studies (CSIS). The study was directed by senior space scientist John McElroy and, before he was selected as the new President's national security advisor, Lieutenant General Brent Scowcroft, USAF (Retired); it was titled "A More Effective Civil Space Program." The study recommended that "the President should make Solar System exploration, including an important 'Humans to Mars' program, a national objective," but "there is no need to pursue it in a short time frame at great cost." Rather, there should be a gradually planned buildup of key technologies and skills. The report concluded that the upcoming 20th anniversary of the first lunar landing, 20 July 1989, would be an auspicious date for announcing a new human spaceflight initiative.[22]

This was not the first suggestion that the 20th anniversary of Apollo 11's landing and Neil Armstrong's and Buzz Aldrin's first steps on the Moon would provide an excellent opportunity for President Bush to set out new space goals. On 9 March, carryover NASA Administrator Fletcher had told the President that the Apollo 11 crew had already agreed to be present in Washington on 20 July for the anniversary celebration, including an event at the Smithsonian's National Air and Space Museum. Fletcher suggested that this event would be "a unique opportunity to define for the world your Administration's commitment to the exploration of space." By mid-May, Fletcher's suggestion was still under consideration by White House schedulers. In his

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20. *Pioneering the Space Frontier* (New York: Bantam Books, 1986), *https://history.nasa.gov/painerep/begin.html* (accessed 26 January 2024); NASA Office of Exploration, *NASA Leadership and America's Future in Space,* August 1987, *https://history.nasa.gov/riderep/cover.htm* (accessed 26 January 2024).

21. Letter from Robert White and Frank Press to the Honorable George Bush, 12 December 1988. The Academies' report can be found at *https://nap.edu/catalog/18717/toward-a-new-era-in-space-realigning-policies-to-new* (accessed 26 January 2024); quotes are from iii, 17–18, 22, and 24.

22. The CSIS report is discussed in Hogan, *Mars Wars,* 51; its executive summary is reprinted in the journal *Space Policy*, February 1990, 72–74.

role as Acting Administrator, Truly sent a letter to the President suggesting that the 20 July event would offer "an unparalleled opportunity and platform . . . to make public a policy declaration on your choice of direction and pace for America's space effort over the coming twenty years." By the last week of May, Bush's Chief of Staff, Sununu, had agreed to the President's participation in the anniversary event, and a 20 July space speech was placed on President Bush's calendar. The question then became what the President might say.[23]

The combination of the anniversary date, the various calls for setting out new goals for NASA, and Quayle's and Albrecht's ambition to stake out the Space Council as the agent of needed change in the civilian space program came together as an opportunity to be seized. Early in his tenure as Space Council Executive Secretary, Albrecht had told the Vice President that NASA "has no strategic vision, no compelling and central organizing mission to prioritize its plans and programs." Albrecht had suggested to Quayle that the Space Council should be the source of that vision, "providing direction to a directionless agency." Quayle liked the idea of a new direction for NASA coming from the White House, most particularly from the Space Council he chaired.[24]

To test this idea, Quayle and Albrecht scheduled a meeting with OMB Director Richard Darman. Darman was "brilliant and somewhat eccentric." He was also "a space enthusiast" who "liked the big and bold." Darman counseled them that while "the current budget situation mandated that the administration could not serve up an Apollo-like crash program," he agreed that NASA needed "a central organizing mission, an overriding objective that will provide the basis for rationalizing the entire enterprise. . . . And it's your job to help us find that!" As a follow-up to the meeting with Darman, Quayle stated in a 4 April press conference that the National Space Council would be studying the possibility of a space initiative, but he warned that such a study would have to reflect short-term budget constraints. On 5 April, at his weekly lunch with President Bush, Quayle mentioned the possible study; Bush told him to proceed.[25]

At the start of May, Albrecht told his staff he was "considering proposing to the President that he use the 20th anniversary of the Apollo moon landing to announce a new national space goal: a manned mission to the moon, or Mars, or both." Taking the initiative in such an ambitious proposal would establish the Space Council in the lead White House position with respect to formulating Bush administration space policy. Doing so would also allow the White House to reassert its role in developing space policy "at the expense of both NASA and Congress." Planning for such an initiative, Albrecht said, had to be carried out in secret because "if any of this leaks out, we will have not only created a major potential embarrassment for the President, we will be guilty of a cardinal sin of Presidential staff assistance: we would run the risk of forcing the President of the United States into a corner or preempting a decision he may not want to make." It was "obvious" to Albrecht that "we could use the anniversary and the natural platform it would afford to . . . reestablish the authority of the President [through the Space Council] to set the agenda for the civil space program and NASA; give NASA the top cover necessary to review, rationalize, and streamline its entire program plan, especially Space Station Freedom; and, finally, reignite America's flagging interest in our space program." As Albrecht had become more familiar with NASA, he was surprised to discover "how institutional and bureaucratic and protective and political NASA was." He concluded that the Agency had

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23. Fletcher's letter was attached to a memorandum to Admiral Truly from Dot Zucker, 19 May 1989, File 012619, NASA Historical Reference Collection (NHRC). That memorandum also attached the draft of a letter for Administrator Truly to send to President Bush suggesting he participate in the 20 July event at the museum; assuming that the letter was sent, I am quoting from that draft.

24. Albrecht, *Falling Back to Earth*, 24; Hogan, *Mars Wars*, 51–53; Day, "Aiming for the Moon," Part 1.

25. Albrecht, *Falling Back to Earth*, 25; "Quayle Puts Damper on Manned Mars/Moon Mission Prospects," *Defense Daily*, 5 April 1989, 22–23.

for many years been pursuing its own path rather than responding to presidential guidance. He was determined to reverse that situation.[26]

Albrecht and his associates spent most of May thinking through the character of a possible exploration initiative.[27] This analysis led to the conclusion that to be viable, the initiative would have to include both a return to the Moon and, eventually, human missions to Mars. The cost of such an undertaking was estimated at $200 billion, spread over 20 years. A politically and financially acceptable first step would be calling for a return to the Moon; Mars could come later. They also concluded that the existing NASA human spaceflight programs, the Space Shuttle and Space Station Freedom, were not "well adapted to efficient, long-term planetary exploration" and that "each would be enormous resource competitors" for such an effort. Space Station Freedom was a particular target. What troubled Albrecht about the Space Station program was "its complexity, its inability to articulate a clear, compelling mission, [and] the diffuse ownership of the Space Station in terms of the constituent elements that were supporting it." The station "was becoming unaffordable and becoming technically difficult, if not impossible, to achieve." A new exploration initiative was to be the means to a broader end; Albrecht's underlying purpose was to use the initiative to reshape NASA as an organization, particularly its human spaceflight programs. In his time on Senator Wilson's staff, Albrecht had become familiar with the Reagan administration's SDI vision, and he hoped that NASA would adopt SDI's "faster, cheaper, better" approach to carrying out a new exploration mission. Albrecht "envisioned a new space exploration initiative to be a complement to SDI." In his newness to the civil space world, Albrecht underestimated NASA's resistance to such a change. He "hadn't really thought what would happen" in the face of such resistance.[28]

In late May Albrecht filled in Vice President Quayle on his thinking to date, telling him that any new mission for NASA would need to be "heavily leveraged by rapid technology development and new ways of thinking and doing things." The Vice President asked Albrecht to check with NASA Acting Administrator Truly regarding the idea of a 20 July presidential statement announcing a major new space initiative. That date was less than two months away— not much time to pull together a major policy change. Still, President John Kennedy's 1961 decision to send Americans to the Moon "before this decade is out" had gone from inception to announcement in a similarly short period.[29]

New Space Goals Considered

In a May 25 telephone call, Albrecht asked Truly whether NASA could mount a program to send U.S. astronauts back to the Moon, followed eventually by journeys to Mars. His focus was on whether NASA could carry out a lunar landing by 2000. As Albrecht reports, Truly's first reaction was to say, "I don't

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26. Mark Albrecht, oral history transcript, 20 April 1999, 12-10, *https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral_histories/Shuttle-Mir/AlbrechtMJ/albrecht.pdf* (accessed 26 January 2024); Albrecht, *Falling Back to Earth*, 30; Day, "Aiming for the Moon," Part 1.

27. The precise sequence of events in the May 1989 period is not clear from existing accounts, including the books by Albrecht and Hogan and a paper prepared for the NASA History Office by Howard McCurdy, "The Decision to Send Humans Back to the Moon and Onto Mars," NASA HHR-56, March 1992, *https://ntrs.nasa.gov/api/citations/20010085819/downloads/20010085819.pdf* (accessed 26 January 2024). That paper can also be found in NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 12. What follows is the author's attempt to reconstruct the sequence based on these differing sources.

28. Albrecht, *Falling Back to Earth,* 32, 40; Albrecht, oral history transcript, 12-4–12-5.

29. Albrecht, *Falling Back to Earth*, 39. For an account of Kennedy's decision, see John M. Logsdon, *John F. Kennedy and the Race to the Moon* (New York, Palgrave Macmillan, 2010).

think NASA can handle this right now. Our plate is already too full. . . . I don't think we have the capacity." Albrecht interpreted Truly's response as a refusal to consider an exploration initiative; it apparently was intended by Truly to be temporizing and noncommittal. According to Frank Martin, the new head of NASA's Office of Exploration, Truly could not "calibrate if this was just a new staff guy who is busy playing 'what if' games or was this a serious proposition."[30] How influential the Space Council might be in convincing the President to set ambitious new goals was not yet clear to Truly and others at NASA.

Martin suggested that Truly call the Vice President directly to get a reading on Albrecht's request. Truly placed that call and was told by Quayle that the White House was indeed serious about a major space initiative. Reassured, Truly called Albrecht early the next morning, telling him, "You took me a bit by surprise with your idea" but that "NASA is ready to take on this challenge and make it work." Truly reports, "Once I got over the shock" of Albrecht's 25 May call, "I was thrilled that a President would set out a goal for the Moon again. . . . The planned announcement set off a scramble in the White House to figure out what Bush should say in the speech—and convince him it was a good idea."[31]

Conclusion

With the arrival of the Bush administration there would be a new dynamic in space policymaking. A new actor in the policymaking process—a National Space Council in the Executive Office of the President, chaired by Vice President Dan Quayle—would face the challenge of establishing its influence vis-à-vis the other elements of the White House that had been dealing with space issues during the Reagan administration and its predecessors, particularly the Office of Management and Budget, the National Security Council, and the Office of Science and Technology Policy. Those organizations reported to the President, whereas the National Space Council was to be headed by a politically weak Vice President. Positioning the new Space Council as the lead entity for establishing the administration's approach to space would be an uphill fight, given the long-standing involvement of those other organizations in shaping the civilian space effort.

Quayle's views on the space program were not known. He had had little experience in dealing with civilian space policy or with NASA as an organization during his years in the Senate. Rather than compensating for that lack of background by selecting someone who did have space experience to serve as executive secretary of the Space Council, Quayle chose Mark Albrecht, a Senate staff person who had been dealing almost exclusively with national security issues. Quayle, who knew Albrecht from their time in the Senate, described him as "a tough infighter with a political mind" and "young, ambitious, conservative, and smart." Albrecht would need to deploy all those skills in the months to come. As he tried to get the Space Council off to a fast start, Albrecht had to deal with various "tests of the status, power, and influence of the new organization . . . everything from budgets to badges, furniture to phones, meeting lists to be included on to meetings that needed to be attended even without a formal invitation."[32]

The White House, without involving Quayle to any significant degree, chose a NASA loyalist to head the Agency. President Bush in April nominated Richard Truly as NASA Administrator, putting at the

30. Hogan, *Mars Wars*, 57; Albrecht, *Falling Back to Earth*, 41–42, suggests that this conversation took place May 31 at the conference site just before a NASA-sponsored exploration conference began; McCurdy interview with Frank Martin, 15 March 1991, attached to McCurdy, "The Decision."

31. McCurdy interview with Frank Martin; Richard Truly, unpublished manuscript.

32. Quayle, *Standing Firm*, 178–179; Albrecht, *Falling Back to Earth,* 19.

head of the Agency an experienced individual who was not convinced of the need for major changes. This created the potential for a contentious relationship between the Space Council and NASA, a potential soon to become realized. In addition, the personal relationship between Council Executive Secretary Albrecht and NASA Administrator Truly did not get off on a positive note.

The recommendations of the National Academies' report, combined with what he was hearing from members of the space community, convinced Albrecht of the need for new goals for NASA. Ambitious to demonstrate the central role in setting space policy that he and the Space Council staff hoped to play, Albrecht pushed to have the President announce a new direction for the space program on 20 July 1989, the 20th anniversary of the first steps on the Moon. Albrecht "naively" believed that "NASA would completely embrace the call for a new national mission in space and aggressively reprioritize and rationalize existing programs to accommodate and advance that new mission."[33] This was indeed naive; someone with more experience in dealing with NASA and its congressional and industry allies than Albrecht or Vice President Quayle likely would have recognized that such proposed changes would meet significant resistance. The Space Shuttle was NASA's most widely known program, and Space Station Freedom gave the Shuttle a destination for many future flights. In addition, Space Station Freedom was a legacy of President Ronald Reagan. The space industry and interested members of Congress had deeply vested stakes in both Shuttle and Space Station efforts and had fought hard in the previous few years to rally political support for both. NASA was unlikely to readily volunteer to modify those existing programs to support an undefined and uncertain exploration effort being advocated by a new actor in space policy.

Given the rush to get a new direction for NASA approved and announced on 20 July, there was no time for the small Space Council staff to prepare policy and budgetary guidance for the new direction or to identify the content of a reprioritized and rationalized space program. The Space Council would have to depend on NASA, without detailed White House direction, to give initial substance to an initiative the council intended to be the means for transforming NASA's existing plans and, indeed, its basic character. As Albrecht and his associates were soon to discover, such a transformation was not at all what NASA had in mind.

33. Albrecht, *Falling Back to Earth*, 40.

Chapter 2

Origins of the Space Exploration Initiative

NASA in 1987 had created an Office of Exploration; that office in December 1988 issued its first report, *Beyond Earth's Boundaries: Human Exploration of the Solar System in the 21st Century.*[1] A May 1989 conference at which Mark Albrecht and Richard Truly were to speak was the "coming out" event for that report. Even as the Space Council considered an exploration initiative, NASA had for several years been developing its own ideas about what such an undertaking might entail.

Frank Martin, head of the Office of Exploration, attended a 31 May meeting between Albrecht and Truly. This was the first time Martin had met Albrecht, who, observed Martin, "to put it politely . . . has a lot of confidence"; Albrecht was "very eloquent and energetic" in laying out the importance of a revitalized NASA. He did not share with the Agency leaders his ideas about an exploration initiative as an instrument for reshaping NASA and its programs; if he had, their response would likely have been defensive. Instead, they were enthusiastic, thinking they were being offered an opportunity to justify their existing efforts, in particular Space Station Freedom, as necessary steps in pursuit of challenging new objectives. After Albrecht had made his remarks about going back to the Moon as a means of stimulating the U.S. space program, Truly upped the ante, responding, "That is an important thing to do, but I believe the real program is Earth, Moon, and Mars as a total program strategy and both man and machines working together." In essence, Truly was telling Albrecht that adding to existing NASA plans for the Space Station everything NASA was hoping to do in coming years—both an ambitious human exploration initiative that included Mars as well as the Moon and a recently conceived "Mission to Planet Earth"—was the way to proceed.[2]

On May 31, Vice President Quayle formally asked NASA to prepare options and recommendations "for [a] Presidential decision to take advantage of the unique opportunity of July 20 [and] to achieve significant milestones in 2000." There apparently were no other policy guidelines or budget constraints provided to NASA by the Space Council. Albrecht told Truly that the NASA effort should be done in secret; very few people knew what he had in mind, and he did not want rumors of a new initiative leaking from NASA before he was ready to share it with his White House colleagues. By tasking NASA to develop, without

1. NASA Office of Exploration, *Beyond Earth's Boundaries: Human Exploration of the Solar System in the 21st Century* (Washington, DC: NASA, December 1988), *https://eric.ed.gov/?id=ED310942* (accessed 1 February 2024).

2. McCurdy interview with Frank Martin.

specific guidelines, the plans for the initiative, the Space Council staff early on lost control of the planning process. It never was able to get it back.[3]

The NASA Response

Truly and Martin pulled together a small team from NASA Headquarters, Marshall Space Flight Center, and Johnson Space Center (JSC) to create a plan for a major space initiative; the team lead was JSC engineer Mark Craig. Using a secure JSC facility provided by Center Director Aaron Cohen to preserve secrecy, and using the results of Office of Exploration planning as a starting point, the team spent 4–11 June quickly preparing an exploration scenario and adding to it the Mission to Planet Earth plan. Both were treated as additions to existing NASA programs, not alternatives. Craig briefed the scenario to Truly on 13 June and to Albrecht on the morning of 15 June. The exploration scenario called for "a program of human expansion beyond low Earth orbit with Mars as the ultimate objective." Space Station Freedom would be completed by 1998, based on its then-current design as an orbiting laboratory, and only then enhanced to support exploration beyond Earth orbit. There was no indication, as Albrecht had hoped, that NASA would modify its current design for the station to optimize it for human exploration. A "basecamp" on the Moon would be created beginning in 2000; its initial four-person crew would expand to eight by 2005 and, eventually, to twelve crew members. A four-person Mars base would be initiated in 2015, preceded by increasingly ambitious robotic precursor missions. A new cargo-carrying Shuttle-derived vehicle, Shuttle-C, would be developed during the 1990s to support accelerated space station assembly and would subsequently be used for initial lunar missions. A heavy-lift Advanced Launch System would follow, as would a reusable Lunar Transfer Vehicle and a Lunar Excursion Vehicle. The budget chart in the presentation (figure 2.1), marked "Do not release," showed both a "NASA today" baseline budget that remained constant over the next 30 years and the budget increases needed to carry out two new initiatives. The first of those initiatives was the $1 billion-per-year Mission to Planet Earth program of Earth observation. The second was the exploration initiative; the chart showed the substantial budget additions required for establishing outposts on the Moon and then traveling to Mars. The NASA budget was projected to increase from its then-current $13 billion to over $33 billion (in FY 1989 dollars) by 2010, leveling off at $30 billion by 2020. To implement the ambitious NASA plan, budget increases would be required, starting with a 10 percent supplement to the FY 1990 budget request that the White House had already submitted to Congress in February. In essence, NASA was asking the Space Council to embrace the totality of the Agency's future ambitions.[4]

When he saw the presentation, Albrecht immediately demanded that the Mission to Planet Earth element be removed from the scenario: "We don't want to hear about that. We want to hear about the Moon, and we want to hear about Mars."[5] A quickly revised briefing that removed the Mission to Planet Earth initiative was prepared and presented by Truly and Martin to Vice President Quayle on that same afternoon.

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3. This account is pieced together from Albrecht, *Falling Back to Earth*, 38–43 and Hogan, *Mars Wars*, 57–58; Quayle's request is in McCurdy, "The Decision," 13.

4. The contents of the June briefings are drawn from Mark Craig, "A Scenario for Human Exploration of the Moon and Mars," 13 June 1989, and NASA, "Civil Space Exploration Initiative," no date; both are attached to Howard McCurdy, "The Decision." Martin's quotes are from a McCurdy interview with Frank Martin, 15 March 1991.

5. McCurdy interview with Frank Martin.

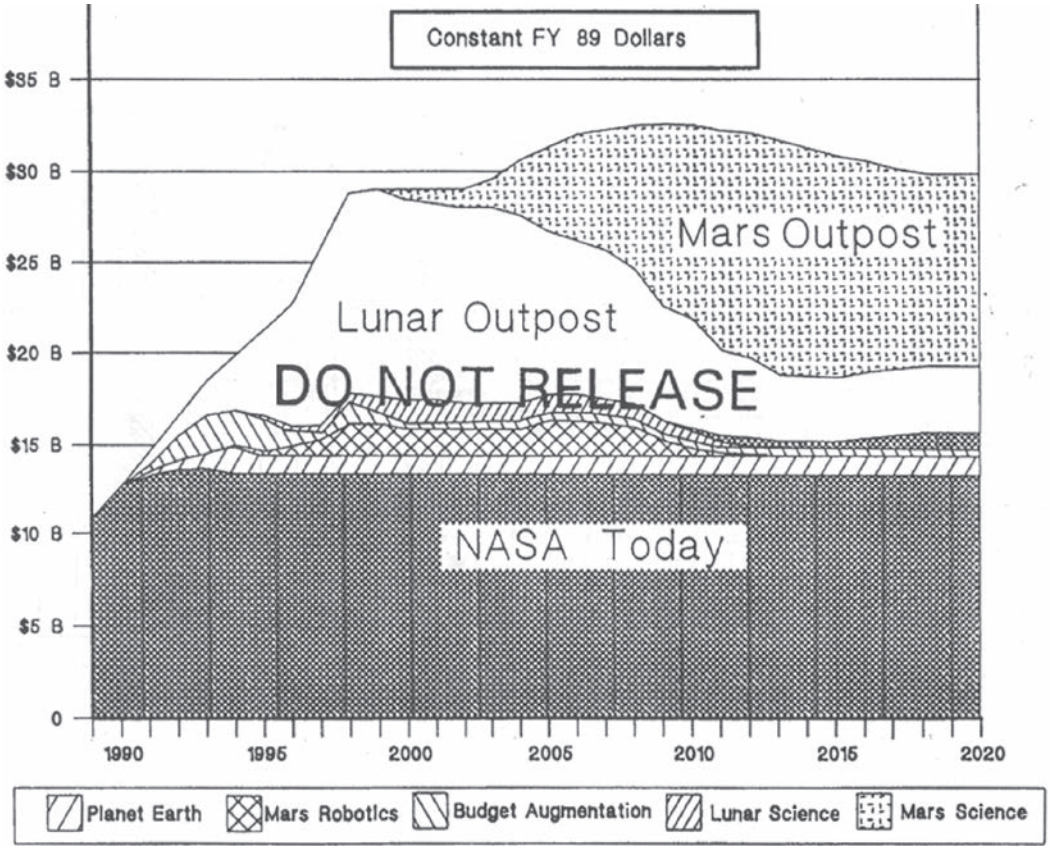

Figure 2.1. **Budget Chart from NASA Briefing to Mark Albrecht, 15 June 1989**
(The charts and timelines are available in NASA HHR-56, "The Decision to Send Humans Back to the Moon and on to Mars" from the Space Exploration Initiative History Project.)

Martin remembers that Quayle "was very interested. He was very friendly. He was wide-eyed and enthusiastic about it. He asked the kinds of questions you might expect to be asked from someone who is a non-technical type." Martin came away from the briefing "with a very positive feeling about the Vice President. . . . For the first time in 20 years, somebody in the White House gave a damn about the Moon and Mars." He was also positive about Albrecht's "enthusiasm and the fact that he was a bit of a spark plug and willing to fight some battles to make some things happen."[6]

Martin was misreading Albrecht's reaction to the NASA plan. Albrecht was upset that NASA's proposal "not only preserved the current baseline, it also isolated the new initiative, hanging it outside and exposed" in the presentation's budget chart. He felt that NASA had "gold plated and 'risked down' this new initiative to the point where it would stagger the entire federal budget for decades." Albrecht was particularly unhappy with Johnson Space Center Director Aaron Cohen, who had become personally involved in preparing the initiative. When told by Albrecht that the Space Council was looking for new approaches to carrying out the space exploration effort, Cohen's response was, "I am not really sure what you mean by 'new technologies and architectures.'" The kind of thinking that was coming out of the Strategic Defense Initiative was what Albrecht had in mind, but it was seemingly foreign to Cohen, who was "never challenging, never

6. Author's interview with Frank Martin.

questioning the reasoning, simply looking perplexed in a pleasant sort of way."[7] The disconnect between what the Space Council had hoped for and what career NASA officials like Cohen were proposing would characterize Space Council–NASA interactions in coming months.

The intent of the NASA plan, Albrecht judged, was "to cripple the new initiative in favor of preserving the baseline."[8] His dissatisfaction put Albrecht in a difficult position. The President's speech was just over a month away, and the NASA plan was the only fairly detailed description of an exploration initiative available as Albrecht was trying to sell such a step within the White House and to various external stakeholders. There was no time before the President's 20 July speech to generate an alternative to the NASA approach. So even with all his reservations, Albrecht decided to use the NASA plan to illustrate the "Moon and Mars" program he hoped that President Bush would announce. By having its plan adopted as the starting point for discussing the Moon/Mars initiative, NASA had won at least a tactical victory in the emerging conflict over the character of future spaceflight efforts. In his analysis of this period, Howard McCurdy suggests that NASA "career employees . . . strongly influenced the shape of the Space Exploration Initiative."[9]

One concern as Quayle and Albrecht debated whether to go ahead with the initiative was the possibility that trying to "shake up" NASA could lead to the collapse of existing support for the space agency. Albrecht, having taken a hard look at NASA after getting the Space Council job, recognized that the Agency "was a jumble of activities that was a constant and dynamic balance of interests promoted and pursued by an active and vocal academic community, regional requirements based on a widely distributed 'center' structure closely tied to local congressional delegations, the needs and demands of a large and growing astronaut corps, and a contractor community eager to unilaterally defend and expand individual ongoing activities."[10] It was precisely this delicately balanced and fragile "jumble of activities" that Albrecht hoped to disrupt. But if the Space Council "miscalculated on the appeal of a major overhaul, if we upset the delicate but inefficient interest network that supported the current NASA program, we ran a significant risk of losing it all." It was, Albrecht recalls, "a terrible choice: durable mediocrity, stagnation, and waste, or a zero-sum, win-or-lose-it-all gamble with an aggressive restart to human spaceflight." Vice President Quayle decided to push ahead and take that risk, telling Albrecht, "Let's not settle for mediocrity."[11]

Selling the Initiative

On 23 June, Quayle, Albrecht, Truly, OMB Director Darman, and OMB Associate Director Bob Grady, who was following the Space Council plans for Darman, met with White House Chief of Staff John Sununu. Sununu had to approve the exploration initiative before it could be put before President Bush for decision. Sununu suggested that going back to the Moon by itself was "boring" but probably a necessary step if the ultimate objective was getting to Mars. He asked Darman how much the initiative would cost; Darman asked Grady for the OMB staff estimate, and Grady replied, "$200 to $300 billion." Sununu judged that spreading those expenditures over 30 years, with the goal of the first landing on Mars in 2019, the 50th anniversary of Apollo 11, might be politically acceptable. Albrecht raised the question of whether

7. Albrecht, *Falling Back to Earth*, 49–50.

8. Albrecht, *Falling Back to Earth*, 50.

9. McCurdy, "The Decision."

10. Albrecht, *Falling Back to Earth*, 23.

11. Albrecht, *Falling Back to Earth*, 48.

NASA was "up to this task." Sununu's response: If it turned out that NASA could not handle the initiative, "then we will get rid of them. Seriously, this is a test for the agency."[12]

If Sununu was to recommend the initiative to President Bush, he said that it must contain several options, not just the "Moon, then Mars" plan NASA had proposed. He insisted that others outside of NASA review the proposed exploration initiative before it was presented to President Bush. He also declared that there could be no new funding in FY 1990 for the initiative, rejecting the 10 percent budget supplement that was part of the NASA plan.[13]

This last decision on Sununu's part would mean the Moon/Mars initiative, if approved, would get off to a limping start. Any new money in support of the initiative would not be available until 1 October 1991, 15 months in the future. By contrast, when President Kennedy in May 1961 had proposed setting a lunar landing as a national goal, he at the same time requested a $531 million increase in the NASA $1.2 billion budget request then before the Congress, a jump of over 40 percent. These additional funds were quickly approved; coupled with an earlier Kennedy budget increase, the NASA budget grew 89 percent compared to the final Eisenhower budget for NASA. More budget increases followed in 1962 and 1963. Apollo was made possible, among other factors, by a wartime-like rapid mobilization of financial resources.

The budget situation in 1989 would not allow anything resembling that mobilization. The long-term, sustained effort Quayle and Albrecht had in mind would, at least in the short term, require only a gradual increase in the NASA budget, one they hoped would reflect the current budget deficit situation and be politically acceptable to both President Bush and the Democratic-controlled Congress. On 25 June, two days after the meeting with Sununu, the Vice President called Albrecht to tell him that "the President has approved in concept the program and the announcement. Let's start preparations for a major announcement in July."[14]

Seeking Support

Based on Sununu's direction that the President must be presented with options for a space initiative, the NASA team quickly revised its plans. Added were two alternatives: going directly to Mars with humans or carrying out a robotic-only exploration of the overall solar system. The plan, however, was still biased toward identifying the "Moon, then Mars" approach as the preferred alternative. Based on Sununu's decision that there would be no supplemental funding in FY 1990, the dates for key milestones were slipped by one year; the first human mission to the Moon would occur in 2001 and the first voyage to Mars in 2016.

As these changes were being made, Albrecht suggested to Vice President Quayle that "the approach to the aerospace industry, the science community, and the space community would be structured similarly: each should be handled by a separate White House briefing by Admiral Truly and myself with a drop-by by you." He noted that "the Congress is the most complex of the constituent groups and the largest. . . . There are between 15 and 20 Members whose support is critical and whose participation is required." Albrecht added that "the Department of Defense . . . is approached by your meeting with [Secretary of Defense] Dick Cheney."[15]

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12. Albrecht, *Falling Back to Earth*, 44–45.

13. Hogan, *Mars Wars,* 63.

14. Albrecht, *Falling Back to Earth*, 44–45; Memorandum for the Vice President from Mark Albrecht, "Follow-up to 6/23 luncheon," 27 June 1989, FG467 File, B41L; Logsdon, *Kennedy and the Race to the Moon*, 114, 116.

15. Albrecht, "Follow-up to 6/23 luncheon."

Albrecht's proposal was adopted. Truly presented a revised NASA plan with the three options to Quayle and Albrecht on 5 July, and they approved it as the basis for the constituency briefings. Later that day, Albrecht and Truly briefed the plan to a group of "space advocates"; on 6 July, to representatives of the science community and the heads of major aerospace companies; and on 7 July, to key congressional staff. On 13 July, with only a week to go before the President's speech, Quayle and Truly went to Capitol Hill to brief members of Congress with responsibility for space policy and funding. Because they could not attend that meeting, key senators Barbara Mikulski (D-MD) and Ernest "Fritz" Hollings (D-SC) were given separate briefings on 17 July. These briefings informed the members of Congress of the White House intention to propose a major new space initiative; they were not consultations in which substantive comment on the initiative was sought from Congress.

Albrecht began his briefings with a review of the National Academies' December 1988 study of the state of the civilian space program, claiming that NASA's lack of a long-term vision "was slowly eroding support for the core program" and raising concerns about "the NASA organization stemming from this lack of focus." He suggested that the current thaw in the Cold War would cause a downturn in defense spending, threatening the viability of "a strong and purposeful aerospace industry" critical to both "our national security and our technological and economic vitality." A space exploration initiative could substitute in part for lower defense spending. Truly then followed Albrecht with a top-level presentation of the three options for an initiative.[16]

During the briefings, there was "predictable support from the primary interest groups of space enthusiasts," but "those right in the middle of the budgetary squeeze, the contractors and congressional staffers, were more skeptical." From industry leaders, "there was polite interest, but, frankly, only a subdued reaction . . . which came as a surprise . . . to the Vice President." Quayle had assumed that industry would eagerly welcome an opportunity for increased business, especially in the face of an anticipated downturn in defense spending as the Cold War ran down.[17]

These briefings took place, notes Albrecht, as the Congress was confronting an increasingly evident reality: "The federal deficit was a serious and urgent problem and was beginning to dominate the entire budget process."[18] As one element of the overall budget crunch, the NASA budget was in trouble, facing a $1 billion cut by House appropriators. The initial reaction of the powerful clerk of the House appropriations committee, Dick Malow, was, "Maybe this is something we ought to be doing," but "as I started to see the details of it . . . I became concerned, especially given the budget situation."[19] Malow had just been profiled in a *Wall Street Journal* story as having "great power" over space policy decisions; Senator William Proxmire (D-WI) had called him the NASA "shadow administrator." A Senate staff person, Stephen Kohashi, commented, "Have you lost your mind?" He was "incredulous at the magnitude of the price tag . . . and feared that it would have no credibility or viability on Capitol Hill." Key members of Congress offered only muted support; Senator Mikulski remarked that "the budgets are going to be tight [but] I am glad the Administration is finally taking an interest in space."[20]

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16. Albrecht, *Falling Back to Earth*, 53.

17. Albrecht, *Falling Back to Earth*, 50–53.

18. Albrecht, *Falling Back to Earth*, 47.

19. Albrecht, *Falling Back to Earth*, 51–53.

20. Hogan, *Mars Wars*, 64–67.

One congressman, Representative Bob Traxler (D-MI), who chaired the House appropriations subcommittee with responsibility for the NASA budget, was explicitly negative. He reacted to the briefing by saying, "We can't afford this. . . . We've got other things on our plate." The NASA appropriation was lumped together in his subcommittee's portfolio with funding for the Veterans Administration and the Department of Housing and Urban Development, in effect putting NASA in competition for scarce government dollars with military veterans and housing for the poor. It was Traxler's subcommittee that had just proposed the $1 billion reduction in the NASA budget. No member of Congress, then or later, stepped forward with an offer to champion the Moon/Mars initiative on Capitol Hill.[21]

By this time, substantial momentum was building in the White House toward the 20 July speech; the advocates of the exploration initiative were not dissuaded from moving ahead by the fact that the initiative was getting a "subdued" reaction from industrial stakeholders and warnings from Congress that finding funds for the initiative would be difficult. NASA's supportive industry–congressional coalition was more focused on getting the Space Shuttle back into regular flights and continuing Space Station Freedom development than it was on a significant addition to or shift away from existing programs. Truly remembers reviewing the briefing while sitting alongside Sununu; as Sununu flipped rapidly through the presentation, he "realized how thin the argument was for the initiative." Truly "honestly wondered . . . if he [Sununu] would actually recommend to President Bush that the President start the country on this course. . . . It was clear not only how badly the program needed technical meat on the bones, but how enormous the cost would be."[22]

Planning Goes Public

The options of a direct trip to Mars or a robotics-only initiative had drawn little interest during the various July briefings and were soon dropped in favor of NASA's original "Moon, then Mars" plan. Up to early July, planning by the Space Council and NASA staff had been known to only a few people, but that number significantly increased after the constituent briefings. Leaked accounts of the possible initiative soon began to appear in the press. These accounts communicated an unsettled decision process.

The Washington Times reported on 11 July that "the National Space Council is urging President Bush to launch a JFK-like manned assault on the moon." *The New York Times* reported that "President Bush's top advisers," including Quayle, Sununu, and Darman, were "pressing him to commit the United States to a broad, ambitious agenda for exploration of space." Rowland Evans and Robert Novak observed in their syndicated column that "long-distance planning by an administration better known for reacting than initiating might look like a moonbeam except for two truths: first, space to Bush and Quayle is a major foreign policy and technological challenge; second, budget director Richard Darman is a bona fide space junkie with a vision too spacious and vigorous to be confined by dollars and cents." In contrast, *The Washington Post* on 13 July headlined its story "Space Initiative May be Grounded: Funds Short for Current Programs." The *Post* story indicated that there was "doubt the President will announce a plan on the 20th anniversary of the Apollo moon landing next week."[23]

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21. Michael Mecham, "House Panel Proposes $1-Billion Cut for NASA," *Aviation Week & Space Technology*, 17 July 1989, 26.

22. Richard Truly, unpublished manuscript.

23. Clarence Robinson, "Space Council Urges Manned Lunar Base," *The Washington Times*, 11 July 1989, A1; Bernard Weinraub, "Bush May Back Manned Flights to the Moon and Mars," *The New York Times*, 18 July 1989, A14; Rowland Evans and Robert Novak, "Quayle's Ambitious Space Program," *The Washington Post,* 12 July 1989, A23; Kathy Sawyer, "Space Initiative May Be Grounded," *The Washington Post*, 13 July 1989, A21.

The press reports also noted controversy inside the White House about how specific the President should be in his announcement, coupled with anger that the whole process to date had taken place in secret, bypassing the normal path for the review of a major policy initiative. The trade magazine *Aviation Week & Space Technology* reported that "a sharp debate has been sparked . . . by Vice President Dan Quayle's proposal. . . . The cost and other aspects of Quayle's initiative—including its formulation in secret—have raised substantial debate." Career staff in the Office of Science and Technology Policy and the OMB "were angered because they did not get briefed on the plan" even though the small Space Council/NASA group "had been working on it for a month." When the OMB staff discovered what was being planned, they "were vociferously opposed," but were "overruled."[24]

Even many of the member agencies of the Space Council had not been informed of Quayle and Albrecht's plans; there was unhappiness "at the way the Quayle Moon/Mars initiative was handled secretly, outside the multiagency White House space council established to assess such issues." Since the start of June, a working group of senior staff from various Space Council member agencies had been discussing a revision of the Reagan administration 1988 National Space Policy. During that process, there had been no indication that a bold exploration initiative was being prepared. Having the staff of Space Council member agencies and powerful elements of the Executive Office of the President unhappy with how the Space Council staff was going about its business was not a promising start for the new organization and its exploration initiative. McCurdy suggests that the decision to go ahead with the initiative "was made possible in large part by the decision not to subject the initiative to a full, formal White House review by the various Presidential offices and councils," implying that such a review would have raised serious objections to going forward.[25]

A formal Space Council meeting to approve the separate effort to make changes in the National Space Policy was scheduled for 14 July. By that time, plans for a presidential announcement on the future of the space program on 20 July had become known, and Vice President Quayle explained what was going on to the council members. Even so, he was not totally forthcoming. He told the Space Council members who were present—which included Deputy Secretary of Defense Donald Atwood, Deputy Secretary of Labor Elaine Chao, Deputy Secretary of Commerce Thomas Murrin, Principal Deputy Director of National Intelligence Richard Kerr, and Vice Chairman of the Joint Chiefs of Staff Robert Herres—that the leaked press reports about a possible exploration initiative were "not quite accurate." Quayle said that in recent weeks President Bush had indeed "been considering long-term space options," but he was in the "thinking stages only." He added that "there seems to be no sense of clear direction" on what the space program's goals should be, and that the administration would use the Space Council to address "the details of following up." With respect to the President's speech on 20 July, Quayle said that President Bush would "cast an eye to the future, not on specifics like the Moon or Mars by a certain date, but rather in terms of goals, pioneering space, competitiveness, etc."[26]

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24. Craig Covault, "Manned Lunar Base, Mars Initiative Raised in Secret White House Review," *Aviation Week & Space Technology*, 17 July 1989, 24–25; Email to author from Norine Noonan, who in 1989 was the chief of the OMB branch that handled NASA's budget, 24 April 2020.

25. McCurdy, "The Decision."

26. Minutes of the National Space Council Meeting, 14 July 1989, National Space Council File, Papers of Vice President Dan Quayle, B41L; Lieutenant General (USAF) Edward Heinz, "National Space Council Meeting—July 14," Memorandum for Record, 15 July 1989, Document CIA-RDP91B01306R000300070009-3, CREST (CIA Records Search Tool).

The President Approves

Quayle may have known even before the 14 July Space Council meeting that the White House speechwriting office, after receiving input from the Space Council staff but not from NASA, had already produced a first draft of the 20 July presidential speech. That 13 July draft, in language very similar to what would appear in the actual speech, had the President saying: "For the coming decade—for the 1990's—Space Station Freedom—the critical next step in all our space endeavors. For the new century—for the first decade—back to the Moon. Back to the future. And this time—back to stay. And next—for the second decade of the new millennium—a journey into tomorrow, a journey to another world—a manned mission to Mars." NASA's suggestions for the speech did not reach the White House until 14 July and were not sent to the White House speechwriting office until 17 July; none of NASA's proposed language found its way into the speech.[27]

While all of this was going on, President Bush was on a 10-day European trip, with visits to Poland and Hungary and participation in a Group of Seven summit meeting in Paris. Bush had been kept aware of the exploration initiative planning through his weekly lunches with Vice President Quayle and contacts with Sununu and Darman. Before leaving the country, he had given his approval, in principle, to including an announcement of new space goals in his 20 July speech. It was on this basis that his speechwriters prepared the early drafts of that speech.

In some of those drafts, the space exploration initiative announcement was "bracketed," a way of indicating that there was still disagreement over the specifics of what the President might say. At least one of the President's senior advisors on 16 July did raise a strong caution about the initiative. Commenting on a speech draft, Roger Porter, Bush's Assistant for Economic and Domestic Policy and head of the Domestic Policy Council, suggested, "My principal concern is a policy one: will our call for a manned presence on the Moon and a manned mission to Mars be credible given the current funding state of NASA?" He added, "The best estimates I have been able to locate . . . is that these two ventures will cost something on the order of $585 to 600 billion. Granted, that is spread over thirty years, but it is not reflected in our current funding for FY 1990–94." Porter suggested that "until there is some discussion at senior levels with the President, I strongly recommend that these paragraphs [announcing the initiative] remain bracketed." Since the preparation of the Moon/Mars initiative had been done in secret, Porter, in his suggestion that senior-level review was required, may not have realized that the initiative already had the support of Vice President Quayle, and likely that of Darman and Sununu as well.[28]

After returning from Europe the previous evening, President Bush on 19 July gave his final approval to announcing the exploration initiative in his speech the next day, but without "timetables or cost estimates." It is not clear whether Bush's decision came in the form of his review and approval of the draft text of the speech or after a discussion of its contents with his senior advisors. Truly was "never in a meeting with President Bush" to discuss the exploration initiative. A final version of the speech was finished only in the early evening of 19 July; Truly remembers being called by Albrecht, who was "very happy, even giddy" that the exploration initiative had been included in the final version of the speech, suggesting that the decision

27. "Draft One (Moon)," Box 13496, Speech File Drafts Files, White House Office of Speechwriting; and Memorandum from Dot Zucker, NASA, to Brad Mitchell with attached speech draft, Box 8165, Papers of Edward Goldstein, both at B41L.

28. Memorandum from Roger Porter to Chris Winston, "Presidential Remarks: 20th Anniversary of Apollo Moon Landing," 16 July 1989, Box 8165, Goldstein Files, B41L.

to do so may have come at the last minute. Despite the storm warnings that gaining backing for the initiative from NASA's traditional support coalition would be difficult, the combination of Quayle, Darman, and Sununu was able to carry the day with an accepting President Bush.[29]

"A Long-Range, Continuing Commitment"

Shortly after 10:00 a.m. on 20 July, with the humidity high and the temperature already approaching 90°, the Apollo 11 anniversary celebration began on the steps facing the National Mall outside of the Smithsonian's National Air and Space Museum. Seated in front of a large model of the Saturn V Moon rocket were several hundred people, among them President and Barbara Bush, Vice President and Marilyn Quayle, NASA Administrator Richard Truly, and Apollo 11 astronauts Neil Armstrong, Buzz Aldrin, and Michael Collins. An audience of several thousand people had gathered on the National Mall across from the steps.[30]

Quayle introduced the President, who first thanked those who had "braved the weather to join us today." After reminiscing on the remarkable achievements of Apollo 11, Bush declared, "Our goal is nothing less than to establish the United States as the preeminent spacefaring nation." To achieve that goal, said the President, would take commitment:

> In 1961 it took a crisis—the space race—to speed things up. Today we don't have a crisis; we have an opportunity. To seize this opportunity, I'm not proposing a 10-year plan like Apollo; I'm proposing a long-range, continuing commitment. First, for the coming decade, for the 1990's: Space Station Freedom, our critical next step in all our space endeavors. And next, for the new century: back to the Moon; back to the future. And this time, back to stay. And then a journey into tomorrow, a journey to another planet: a manned mission to Mars.

The President gave a rhetorical justification for his proposal: "We dream of distant shores we've not yet seen. Why the Moon? Why Mars? Because it is humanity's destiny to strive, to seek, to find. And because it is America's destiny to lead." Later in his remarks, Bush added:

> I'm asking my right-hand man, our able Vice President, Dan Quayle, to lead the National Space Council in determining specifically what's needed for the next round of exploration: the necessary money, manpower, and materials; the feasibility of international cooperation; and develop realistic timetables—milestones—along the way. The Space Council will report back to me as soon as possible with concrete recommendations to chart a new and continuing course to the Moon and Mars and beyond.[31]

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29. Bernard Weinraub, "President is Said to Back Moon and Mars Projects," *The New York Times*, 20 July 1989, A21. The draft of the speech can be found in Box 13496, Speech File Draft Files, White House Office of Speechwriting, B41L. Richard Truly, unpublished manuscript.

30. The author was among those assembled to hear the President speak.

31. The text of Bush's speech can be found at *https://bush41library.tamu.edu/archives/public-papers/712* (accessed 29 January 2024).

That the President charged the Space Council, not NASA, with determining "what's needed" was purposeful. Although NASA had succeeded in getting its "Moon, then Mars" ambitions accepted as the starting point for defining the exploration initiative, those seeing the initiative primarily in terms of a way to "shake up NASA" did not want the Agency playing the lead role in determining how the initiative would be implemented. Albrecht suggests that the assignment of follow-up responsibility to the Space Council was "neither a casual nor an incidental matter." He already suspected that if the Space Council depended on NASA to lead the planning effort, the White House would not get the kind of innovative approach it hoped for. He also wanted to make the point that the President, working through the Space Council, would set the direction of the national space program, not the officials at NASA Headquarters or those who directed the powerful NASA field centers, whom Albrecht characterized as "center barons."[32]

Bush's speech was followed by a celebratory picnic on the White House South Lawn attended by those who had been present at the Air and Space Museum; it also included many former and current U.S. astronauts. In his more casual remarks to the gathered crowd, Bush joked that "planning the picnic was a little hectic. We didn't know whether you preferred hamburgers grilled or served out of a tube." He quoted the author James Michener: "There are moments in history when challenges occur of such a compelling nature that to miss them is to miss the whole meaning of an epoch. Space is such a challenge." Both before and during the picnic, Truly and Albrecht and his staff met with the media to provide background on the President's announcement, hoping to shape "their perceptions of the events of the day."[33]

First Reactions and Next Steps

Those perceptions were mixed. The morning after the Bush speech, *The New York Times* headlined its story on the event "President Calls for a Mars Mission and a Moon Base: Critics Cite High Costs." Many reports about the speech compared it to President Kennedy's May 1961 "We should go to the Moon" address and focused on the costs of the endeavor as if they would be incurred in the short term. This had not at all been the Space Council's intention. The language in the speech had been carefully crafted to note that what the President was suggesting was not an Apollo-like crash program to achieve milestones on a set schedule, but a multi-decade commitment that would not require an immediate large increase in the NASA budget. This message got lost in the excited reaction to the new goals.

The New York Times story noted, "Mr. Bush offered no estimate of the cost of the space ventures and no timetable for carrying them out. . . . It is difficult to predict whether the President's commitment will result in major new space programs or will remain primarily a rhetorical flourish left for future administrations." In an editorial on the same day, the *Times* suggested that "if Mr. Bush seriously intended to send people to the moon and Mars, he would have set a timetable and a budget. The airiness of his rhetoric suggests instead that he is merely giving NASA a nominal goal to justify its vast and so far fruitless investment in the space shuttle and the Space Station." *The Washington Post* similarly reported, "The speech drew immediate fire . . . for its lack of specifics and the absence of a funding commitment." Columnists Jack Germond and

32. Albrecht, *Falling Back to Earth,* 50.

33. Bush's remarks at the picnic are at *https://bush41library.tamu.edu/archives/public-papers/713* (accessed 29 January 2024); Email from Mark Albrecht to the author, 7 June 2020, NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 15, "George Bush Presidential Library FOIA Request 1999-0093-F"; Quayle, *Standing Firm*, 182–183.

Jules Witcover suggested, "The President may indeed intend to establish a base on the moon and send an expedition to Mars. But right now it is quintessential pie in the sky."[34]

The lack of specifics in the President's speech had been a conscious decision on the part of the White House. Albrecht notes that there had been enough publicity given to NASA's version of the initiative before the speech "to force us to water down the President's announcement with regard to specific dates and the outlines of the program plan in order to avoid appearing to embrace the NASA baseline."[35]

There was some recognition that Bush's speech was intended as the starting point for a process that could lead to future decisions on resuming human space exploration. The *Times* suggested that the President's speech "set the stage for the first full-scale debate in years on the nation's troubled space program." The *Post* agreed, editorializing that Bush's proposal "should help draw the country into a considered space-policy debate of a sort that has been absent both in Congress and in the executive branch in recent years."[36]

That debate would necessarily involve the Congress; in 1989, the Democratic party was in the majority in both the Senate and the House of Representatives. Any increase in the NASA budget to carry out Bush's proposal would thus have to have bipartisan support. Democratic members in Congress were reported as "skeptical about the proposal and in some cases hostile." Senator Al Gore (D-TN), Chair of the Senate Subcommittee on Science, Technology, and Space, commented that "by proposing a return to the Moon and a manned base on Mars, with no money, no timetable, and no plan, President Bush offers the country not a challenge to inspire us, but a daydream." Gore's Tennessee colleague Jim Sasser, chairman of the Senate Budget Committee, added, "The President took one giant leap for starry-eyed political rhetoric, and not even a small step for fiscal responsibility." Representative Leon Panetta (D-CA), chair of the House Budget Committee, asked in a commentary, "Who Will Pay for Bush's 'Vision'?" In the immediate aftermath of Bush's speech, Representative Traxler's subcommittee removed all funding in NASA's budget for Project Pathfinder, an effort that was begun in the final year of the Reagan administration to develop various technologies related to future human exploration.[37] Over the coming months and years, there would be congressional opposition to funding even the modest amounts the White House requested to get started on what was soon called the Space Exploration Initiative (SEI). Skeptics in Congress suggested that such initial funding was only a down payment on the multibillion-dollar budget requests that were sure to follow.

To complete planning for the initiative, Bush had directed the Space Council to determine "what's needed for the next round of exploration: the necessary money, manpower, and materials; the feasibility of international cooperation; and develop realistic timetables—milestones—along the way." It would now be up to Mark Albrecht and his Space Council staff to devise an approach to providing that information.

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34. Bernard Weinraub, "President Calls for Mars Mission and a Moon Base," *The New York Times*, 21 July 1989, A1; "Mr. Bush's Giant Step Back in Space," *The New York Times*, 21 July 1989, A28; "Ticket to Space, "*The Washington Post*, 23 July 1989, D6; Jack Germond and Jules Witcover, "Space Talk Is Just Pie in the Sky," *The Fairfax Journal*, 24 July 1989, A2.

35. Albrecht, *Falling Back to Earth*, 50.

36. "Mr. Bush's Giant Step Back in Space," A28; "Ticket to Space," D6.

37. Leon Panetta, "Who Will Pay for Bush's 'Vision'?" *The Washington Post*, 3 August 1989, A27; Hogan, *Mars Wars,* 77–78; Day, "Aiming for the Moon," Part 1.

Conclusion

The Space Exploration Initiative was likely to fail even as it was announced. The conditions that might have made the initiative politically and financially viable were noticeably absent. Hogan in *Mars Wars* concludes that the 20 July announcement was the result of "a defective decision-making process" and observes that "a plan was developed that never had any hope of gaining congressional support."[38] This account supports that judgment.

In his memoir, Vice President Quayle observes that the process that led to announcing the exploration proposal on 20 July was "somewhat ad hoc" and "improvisational," with the result "a little half-baked." The rush to time Bush's announcement of the initiative to coincide with the 20th anniversary of the Apollo 11 landing was a major reason for the incomplete character of the proposal. There had not been time to discuss whether some version of the NASA plan or a more innovative, less expensive alternative was the better way to proceed, much less to develop a reliable cost estimate and schedule for whatever path forward was chosen. Those in the White House who advocated the 20 July announcement recognized this but decided that the opportunity presented by the anniversary occasion was so promising that it should be seized. Quayle suggests, "What was important right then was to think big, to put a bit of the 'vision thing' back into the program, to get people excited about it once again, even if that meant getting ahead of ourselves." This turned out to be a misguided approach; the Bush announcement soon became in congressional and public perception inexorably linked with NASA's plan and its associated high costs. Announcing the initiative on the Apollo anniversary created a sense in the Congress and the public that the initiative would resemble the successful but very expensive lunar landing program, a perception precisely opposite to what the Space Council had intended. Hogan observes that "it is beyond explanation why the administration didn't seek out cheaper options before announcing the initiative."[39]

Hogan adds that "the decision to conduct the agenda setting process in secret made it difficult to generate support within Congress. . . . The Space Council's inability to provide high level policy guidance, combined with NASA's failure to independently consider critical fiscal constraints, derailed the initiative before it really got started."[40] A normal White House policy review before the initiative was announced might have flagged these problems before they became evident, or even led to the announcement being postponed. Such a policy review did not occur, even though the Space Council itself was designed precisely to conduct such an assessment. This was a Quayle/Albrecht initiative; none of the other Space Council member organizations was asked to review what was being proposed, and the council itself did not meet to discuss the initiative before it was announced by the President.

The precedent of President John F. Kennedy's decision to send Americans to the Moon may well have influenced the decision to proceed. In 1961, there had been a similarly short time to craft what became Project Apollo. The Soviet Union sent Yuri Gagarin, the first human to orbit the Earth, into space on 12 April. Driven by the domestic and international reaction to this achievement, President John F. Kennedy on 20 April had asked Vice President Lyndon B. Johnson to identify "a space program which promises

38. Hogan, *Mars Wars,* 165, 162.

39. Quayle, *Standing Firm*, 182–183; Hogan, *Mars Wars*, 161.

40. Hogan, *Mars Wars*, 165–166.

dramatic results in which we could win."[41] After Johnson consulted NASA and the Department of Defense, Wernher von Braun, a few private sector leaders, and several of his former congressional colleagues, on 8 May he suggested to Kennedy that he propose a "manned lunar landing before the end of this decade." Kennedy accepted this recommendation and, in a 25 May 1961 speech to a joint session of Congress, announced the lunar landing goal, suggesting, "This nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to earth." In a little over a month, the idea of sending Americans to the Moon went from a general concept to a highly visible presidential proposal that was accepted by the Congress and the nation.[42]

However, the context for Kennedy's 1961 decision to go to the Moon was very different than the situation in July 1989. That decision came as a crisis-driven response to the flight of Yuri Gagarin and, more broadly, to the concern the United States was falling behind the Soviet Union in the competition for world leadership. In 1989, there was no such Soviet challenge. In 1961, the federal budget was running a surplus, and Kennedy and his advisors were seeking ways to stimulate the economy. Funds were available for a major space initiative. In 1989, budget deficits were a pressing concern for the new Bush administration and the Congress; the NASA budget was at the time being threatened with a $1 billion reduction. Starting an ambitious and eventually expensive undertaking would be a challenge. Vice President Johnson's 1961 consultations had revealed strong support for a space initiative among both selected businessmen and the congressional leadership. In 1989, the leaders of the space industry and of Congress had mixed reactions to the potential initiative. There was no politically potent call for a major shift in the direction of the U.S. civil space program.

The words in Bush's speech reflected NASA's aspirations much more than they reflected what Quayle and Albrecht were hoping to accomplish. The briefings to various stakeholders in advance of the speech—and, indeed, the language in the speech itself—were based on the plans NASA had developed during June and July, which in turn reflected the work of NASA's Office of Exploration. For example, Bush called Space Station Freedom "our critical next step in all our space endeavors" and indicated that NASA, during the next decade, would focus on completing the Station.[43] That declaration would make it very difficult, as Quayle and Albrecht had hoped, to "use the opportunity to rationalize both the shuttle and the station to serve the new [exploration] goal."[44]

President Bush asked the Space Council "to report back to me as soon as possible with concrete recommendations to chart a new and continuing course to the Moon and Mars and beyond."[45] Preparing those recommendations would be a conflict-filled process.

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41. John F. Kennedy, Memorandum for Vice President, 20 April 1961, Presidential Files, John F. Kennedy Presidential Library, Boston, MA, reproduced in Roger Launius, *Apollo: A Retrospective Analysis* (NASA History Office, NASA SP-4503, 1994), 35–36, *https://nasa.gov/wp-content/uploads/2023/04/sp-4503-apollo.pdf?emrc=477dab* (accessed 27 February 2024).

42. For an account of the decision to go to the Moon, see Logsdon, *John F. Kennedy and the Race to the Moon*, 69–116.

43. Remarks on the 20th Anniversary of the Apollo 11 Moon Landing, 20 July 1989, *https://bush41library.tamu.edu/archives/public-papers/712* (accessed 27 February 2024).

44. Albrecht, *Falling Back to Earth*, 32.

45. Remarks on the 20th Anniversary, *https://bush41library.tamu.edu/archives/public-papers/712* (accessed 27 February 2024).

Chapter 3

Pursuing Different Paths

In the aftermath of President George H. W. Bush's 20 July announcement of what quickly became known as the Space Exploration Initiative (SEI), NASA and the Space Council staff moved forward on separate paths, paths which by the final months of 1989 would collide. Some top NASA leaders apparently interpreted, despite Space Council warnings to the contrary, that the speech was a "Kennedyesque declaration calling for a large-scale national effort" in space exploration. Johnson Space Center Director Aaron Cohen later suggested that "the day that the initiative was announced was a day of great elation. It took everyone back to the days of Apollo."[1] For Vice President Dan Quayle and National Space Council Executive Secretary Mark Albrecht, who were hoping to use the initiative as a forcing function to change the Apollo paradigm at NASA and to introduce a new way of doing business within the civilian space program, this was not at all the desired reaction. The disjoint in perceptions of what was intended by the President's pronouncement, and of how best to implement it, became a source of intense friction between NASA and the White House.

The 90-Day Study

Albrecht was quick to suggest an approach for responding to President Bush's charge that the Space Council determine "specifically what's needed for the next round of exploration." In a 24 July memorandum to Quayle, he told the Vice President, "We should do the planning with a small group in the White House," adding, "I believe it is important that we move out quickly. . . . If we get started soon, I believe we can have a fairly comprehensive human exploration roadmap by late fall of this year. This would be sufficient time to impact the FY1991 budget." Albrecht also suggested, "We should task NASA to give us a strawman plan including intermediate milestones within about 30–45 days. This will save us time and energy and allow us to put our own review teams in place. My sense, however, is that we will need to add to a NASA plan and develop a broader base of agency participation." Albrecht proposed assembling "a small group of outside citizens (maybe a Blue Ribbon Panel)." Such a group could provide "an early sounding board," "provide technical advice," and help ensure that "important interest groups have a stake" in SEI.[2]

Albrecht never formed "the small group in the White House" that he had suggested, thereby ceding to NASA the first try at developing a more detailed plan for the initiative. Between late July and early

1. Hogan, *Mars Wars*, 79.

2. Memorandum from Mark Albrecht to the Vice President, "Human Exploration Action Plan," 24 July 1989, FG467 File, B41L.

November, NASA carried out what became known as the "90-Day Study." The origins of this pivotal effort are not clear. Albrecht recounts that on 24 July "the Vice President wrote to Dick Truly, specifically requesting that 'NASA provide a technical mission description which can serve as a baseline for review.'" Quayle "asked that NASA report back to the [Space] Council in ninety days."[3]

Richard Truly remembers the 90-Day Study as a NASA initiative. Recognizing after Bush's speech that existing Space Shuttle and Space Station Freedom commitments "stretched decades into the future," he felt that "it was urgent that we undertake a study to assess whether NASA could use the Shuttle and Station assets to accomplish the President's vision or whether a totally new and separate architecture would have to be conceived. The '90-Day Study' was born to address these critical issues."[4] Truly asked Cohen to lead the study team; his appointment was announced on 27 July, just a week after the President's speech.

To Cohen, the idea that the White House would not build on NASA's long experience and recent exploration planning in executing the President's proposal was basically unimaginable, and he designed the 90-Day Study based on the assumption that it should be based on the NASA thinking of recent years. NASA's hurriedly assembled "Moon, then Mars" plan had been the basis for the President's 20 July speech, and it was logical to NASA that the White House would want as the baseline moving forward a more careful assessment of what NASA had proposed in June and July. Truly remembers thinking that "to achieve the first part of the President's vision ['for the 90s: Space Station Freedom'], NASA had to complete the Space Station and that the Shuttle was necessary to build and operate [the] Station. . . . Why would we throw them away?" He also anticipated the emerging NASA–Space Council conflict, commenting that "whatever the 90-Day Study produced, Mark Albrecht (and therefore the Vice President) wouldn't like it."[5]

In a letter to the Vice President dated 5 September, six weeks after the President's speech, Truly indicated that what he characterized as "phase one" of the NASA 90-Day Study would "pull together several years of NASA work in the area of human exploration." Included would be "a potential program plan," which would assume "deployment and initial operation of Space Station Freedom in the 1990's to serve as a base for further exploration." The study would contain "an assessment of the technologies required to support the various options in the program plan. A particular effort will be to identify promising new technologies which offer substantial cost or schedule savings." It would also include "an analysis of costs, including estimates of funding requirements for the next five years and planning estimates for an additional five years." Truly indicated that following this phase-one work, "the next logical phase will be to explore even more fully the complete range of technological options, actively seeking and evaluating new and innovative ideas from all quarters."[6]

The 90-Day Study was managed on a day-by-day basis by Johnson Space Center (JSC) engineer Mark Craig, who had had a major role during June in preparing the NASA plan that had formed the basis of the President's announcement. In typical NASA bureaucratic style, some 450 people worked on the study at one time or another; on any given day, some 250 NASA staff were involved. Other NASA centers soon got the sense that JSC was not particularly interested in their ideas; the Houston center had an insular and

3. Albrecht, *Falling Back to Earth*, 61.

4. Richard Truly, unpublished manuscript.

5. Richard Truly, unpublished manuscript.

6. Letter from Richard Truly to the Vice President, September 5, 1989, NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 4, "Chapter 3."

somewhat self-satisfied organizational culture, closed to outside influences. Hogan comments that "JSC became 'Fortress NASA,' and outside ideas were not welcome."[7]

As the study began, Albrecht, as he had done in June, told Cohen, "Most of all we want alternatives, plenty of alternatives." Cohen responded, "What do you mean, alternatives?" Cohen's "blank look" suggested to Albrecht that he was not getting through. "Alternatives," Albrecht repeated. "There has to be more than one way to do this. Give us a Cadillac option, then give us an El Cheapo alternative, with attendant risks." As the NASA study went forward with weekly reports to the Space Council, Albrecht began to get an "uh oh" feeling. He persisted in emphasizing the need for options but "kept getting nothing but grunts back. We kept getting these blank stares. We were beginning to get the strong feeling that we wouldn't be getting any alternatives."[8]

Space Council Planning Process

While NASA was at work on the 90-Day Study, the Space Council set up a process within the White House aimed at leading to presidential decisions in late 1989 or early 1990 on the policies that would guide the exploration initiative. Albrecht reported the status of that effort in a 13 October memorandum to the Vice President, saying that the way forward had been agreed to by the OMB and the Office of Science and Technology Policy. He told Quayle that the process was intended to prepare for the President "a path that meets his goals not only for the Moon and Mars, but for enhancing America's technological future, our children's education, and his vision of global partnership." He added, "This will take time and it will require many decisions. . . . We will be making critical choices . . . for several years to come, but what we must do now is start setting the overall direction of the effort, asking the right questions, pursuing the right answers, establishing the right institutions, and building the enduring consensus required to meet the President's goals." Albrecht judged that "it would be a mistake . . . for us to rush to embrace a specific program plan now, a program that might prematurely foreclose options, constrain technology, and lock us into a single path for 20 or 30 years." Rather, "our goal is to develop realistic alternatives that will enable the President to chart the long-term course, while providing sufficient flexibility to live within tight budget constraints and to fully exploit the opportunities offered by new technological developments." Albrecht identified "three major policy issues . . . mission planning, international participation, and management." He suggested that Quayle "convene a meeting of the National Space Council . . . to initiate formally the process of policy development."[9]

The Space Council principals met on 26 October to consider Albrecht's plan for proceeding. Vice President Quayle stressed that "there is no need to rush—better to take our time. It is important that we do this right." Albrecht repeated this point in his presentation, saying that what he was proposing was a "deliberate process" and that there was "no race" or "compelling urgency to make all the decisions right away." As examples of the different paths that might be pursued, he told the Council, "The President could establish specific target dates, as President Kennedy did with Apollo, or he could establish a specific funding profile and lay out a program that fit within such predetermined funding, or he might direct that early efforts

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7. Hogan, *Mars Wars*, 80–84.

8. This exchange is described in Bryan Burrough, *Dragonfly: NASA and the Crisis Aboard Mir* (New York: Harper Collins, 1998), 240.

9. Memorandum from Mark Albrecht for the Vice President, "Policy Planning for Human Space Exploration," 13 October 1989, FG467 File, B41L.

focus on new technologies which might reduce costs or improve performance by large amounts." Already anticipating that it would not provide the options requested, Albrecht characterized NASA's almost-completed 90-Day Study as a "technical reference case" and "a starting point . . . not a baseline plan for which only marginal deviations will be considered."[10]

At the 26 October Space Council meeting, OMB Director Darman stressed that the objective was "to achieve a stable level of funding . . . instead of designing a budget with dramatic increases and large spikes." Darman thought that what was needed was "broad based public support to enable the administration to maintain funding for a long term space exploration initiative." He believed that "there is much to be done in terms of packaging, marketing and selling the Moon/Mars initiative to the American people." There had been no funding for SEI in the FY 1990 budget that had gone into effect on 1 October 1989. Darman pointed out the difficulty of including significant funding for the initiative in the FY 1991 budget, then under review at OMB.[11]

Darman was in a difficult position. He continued to think that a major shift in space program direction and challenging new goals were needed, but he also had to craft an overall federal budget that reflected the desire of President Bush to avoid further increasing the burgeoning government deficit. In addition, the OMB career staff continued to be very skeptical of the wisdom of the kind of open-ended commitment of future funding that SEI represented. Providing adequate funding to get SEI started would be a struggle.

Albrecht told the Space Council members to anticipate four more council meetings in the coming two months—one meeting to hear from NASA about the results of the 90-Day Study, and one meeting each to consider issues related to mission planning, international cooperation, and management of the initiative. Those meetings would lead, in early 1990, to a presidential statement finally providing the policy framework for implementing the initiative.

The 90-Day Study Arrives

A Space Council meeting to hear NASA's presentation of its 90-Day Study results was scheduled for 17 November. A draft of the study was available for Space Council staff review in early November. Although there had been all along a sense on his part that the study would not be responsive to Space Council objectives, Albrecht's reaction to the draft was shock. "We were just stunned, felt completely betrayed. Vice President Quayle was furious. The 90-Day Study was the biggest 'F' flunk you could ever get in government. . . . It was just so fabulously unaffordable, it showed no imagination."[12] NASA had decided to take what the President had said in his speech—complete Space Station Freedom, then develop a permanent base

10. Memorandum from Mark Albrecht for the Vice President, "Space Council Meeting on the Status of Planning for the President's Moon/Mars Initiative," 24 October 1989, FG467 File, B41L. This memorandum included suggested "talking points" for the Vice President to use at the meeting. (The "there is no need to rush…do this right" quote is from p. 2 of the talking points in this memo.) It is standard practice for staff members to prepare suggested remarks for a senior person in advance of a meeting. There is usually no written record of what was actually said in a situation such as this. In many places in this account, I have quoted Albrecht's suggested talking points as if they were in fact spoken by the Vice President or, occasionally, by the President. I have noted in the relevant footnote when this was the case. Albrecht Briefing Charts and Talking Points, National Space Council Files, Papers of Dan Quayle, B41L.

11. Memorandum from Brad Mitchell to Andy Card, "Summary Notes of October 26 National Space Council Meeting," 27 October 1989, Box 6673, Edward Goldstein Files, B41L.

12. Hogan, *Mars Wars*, 92–93.

on the Moon, followed by a journey to Mars—as its guidance for the report, rather than the repeated Space Council requests for multiple exploration options. Miscommunication and misunderstanding were rife.

Albrecht scheduled a 6 November lunch at which he, Quayle, Quayle's chief of staff Bill Kristol, Darman, OMB Associate Director Bob Grady, and Truly would discuss the NASA plan and how it would fit into the FY 1991 budget. In preparing Quayle for the meeting, Albrecht told him that "the main problem is NOT Truly or OMB, it is the NASA bureaucracy that cannot conceive of doing business other than the usual way . . . create a single plan, stick to it without deviation, divide the work among all the NASA centers and avoid all risk. . . . This is the obstacle we must overcome."[13]

On 15 November, Truly briefed the results of what formally was titled "Report of the 90-Day Study of Human Exploration of the Moon and Mars" to a meeting of Space Council deputies. Albrecht's reaction to the briefing was that "our worst fears were instantly realized." The study discussed only a single set of hardware systems for achieving the President's objectives, including continuing use of the Space Shuttle and Space Station Freedom. Commenting on the study, Space Council staff noted that it was "a detailed breakdown of the basic ideas Admiral Truly briefed to the White House early in the summer—there does not appear to be much new here." The NASA plan "utilizes to the maximum extent all current and planned NASA systems" and "takes a basic 'evolutionary' approach which is a conservative one and only envisions progress of today's technology rather than driving hard for specific breakthroughs."[14]

The report described five "reference approaches," each using basically the same hardware systems (see table 3.1). The approaches differed primarily in the timeline for achieving various milestones. The costs of the alternatives were high, ranging from $471 billion to $541 billion. Reference Approach A, for example, would have the first humans back on the Moon by 2001, with an initial 600-day mission arriving at Mars in 2016, with only a 30-day stay on the Martian surface. The report provided a cost estimate for pursuing this approach:

- Initial Lunar Outpost (FY 1991–2001) – $100 billion
- Lunar Outpost Operations (FY 2002–2025) – $208 billion
- Initial Mars Outpost (FY 1991–2016) – $158 billion
- Mars Outpost Operations (FY 2017–2025) – $75 billion
- Total – $541 billion.[15]

The report suggested that to pursue this option, the NASA budget would have to double over the next decade, from $15 billion annually to $30 billion per year, and then stay at the $30 billion level for the next 25 years. Explaining the lack of options in the 90-Day Study, Truly told the 15 November meeting that "if we are going to the Moon and on to Mars with human beings, this is more or less the way we are going to

13. Memorandum from Mark Albrecht for the Vice President, "November 6, 1989, Lunch meeting with Dick Darman and Dick Truly," 3 November 1989, FG467 File, B41L.

14. Albrecht, *Falling Back to Earth*, 71; National Space Council staff, "NASA Report: Summary and Critique," November 1989, FG467 File, B41L.

15. Richard Truly, "A Briefing to the Policy Implementation Review Committee on the Report of the 90-Day Study on Human Exploration of the Moon and Mars," 15 November 1989, FG467 File, B41L.

Table 3.1. Reference approaches contained in the 90-Day Study[16]

	Reference Approaches				
	A	B	C	D	E
	Earliest Moon			No Space Station Disruption	
	Earliest Lunar Outpost	Earliest Mars	Later Mars	Permanently Manned Lunar Outpost	Man-Tended Lunar Outpost
Lunar Emplacement	1999–2004	1999–2004	1999–2004	2002–2007	2002–2007
Lunar Consolidation	2004–2009	2004–2007	2004–2008	2007–2012	2008–2013
Lunar Operation	2010→	2005→	2005→	2013→	2014→
Humans on the Moon	2001	2001	2001	2004	2004
Permanent Habitation	2002	2002	2002	2005	→
Constructable Habitat	2005	2006	2007	2008	2011
Eight Crew	2006	2007	2007	2009	—
Lunar Oxygen Use	2010	2005	2005	2013	—
Lunar Farside Sortie	2012	2008	2008	2015	2022
Lunar Steady State Mode	2012	2008	2012	2015	→
Mars Emplacement	2015–2019	2010–2015	2015–2019	2017–2022	2024→
Mars Consolidation	2020–2022	2015–2018	2020–2022	2022	→
Mars Operation	2022→	2018→	2022→	→	→
Humans on Mars	2016	2011	2016	2018	2016
Extended Mars Stay	2018	2014	2018	2023	2027

do it." Dwayne Day suggests that "with the 90-Day Study NASA had given Bush an ultimatum: conduct SEI like Apollo or not at all."[17]

There were some striking parallels between the approach of the 90-Day Study and that taken by NASA 20 years earlier in responding to President Richard Nixon's February 1969 request for a "definitive recommendation" on the post-Apollo space program. As the first lunar landing approached in July 1969, NASA developed an "integrated plan" that proposed a single set of hardware elements for carrying out a wide variety of post-Apollo missions, including a series of space stations, continued lunar exploration, and initial expeditions to Mars during the 1980s. NASA then incorporated the plan, with differing time schedules for the various accomplishments, in a report that reached the President in September 1969. Similarly, the 90-Day Study used a common set of hardware elements to achieve various program milestones on five different schedules. In neither case did the NASA approach gain White House support.[18]

16. Truly, "A Briefing," 15 November 1989.

17. Albrecht, *Falling Back to Earth*, 78; Day, "Aiming for the Moon," Part 1.

18. For a discussion of post-Apollo planning in 1969, see John M. Logsdon, *After Apollo? Richard Nixon and the American Space Program* (New York: Palgrave Macmillan, 2015), Chapter 3.

A Different Approach

As the 17 November date of the briefing on the 90-Day Study to the Space Council principals approached, Albrecht was contacted by Edward Teller, the legendary but controversial "father of the H-bomb" and the individual who had a major role in convincing President Ronald Reagan in 1983 to propose the Strategic Defense Initiative (SDI). Teller told Albrecht that a team led by Lowell Wood, one of his associates at the Department of Energy's Lawrence Livermore Laboratory, had developed an approach to human space exploration that would "take a fraction of the cost and time of any NASA plan and will reenergize space technology, create new industries, and pull along others internationally."[19] Albrecht from his time in Congress was already familiar with Wood and his innovative ideas. In addition, Space Council staff member Pete Worden during the early years of SDI had worked with Wood and his associates. Albrecht had by this time assigned to Worden the lead staff role in developing SEI, and it is likely that Worden had solicited Teller's intervention.

Albrecht and Worden decided to go ahead with a Truly presentation of the 90-Day Study to the Space Council, but they also decided, as a provocative way of demonstrating that there were in existence more innovative, less expensive ideas of how to resume human space exploration, to expose the council members to Wood's alternate proposal. Albrecht recounts that the day before the briefing, he called various Space Council members to make sure they were aware of Wood's proposal. He reports that his call to Truly "was less than cheerful." Truly was "clearly unhappy with what the Council planned for the meeting the next day." Truly does not recall that phone conversation and says that he was not aware of Albrecht's plan until he arrived at the Space Council meeting the next day.[20]

Albrecht also leaked his plan to *The Washington Post*, which on the morning of the Space Council meeting headlined a story: "Quayle to Give NASA Competition on Ideas for Space Exploration." By presenting Wood's ideas at the same time the Space Council was being briefed on the 90-Day Study, Albrecht, rather disingenuously, recognized that "the collision with NASA that we had tried to avoid, that we had done everything in our power to avert, was at hand."[21] In reality, it was Albrecht's decision to include the Wood briefing that precipitated the collision.

When Truly arrived for the 17 November meeting, he had not yet seen that morning's *The Washington Post* story about the Space Council's plans to present an alternative to the NASA study. Truly noted that "there were a number of people I didn't know sitting in the back, and on every chair was a paper copy of a briefing I didn't recognize." NASA went first. Truly began the briefing, saying the 90-Day Study would "provide an initial body of knowledge for framing and evaluating options." He characterized the NASA plan as "capable of generating broad support," "sensitive to fiscal realities," "demanding of advanced technologies," and "attractive to international participation." He then introduced Aaron Cohen, who presented the detailed results of the 90-Day Study. Truly observed that "there was a frown on every face, as if all the Space Council members had been pre-briefed to reject the Study. Almost every question was to challenge utilizing the Shuttle and Station to accomplish SEI."[22]

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19. Albrecht, *Falling Back to Earth*, 69.

20. Albrecht, *Falling Back to Earth*, 74; Richard Truly, unpublished manuscript.

21. Albrecht, *Falling Back to Earth*, 68–73; Interview with Pete Worden, 5 May 2020; Kathy Sawyer, "Quayle to Give NASA Competition on Ideas for Space Exploration," *The Washington Post*, 17 November 1989, A1.

22. Richard Truly, unpublished manuscript.

The NASA briefing was followed by Wood's presentation. Albrecht describes Wood as "an outsized man with an outsized ego, looking vaguely like a mature Henry VIII." His presentation was titled "American-Traditional Space Exploration Program: Quick, Inexpensive, Daring, and Tenacious." Wood claimed that it was possible to land humans on Mars in less than 10 years for less than $10 billion. His approach was based on using inflatable modules rather than spacecraft with rigid structures; the modules would be launched from Earth, inflated in orbit, and then outfitted by visiting astronauts working in a shirt-sleeve environment.[23]

Truly thought that "as a sales pitch, it was a brilliant presentation." But as he sat through Wood's presentation, Truly was "livid," assuming that "the briefing had been planned for many days or weeks and I had not been informed, much less involved. . . . Mark Albrecht's objective, with the Vice President obviously in on the scheme, had been to humiliate NASA and me in front of the National Space Council. . . . In more than 30 years in my Navy career, half of which was spent on duty at NASA, I had never been set up or blindsided like this. . . . All trust was lost."[24]

After the briefing, there was a lively discussion, with Secretary of Energy James Watkins taking the lead in criticizing the NASA study. Watkins made "an impassioned case for making this new era of exploration a clear challenge to America's entire technology base," saying that the "benefits to the American public and the world at large would be incalculable and would last for generations." Other council members associated themselves with Watkins' remarks. Secretary of the Air Force Don Rice suggested that an exploration initiative based on new technology could be "a SDI that will work." A note of caution was added by OMB's Darman, who was once again worried about whether radical changes in existing plans, especially with respect to Space Station Freedom, could risk losing the support of the congressional coalition favoring human spaceflight. He observed that the "financial ramp up for this initiative needed to be careful and steady." Addressing Truly, he said, "You need to get with this program. . . . We must leave our parochial concerns behind us as we embark on a new course . . . and NASA must be the most committed, the most vocal in support of it."[25]

The Space Council members made three decisions at the meeting. NASA could release the 90-Day Study, but only after deleting its cost estimates. The council would ask the National Academies of Science and Engineering to carry out an independent assessment of the 90-Day Study; each Space Council member agency would also comment on the report. The council asked NASA to organize an outreach activity to search for innovative ideas related to human space exploration. The Vice President closed the session, saying, "This has been an important meeting for the Council, and for the future."[26]

NASA on 20 November released a hastily revised version of the 90-Day Study, with any discussion of costs removed. Even so, the fact that the 159-page report had originally contained cost estimates in the half-trillion-dollar range became widely known. The Space Council staff attempted to minimize the significance of the study, developing talking points which said that the report would be used only "as an input and one data source"; the five reference approaches did not represent "decision options for the President." The Space Council intended "to examine a range of robust technical alternatives." By portraying the 90-Day Study as just one input into a continuing planning process that it would manage, the

23. Albrecht, *Falling Back to Earth,* 70.

24. Richard Truly, unpublished manuscript.

25. Albrecht, *Falling Back to Earth*, 79–80.

26. This sequence of events is described in Albrecht, *Falling Back to Earth,* 78–80, and Hogan, *Mars Wars*, 95–97.

Space Council staff was hoping to take back the lead in shaping the future of the U.S. human spaceflight program—a lead the council had lost in the weeks leading up to and following the President's 20 July announcement of SEI.[27]

Blue Ribbon Panel Meets

Albrecht had suggested in July that the Space Council assemble a small number of outside experts to provide an external perspective on planning for SEI. He followed through on this idea, and on 29–30 November, an eclectic group was assembled in the ornate Indian Treaty Room of the Old Executive Office Building next to the White House to hear several briefings and to provide reactions. The group was designated the "Blue Ribbon Discussion Group" and included the following members:

- Edward "Pete" Aldridge, former Secretary of the Air Force
- Robert Anderson, President, Rockwell International
- Tom Clancy, author
- Michael Collins, Apollo 11 astronaut
- Don Fuqua, former congressman and President, Aerospace Industries Association
- Louis Lanzerotti, Space Science Board, National Academy of Science
- John Logsdon, Space Policy Institute, George Washington University
- Thomas Paine, former NASA Administrator
- Carl Sagan, Cornell University
- Harrison "Jack" Schmitt, Apollo 17 astronaut and former senator
- H. Guyford Stever, former presidential science advisor
- Edward Teller, Lawrence Livermore Laboratory
- Charles Townes, Nobelist, University of California
- Albert Wheelon, former Chief Executive Officer (CEO) of Hughes Aircraft Company
- Laurel Wilkening, Provost, University of Washington (chair)

After introductory remarks from Albrecht, the group heard from NASA's Truly and Cohen. Reflecting the results of the 17 November Space Council meeting, they said that the "definition of key parameters and approaches [for the exploration initiative] has just begun" and that "NASA continues to look at program options and welcomes new concepts." They characterized Space Station Freedom as being first "a permanently manned international research laboratory and, later, a staging base for the Moon and Mars." NASA was still insisting on completing the station based on its current design before adding any capabilities related to exploration.[28]

Next came Lowell Wood, who had retitled his presentation "The Great Exploration: Assuring American Leadership in the Manned Exploration of the Solar System." He suggested that by using an approach

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27. National Space Council, "Talking Points: NASA Moon/Mars Database Report," no date, Box 6672-3, Edward Goldstein Files, B41L; Oral history interview of Aaron Cohen by Ron Stone, 12 May 1999, *https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral_histories/CohenA/AC_5-12-99.pdf* (accessed 29 January 2024).

28. Richard Truly, "An Exploration Initiative Briefing to the National Space Council's Blue Ribbion [*sic*] Panel," 29 November 1989, NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 4, "Chapter 3."

employing inflatable spacecraft, the United States, if it accepted Apollo-like risk levels, could return to the Moon in five years and reach Mars in eight years, at a budget of approximately $1 to $2 billion per year. Finally, the group heard from Boeing engineers describing their concepts for a new heavy-lift launch vehicle as an enabling capability for exploration.[29]

As might be expected, given the diverse character of the Blue Ribbon panel, there was a spirited discussion about what the group had heard. One of the highlights of that discussion was Vice President Quayle shutting off, within a few minutes of each other, what promised to be extended remarks by voluble group members Carl Sagan and Edward Teller.[30]

On 30 November, Laurel Wilkening presented a summary of the group's discussions, findings, and recommendations to Vice President Quayle, Budget Director Darman, and Presidential Science Advisor Alan Bromley. She noted that all members of the group "fully endorse" the exploration initiative as a means of "revitalizing our national space program." She added that the group had concluded that "we need to develop a strong rationale for the program we are pursuing. That rationale does not yet exist." President Bush as he announced SEI on 20 July had offered "destiny" as the reason for going ahead; in the group's judgment, that was not an adequate justification for a multibillion-dollar, multiyear investment. Given the priority commitment to space exploration, "the Space Station should be examined from the standpoint of its role in supporting the Moon/Mars mission." In addition, "we are not paying enough attention to the launch vehicle part of this program." Overall, "we have not seen a broad enough range of concepts and programs to carry out this initiative. . . . We need to develop more ingenious and aggressive proposals" than those contained in the NASA 90-Day Study. To do this, NASA should be tasked "to prepare a broad range of options for consideration, drawing on external and internal resources." There was a need for "a more streamlined, aggressive, strong, and centralized program management approach."[31]

Vice President Quayle, following up on one decision of the 17 November Space Council meeting, had already asked the Aerospace Industries Association to get involved in "creating a process that brings together the best of the past with the best thinking, research, and application we can possibly devise for the future." He hoped that the members of the industry group could help the Space Council "unlock the best and the brightest . . . lay aside tradition and give us your best suggestions" for implementing SEI. On the basis of a suggestion by the Blue Ribbon Discussion Group, Quayle on 19 December directed NASA to "query the best and most innovative brainpower in the country—at universities, at federal research centers, within our aerospace industry, and elsewhere." This request would initiate an "outreach" program that was to extend until mid-1991.[32]

Any sense of excitement or urgency President Bush's 20 July speech had created about resuming human exploration had largely dissipated by the end of 1989, to be replaced by mutual recriminations between the Space Council and NASA. Trade weekly *Space News* reported, "Administration officials have privately chastised NASA for preparing a report that some felt was unimaginative and did not adequately address

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29. Lowell Wood, "The Great Exploration," 29 November 1989, NHRC.

30. Although this author was a member of the Group, he did not take a very active role in this discussion.

31. Memorandum from Mark Albrecht, "Blue Ribbon Reception," 29 November 1989, FG467 File, B41L; No author indicated, but Laurel Wilkening, "Views on the Moon/Mars Initiative," no date but 30 November 1989, Box 6672, Edward Goldstein Files, B41L.

32. Letter from Dan Quayle to Don Fuqua, 28 November 1989, FG467 File, B41L; Letter from Dan Quayle to Richard Truly, 19 December 1989, NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 4, "Chapter 3."

new technologies that could cut costs for the [SEI] venture. NASA officials have blamed the Space Council for the problems, saying that the direction given to the agency was unclear." *The Washington Post* headlined a mid-December story, "En Route to Space Goal, Groups Diverge: Friction between NASA and Quayle's National Space Council Erupts in 'Mars Wars.'"[33]

Conclusion

If President Bush's ambitious space exploration goals were not to be stillborn, it would be up to both the Space Council and NASA to find a way to get SEI back on track. That would require effective communication and cooperation between the two organizations. Instead, there had been since the President's speech a high degree of miscommunication, leading to significant misunderstandings reinforced by growing mistrust. Both the Space Council staff and NASA had contributed to the problematic situation.

Albrecht in a 1999 oral history interview recalled that between the 20 July speech and the end of 1989, "There was a growing appreciation [among the Space Council staff] of where there was not proper functionality in the communication between the White House and NASA, but we didn't know how to fix it. We tried as best we might in various ways," none of which was successful. Albrecht in his book adds, "Time and again we pushed and prodded" those carrying out the 90-Day Study to produce "a menu of alternative paths with alternative technologies, alternative costs and risks, and alternative impacts on existing NASA plans. . . . We were determined to offer the President real choices and to offer NASA real opportunities to reorient the entire agency. . . . We tried to remain optimistic, but as time wore on it became increasingly obvious that NASA was on a path to do this their own way."[34]

Doing the 90-Day Study "their own way" was a conscious decision on NASA's part, in the process ignoring Space Council staff urgings. Truly had initiated the 90-Day Study to determine "whether NASA could use the Shuttle and Station assets to accomplish the President's vision or whether a totally new and separate architecture would have to be conceived." Examining alternatives to NASA's existing-programs approach was to come later. President Bush in his speech had called for completing Space Station Freedom, then missions to the Moon and Mars. NASA chose to take the President at his own words rather than defer to Space Council direction.

NASA apparently judged that Space Council staff demands could safely be ignored. This was not an unreasonable position. The Space Council was a new entity with uncertain influence. At the end of 1989, complaining to the Vice President about the Space Council's place in the White House scheme of things, Albrecht told Quayle that the Council "still had a way to go" in establishing its identity and its influence within the Executive Office of the President (EOP). He reminded Quayle that "the EOP has many long-standing councils, committees, working groups, and communication and coordination procedures which have their roots in previous administrations." He added, "Because the Space Council is a new agency . . . it is still not sufficiently . . . integrated into EOP operations to serve the President's and your interests." This, in Albrecht's view, limited the Space Council's ability to influence not only NASA but also the administration's overall space agenda.[35] A strained relationship between the Space Council staff and

33. Both articles are cited in Hogan, *Mars Wars*, 100.

34. Albrecht, oral history transcript, 12-22; Albrecht, *Falling Back to Earth*, 63–64.

35. Memorandum from Mark Albrecht for the Vice President, "The Space Council," 4 January 1990, FG467 File, B41L.

the OMB, which was used to being first among equals in the EOP with respect to the space program, did not help matters.

It was not just the newness of the Space Council that was a constraint on its influence. Historically, vice presidents have had difficulty exerting independent influence on administration policy; their institutional role does not give them much intramural power compared to those elements of the EOP reporting to, and often speaking for, the President. Most often, and certainly in the case of Dan Quayle, the Vice President does not have his or her own nationwide power base. Also, the top staff person of an EOP organization chaired by the Vice President—in this case, Mark Albrecht as Executive Secretary of the Space Council—often has less influence in White House councils than do, for example, senior staff members of the OMB.[36]

The 90-Day Study contained budget estimates for implementing the exploration initiative ranging from $471 billion to $541 billion. Hogan comments, "These budgetary requirements were simply staggering to all outside observers." The NASA leaders of the study "clearly believed that President Bush was prepared to support a major escalation in annual spending for the space program," even though "the nation was facing large budget deficits and almost every other sector of the government was expecting significant budget deficits." Presumably, NASA also believed that Congress would go along with such budget increases. This belief was a "tremendous miscalculation."[37] That the study had been led by the Johnson Space Center in Texas, far from the budget debates in Washington, may have contributed to the politically tone-deaf budget projections.

NASA's leaders were surprised at the Space Council's negative reaction to the 90-Day Study. Hogan comments that "there was a fundamental belief among senior managers at the agency that this [the study] was exactly what the Space Council wanted." They believed that the report was responsive to what the President had said on 20 July. Cohen later would say, "It turns out it was probably a little bit more expensive than people wanted it to be, so it didn't go over too well. But in all fairness, I think it was better than people accepted. . . . The way we costed it was really a long-range program that was going . . . to go back to the Moon, this time to stay, and on to Mars. That's what President Bush stated that we wanted to do. And when we priced that out, it became very expensive; but if you really looked at the missions, they weren't that out of the ordinary when you compare it to the Apollo cost."[38] Cohen either still did not understand what the Space Council had in mind or, more likely, had decided together with Truly to focus on how SEI fit as an addition to NASA's existing plans.

A productive relationship between Mark Albrecht and Richard Truly was critical to regaining momentum in the SEI. That relationship, while tense, had remained relatively congenial in the weeks following the President's speech. As late as 6 November, Albrecht had told Vice President Quayle, "The main problem is NOT Truly . . . it is the NASA bureaucracy." But after the arrival of the 90-Day Study, Albrecht decided to present to the Space Council a provocative alternative to the NASA study in the form of Lowell Wood's ideas. He did not consult Truly as he made that decision and gave the NASA chief little or no warning of his plan. Truly felt blindsided, recalling later that "all trust was lost." Albrecht must have realized that

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36. See Paul C. Light, *Vice Presidential Power: Advice and Influence in the White House* (Baltimore, MD: The Johns Hopkins University Press, 1983) for a discussion of this issue.

37. Hogan, *Mars Wars*, 92.

38. A summary of the 90-Day Study, including Albrecht's reaction, is in Hogan, *Mars Wars*, 85–92; Oral history interview of Aaron Cohen by Ron Stone.

Truly and his associates would not welcome the Wood intervention, not only at the 17 November Space Council meeting but also as the Blue Ribbon Discussion Group met two weeks later. Effective policymaking in Washington frequently depends upon mutual trust between senior leaders. That trust was destroyed by Albrecht's gambit. He seemingly believed his move was necessary to illustrate that alternatives to the NASA study existed, but it poisoned his relationship with Truly and was an early step in the process leading to Truly's eventual dismissal as NASA Administrator.

Clearly, the Space Exploration Initiative, and with it the stimulus to transforming NASA that was its intent, were on shaky ground as 1990 began. NASA believed that it had done what the White House asked of it with respect to SEI and was focusing its attention on rallying congressional support for Space Station Freedom, which NASA still viewed as the key next step in space. The Space Council staff was far from satisfied with NASA's lukewarm support for SEI. Hogan observes, "The release [of the 90-Day Study] led to a rapid disintegration in the already tenuous Space Council–NASA relationship."[39] It would be up to the Space Council staff, with minimal engagement by NASA, to try to find ways to restore forward momentum to the exploration initiative.

39. Hogan, *Mars Wars,* 93.

Chapter 4

Trying to Keep SEI Alive

Over the first six months of 1990, there were a variety of White House actions intended to gain support for the Space Exploration Initiative. The Space Council staff was trying to create "a coalition for a new space enterprise" but found themselves confronted by a "formidable coalition committed to the status quo."[1] The Space Council developed, and President Bush approved, most elements of a policy framework for SEI. The Bush administration submitted a FY 1991 budget request that gave favored treatment to NASA overall and included an initial small amount of funding for SEI. NASA came forward with a multifaceted plan for an outreach program. President Bush got directly involved, meeting with congressional leaders in a May "space summit" to advocate getting started on the initiative. He also reiterated his support for SEI in a May commencement speech, during which he set a target date for the first human footsteps on Mars.

None of these steps resulted in increased enthusiasm for SEI. By June, the House of Representatives had removed all SEI funding from its version of the NASA FY 1991 budget. Then NASA was beleaguered by two major problems—the discovery that the Hubble Space Telescope had been launched in April 1990 with a misshapen primary mirror, and technical issues leading to the temporary grounding of the Space Shuttle fleet. During the second half of 1990, these issues, plus the continuing uncertainty about the fate of SEI, led to a switch in strategy for revitalizing the civilian space program, based not on using SEI as an instrument of change but rather on an independent, comprehensive assessment of NASA and its organization and programs. That assessment and its outcome are described in Chapter 5.

A Policy Framework for SEI

One way of countering the lack of Space Council clout within the White House was to make more publicly visible the Vice President's role in shaping administration space policy. On 10 January 1990, in his first space-themed speech since taking office, Quayle addressed the annual meeting of the American Astronomical Association. He told the group that the United States needed "a versatile space program that would not simply depend" on NASA. He added, "I intend to bring the kind of innovative approaches to the space program of the 90's that were characteristic" of past successful high-technology efforts. *The New York Times* the next day headlined an article on the speech "Quayle Urges U.S. Innovation on Space"; on

1. Albrecht, *Falling Back to Earth,* 86.

15 January, it captioned another story "NASA Losing 30-Year Monopoly in Planning for the Moon and Mars." Both articles emphasized Quayle's push to seek alternative ideas for how to proceed with SEI.[2]

Quayle met with President Bush on 16 January to discuss space issues. He reported that he was "starting to hit hard," that "we need to figure out ways of doing things 'faster, cheaper, and better' in space," that "we need to find ways to involve the best and brightest minds in the country . . . to ensure we are innovative, creative, and competitive," and that "we can no longer conduct 'business as usual.'" He told the President, "We are embarking on a strategy to rebuild Congress's confidence in our civil space program." He added, "The success of these efforts, however, will depend on your support of the approach we are taking." Bush was willing to provide that support.[3]

By mid-January, a working group led by Space Council staff member Pete Worden and including representatives from OMB and the Office of Science and Technology Policy had prepared a "program decision paper" for Space Council discussion and decision with respect to the programmatic aspects of SEI. The group considered three potential options for carrying out the initiative:

1. A "schedule-forcing" option aimed at using existing technology to return to the Moon by 2001 and to reach Mars in 2016;
2. A "budget-forcing" alternative that would set dates for reaching the Moon and Mars achievable within a specified annual growth rate—3, 5, or 7 percent—in the NASA budget; and
3. A "technology-forcing" option that would place early emphasis on technology investments before choosing which systems to develop and what schedule milestones to set.

There was agreement among the working group members that the technology-forcing approach was preferable, especially given the federal government budget situation overall, since it would not require significant short-term increases in the NASA budget. The only area of disagreement within the working group was whether it was appropriate to specify a date for the initial return to the Moon. The members did agree that it was too early to set a date for the initial human landing on Mars.[4]

The Space Council principals met on 18 January to ratify the working group's conclusions. The next step was to turn those conclusions into a set of recommendations to the President; if he agreed, they would then become the basis for a presidential space policy directive. Key recommendations were as follows:

- The initiative will include both lunar and Mars elements;
- The early program will focus on technology development with a search for new/innovative approaches and technology; and
- The program will spend at least several years defining two or more significantly different human space exploration reference architectures before a baseline program architecture is selected.

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2. Philip Hilts, "Quayle Urges U.S. Innovation on Space," *The New York Times*, 11 January 1990, D22; William J. Broad, "NASA Losing 30-Year Monopoly in Planning for Moon and Mars," *The New York Times*, 15 January 1990, A1.

3. Mark Albrecht, "Talking Points," 16 January 1990, FG467 File, B41L.

4. Presentation by Simon P. (Pete) Worden, 14 December 1989, Box 6672, Edward Goldstein Files, B41L; Program Decision Paper, "Moon/Mars Initiative," 18 January 1990, Outer Space-1 File, B41L.

Decisions on the content of the President's proposed NASA budget for FY 1991 had already been made. The relatively low-cost technology-forcing approach was consistent with those decisions.[5]

By recommending that during its early years SEI should focus on the unglamorous task of seeking out and developing new technologies, the Space Council acknowledged several realities. The President's 20 July speech had led to neither congressional nor public support for anything resembling an "Apollo-like" mobilization of resources to achieve a challenging exploration goal on an ambitious timetable. Such a mobilization was, of course, not what the Space Council had in mind, but memories of the Apollo program were still vivid, and they conditioned how SEI was perceived. As the Blue Ribbon Discussion Group had pointed out at the end of 1989, there was not yet a politically potent rationale to support a new exploration initiative. The Bush administration's focus on the ever-growing budget deficit was also a barrier to getting started on what would in a few years be a high-cost undertaking. The OMB was not prepared to commit to a particular growth rate for the NASA budget in coming years. The President had proposed a "long-range, continuing commitment" to space exploration to give a focus to NASA's activities, and the technology-forcing approach could achieve that purpose while being politically and fiscally feasible in the short run. A focus on technological innovation, rather than on carrying on with its current Space Shuttle and Space Station Freedom programs, could force NASA to begin the organizational revitalization that was the core Space Council goal.

Because the Space Council recommendations were intended to be the basis for a formal presidential statement, they were subject to a full White House policy review, which had not been the case leading up to the President's 20 July speech. This process meant that the recommendations did not arrive on the President's desk for his approval until 13 February. During the review process, the OMB added an important provision, mandating that while NASA would be the principal implementing agency, "the Department of Defense and the Department of Energy will also have major roles." Reflecting this addition, the Department of Energy was added as a Space Council member agency. Also, "the National Space Council will coordinate the development of an implementation strategy for the Exploration Initiative by the three agencies." The White House, not NASA, would oversee the civilian space program. President Bush approved the Space Council's recommendations on 16 February; the White House announced the initial presidential directive regarding SEI on 28 February.[6]

Most of the 18 January Space Council meeting had actually been devoted to discussing the question of whether a target date for returning to the Moon should be set and announced. Albrecht drafted a second memorandum for the Vice President to send to the President, explaining the disagreement: "The Departments of Commerce and Transportation expressed a concern that setting a date too early might prematurely foreclose our ability to develop and take advantage of new technologies and innovative approaches." In arguing for setting a target date soon after the year 2000, NASA suggested that "setting a date more than twenty years in the future . . . or not setting a date at all, could undermine public and Congressional commitment" to SEI. Albrecht suggested that Quayle recommend to the President setting the date for a return to the Moon "as early as possible in the first decade of the next century." One reason for setting a date, reflecting a "brief post-Cold War panic over looming Japanese hegemony," was "apparent

5. "Talking Points for the 18 January 1990 Space Council Meeting," no date; and Memorandum from the Vice President for the President, "Space Council Recommendations on the Space Exploration Initiative," 13 February 1990, both in FG467 File, B41L.

6. OMB comments on White House Staffing Memorandum, "Draft Decision Memo of Space Exploration Initiative," 6 February 1990, Outer Space-1 File, B41L.

Japanese commitment for a manned lunar landing program" and a subsequent second race to the Moon. This memorandum was never acted upon, and the issue of setting dates for the initial Moon and Mars landings remained open for several more months.[7]

International Cooperation?

Up to this point, little attention had been given to the role of international participation in implementing SEI. The benefits of having other countries participate in a U.S.-led initiative had in 1984 caused President Ronald Reagan to invite U.S. "friends and allies" to join the Space Station program. In September 1988, after four years of tough negotiations, an agreement on international participation had been signed by several European countries working through the European Space Agency, Japan, and Canada.[8] Those countries were understandably curious both about the implications of SEI for the Space Station program and about opportunities to get involved in the new initiative.

Inviting the Soviet Union to join the Space Station program as it was initiated had been very briefly considered by the Reagan administration in late 1983, then rejected. In May 1989, as the Space Council was beginning to plan the human exploration initiative, Condoleeza Rice of the National Security Council (NSC) staff had asked Albrecht about opportunities for U.S.–Soviet space cooperation; the NSC was conducting a comprehensive review of the Cold War relationship. Albrecht's response endorsed only "arms-length" scientific cooperation and "strictly limited short-term manned missions." In Albrecht's conservative view, the time was not yet ripe for intimate and sustained cooperation with America's Cold War rival. As Bush's 20 July speech was being prepared, the possibility of including a dramatic presidential invitation to the Soviet Union to join in the initiative was again briefly raised, but not pursued.[9]

An issue paper on international participation was drafted by a Space Council working group and discussed at a 6 February meeting of the Space Council principals. The conclusions of that meeting were turned into another presidential statement which, after full White House review, was approved by President Bush and released in its unclassified form on 30 March. The primary point in this statement was that the United States would seek "an exploratory dialogue with Europe, Canada, Japan, the Soviet Union, and other nations as appropriate on international cooperation on the initiative." That dialogue would "focus solely on conceptual possibilities for cooperation"; no specific cooperative possibilities would be negotiated.[10]

Space News reported that U.S. allies were skeptical about SEI and would have to be convinced that "the United States can commit to the extraordinarily long-term and expensive venture," but that the Soviets "are eager for cooperation." The idea of including the Soviet Union as a possible cooperative partner in space exploration, particularly with respect to Mars, was by 1990 attractive to Albrecht and his colleagues. Soviet leader Mikhail Gorbachev had suggested a joint human flight to Mars to Ronald Reagan as the two met

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7. Mark Albrecht, Memorandum from the Vice President for the President, "Setting a Date for Returning to the Moon in Your Space Exploration Initiative," 26 January 1990, FG467 File, B41L. The comment about Japanese hegemony is from Ross Douthat, *The Decadent Society* (New York: Avid Reader Press, 2020), 25.

8. For a discussion of this process, see Logsdon, *Ronald Reagan and the Space Frontier*, Chapter 11.

9. Albrecht, *Falling Back to Earth*, 36–37.

10. Memorandum from Mark Albrecht, "Space Council Meeting," 2 February 1990, FG467 File, B41L; Memorandum from Ray Walters (a NASA employee detailed to work on the Space Council staff) to Arnold Kanter, National Security Council, no date, CF01425, Papers of William Tobey, B41L.

in Moscow in May 1988. Such a step had been advocated for several years by Carl Sagan and his associates at the public advocacy group The Planetary Society. However, there was still significant opposition on the part of the national security community to working with the Soviets, opposition that would be mollified over the next two years as the Soviet Union dissolved. The proposed "exploratory dialogue" never took place, as SEI during the second half of 1990 faded from the center of the Bush administration's space policy focus. Instead, during 1990 the beginnings of bilateral cooperation with the Soviet Union in human spaceflight would lead to what became known as the Shuttle–Mir program.[11]

Outreach Program Begins

On 31 January 1990, the Vice President heard back from NASA about plans for the outreach effort that Quayle had commissioned in his 19 December 1989 letter. Truly told Quayle: "Our goal is to tap the best of America's creativity and imagination." NASA would "employ an array of formal and informal mechanisms to reach the widest segment possible of the American scientific and technological communities." NASA had already asked the American Institute of Aeronautics and Astronautics (AIAA) to conduct an independent assessment of innovative ideas and technologies and to organize a major conference on human exploration of space. The Agency would distribute broadly a "NASA Research Announcement" to solicit ideas of "alternate technologies and mission concepts." NASA would award mission analysis contracts to industry to ensure that "the views of the aerospace community are integrated into the overall planning." There would be discussions with other federal agencies and a direct solicitation of the views of professional societies and public policy research organizations.[12]

By the end of April, NASA had selected the RAND Corporation, a well-respected policy analysis organization, to manage the process of soliciting ideas both from industry and from private individuals and to assess which ideas deserved additional consideration. Those ideas, plus the information coming from the AIAA effort and other government agencies and research groups, would be provided to a "Synthesis Group" which, as its name suggests, was to integrate worthy suggestions into a plan for carrying out SEI. The Synthesis Group would consist of "the best and brightest U.S. experts" from both within and outside of government. The group would be chaired by someone outside of NASA. Though not explicitly stated, one purpose of the Synthesis Group was to develop at least one alternative to the approach to traveling to the Moon and Mars that had been laid out in NASA's 90-Day Study.

There was one major problem in getting started with this ambitious outreach effort. There were no funds allocated in the NASA budget to support it, and congressional staff members, particularly from the House Appropriations Committee, were blocking the approval needed to reprogram modest funds for that purpose from within the NASA budget. The Space Council staff concluded, "They [the congressional staff] simply do not want us to start the exploration outreach. They fear that the outreach program will 'stir up' the technical community to pressure Congress to proceed with the exploration program." That

11. Andrew Lawler, "Bush Seeks Talks on Joint Space Venture," *Space News*, 9–15 April 1990, 1. For a discussion of The Planetary Society efforts to foster U.S.–Soviet cooperation in Mars exploration, see Louis Friedman, *Planetary Adventures: From Moscow to Mars* (Conneaut Lake, PA: Page Publishing, 2020). The beginnings of U.S.–Soviet cooperation are discussed in Albrecht, *Falling Back to Earth*, 81–98.

12. Letter from Richard Truly to the Vice President, 31 January 1990, FG467 File, B41L.

resistance was overcome only after President Bush, on 1 May, personally intervened. Funds in the NASA budget were then reprogrammed, and the outreach program could get under way.[13]

SEI in the FY 1991 Budget

Based on the conclusions of the 90-Day Study, NASA in fall 1989 had included in its FY 1991 budget proposal to OMB a $450 million funding request specifically related to getting started on SEI. By the time the budget office had completed its review of the NASA budget proposal, that amount had been reduced to $188 million, just over one percent of the overall NASA budget. Most of this small amount was intended to support innovative technology development efforts. While OMB's Darman was a supporter of SEI and President Bush had set SEI as a priority action, the OMB professional staff was still resisting any kind of fast start to the initiative. The $188 million was not separately identified in the 29 January 1990 presidential budget proposal for FY 1991, which called for a 24 percent overall increase in NASA's space budget to $15.2 billion; this was the largest percentage increase requested for any government agency. Much of the increase was linked to the beginning of Space Station Freedom development. The NASA budget was projected to increase to $17.6 billion in FY 1992 and $19.1 billion in FY 1993. Clearly the Bush administration was willing to provide the funding needed to support a strong civilian space program, if only the Congress would agree.

Initial congressional reaction to the budget request was mixed. There seemed to be a willingness to support an increased budget for NASA overall, but in two days of hearings in late March, Robert Traxler (D-MI), the chair of the House appropriations subcommittee that controlled NASA's budget, had made it clear he still intended to eliminate all funding specifically tied to SEI. During the congressional consultations prior to Bush's July 1989 speech, Traxler had opposed starting down an expensive space exploration path, and he had not changed his position in the nine months since. If SEI were to get started, there would need to be White House intervention to counter Traxler's opposition.[14]

On 7 February, Vice President Quayle hosted at his residence a dinner with several "space influentials" to discuss how best to increase public and politically relevant support for what the Space Council was trying to accomplish. Budget director Darman observed that "the American people believed in exploring frontiers, but also had a strong preference for concrete results." Quayle asked the group to suggest "early, high profile projects" that could produce such results. Princeton professor Gerard O'Neill suggested demonstrating the ability to use energy from space on Earth; former Jet Propulsion Laboratory director Bruce Murray added "robotic exploration of craters at the lunar poles for the existence of ice" and "mining of asteroids in near earth orbit." None of these suggestions were accepted.[15]

There was still hope, at least in Quayle's and Albrecht's thinking, that the NASA leadership could be convinced that "hunkering down . . . was exactly the wrong thing to do." Albrecht on 12 February scheduled an almost unprecedented vice-presidential visit to NASA Headquarters to deliver that message to the NASA leadership in person. He also asked NASA to gather senior space industry executives so that Quayle,

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13. "Status of Space Exploration Initiative Outreach Program, April 27, 1990," probably written by Mark Albrecht, FG467 File, B41L.

14. Hogan, *Mars Wars*, 97–98, 110–111; Office of Management and Budget, "Expanding the Human Frontier—Space," 29 January 1990, FG467 File, B41L.

15. Memorandum from Mark Albrecht for Governor Sununu, "Dinner at the Vice President's Residence, February 7, 1990," 20 February 1990, National Space Council Files, B41L.

during his visit, could stress to them the need for "industry's help. . . . This is a tight budget year and a very strong push is needed to get Congress to place the same priority on space which the Administration has." After Quayle's visit, NASA issued a press release putting a positive spin on events of the day, saying that Quayle had given the Agency "a resounding vote of confidence."[16]

This was not exactly the case. Quayle had explained in his meeting with the NASA leadership the logic behind getting the Departments of Energy and Defense involved in planning future space activities, reflecting the policy statement that had just been sent to the President for his approval. This provoked a question from NASA's number two official, Deputy Administrator J.R. Thompson: "Is NASA in charge of coordinating this effort or is the Space Council?" According to Albrecht, Quayle's response to Thompson and Truly was immediate: "You two have to knock this paranoia off. The Space Council is elevating the overall space program and working through the Council is having a major impact in the White House. . . . The fact is, the Space Council is and will continue to coordinate space policy. . . . This isn't going to change and you need to get behind it and support it."[17]

Getting President Bush Involved

Senator Jake Garn (R-UT), who both before and after flying aboard the Space Shuttle in 1985 was a strong NASA supporter, had been urging the White House to organize a "space summit" between the President and congressional space leadership. President Bush agreed, and after several postponements, the summit took place on 1 May in the White House Cabinet Room. Sixteen members of Congress attended the gathering, including the overall leaders of the Senate and House and the chair and ranking member on NASA's authorization and appropriation committees and their subcommittees with NASA responsibility from both houses of Congress. The House of Representatives had proposed a cut in the NASA budget request of up to $1 billion, much of it aimed at Space Station Freedom. But the SEI-related budget was also a budget-cutting target, and there was opposition to starting the outreach effort. In preparing President Bush for the meeting, Albrecht told him, "The purpose of the meeting is to emphasize that space is a priority for you and your Administration." He suggested that Bush lend his personal support to SEI, in addition to Space Station Freedom and Mission to Planet Earth. He also suggested that the President emphasize that the FY 1991 budget request for SEI "does not constitute a new start or a long-term commitment to go to the Moon or Mars." Rather, the funds would allow the space community over the next few years to determine "the best, fastest, cheapest, and safest way to design these missions" before any commitment to undertake them would be made.[18]

Bush started the meeting by telling the congressional participants: "I asked to meet with you today to talk with you—and to listen to you—about something vital to the nation's future, including our children's future—our space program." He suggested that "investment in our national space program is one of the best single investments we can make in America's future." He added that SEI that would "lay the

16. Albrecht, *Falling Back to Earth*, 106; Mark Albrecht, "Talking Points for CEO Meeting," revised 9 February 1990, FG467 File, B41L; NASA Press Release 90-22, "Vice President Emphasizes White House Space Commitment," 12 February 1990, File 012628, NHRC.

17. Albrecht, *Falling Back to Earth*, 86, 106–109. Albrecht says (p. 107) that Quayle's trip to NASA Headquarters was the first-ever visit by a Vice President. This is not correct. On 4 August 1969, Vice President Spiro Agnew had come to NASA for a meeting on post-Apollo plans.

18. Memorandum from Mark Albrecht for the President, "May 1 Congressional Leadership on Space," 27 April 1990, FG467, B41L.

foundation for pushing on with the job the Apollo program only began." He told the group, "I know that you're worried about finding money for new initiatives," but he emphasized the small share of the overall NASA budget that SEI represented. He also said, "I know some of you are concerned about our proposed FY91 outreach program for our Moon-Mars initiative. . . . I hope it's something you'll take a look at and work with us on." Bush then turned the meeting over to Vice President Quayle, who argued that he and the President were advocating SEI because "it is fundamentally in our national interest. A new round of exploration will contain countless direct and indirect benefits and will enhance our national security, foreign policy, [and] scientific, technological, and economic well-being." He added, "We are <u>not</u> asking the Congress to commit to a program this year. What we <u>are</u> asking for is money—about $188 million—to answer . . . questions fundamental to our understanding of our options and possible approaches. . . . We'd like to start an outreach effort this year. . . . The cost involved here is extremely modest—about $4 million."[19]

As another part of the effort to rally support for SEI, President Bush on 11 May 1990 made his first space-themed speech since the 20 July 1989 announcement of SEI, delivering the commencement address at Texas Arts and Industries University in Kingsville, Texas. He used the occasion to do something that, as recently as three months earlier, his space advisors had warned against—setting a date for the first expedition to Mars.

> Leadership in space takes more than just dollars: It also takes a decision. And so, I'm announcing one today. We stand at a halfway point in our exploration of the immediate solar system: the planet Earth, its Moon, and the terrestrial neighborhood. Thirty years ago, NASA was founded, and the space race began. And 30 years from now I believe man will stand on another planet. And so, I am pleased to return to Texas today to announce a new Age of Exploration, with not only a goal but also a timetable: I believe that before Apollo celebrates the 50th anniversary of its landing on the Moon the American flag should be planted on Mars.[20]

Congress Says "No"

White House attempts to rally congressional support for SEI were not successful. Rep. Traxler's House Appropriations Subcommittee on the Veterans Administration, Housing and Urban Development, and Independent Agencies met on 12 June to mark up the bill that contained NASA's FY 1991 budget appropriation. The members reduced the overall NASA budget from $15.2 billion to $14.4 billion, a $800 million reduction but still a 17 percent increase over FY 1990. But the subcommittee "surgically removed" all funding specifically tied to SEI. Traxler was quoted as saying, "We just didn't have the money" to invest in a new initiative.[21]

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19. Mark Albrecht, "Potential Talking Points for the President," 27 April 1990; and "Potential Talking Points for the Vice President," no date, both in FG467 File, B41L.

20. George H. W. Bush, "Remarks at the Texas A & I University Commencement Ceremony in Kingsville," 11 May 1990, *https://bush41library.tamu.edu/archives/public-papers/1866* (accessed 29 January 2024).

21. Hogan, *Mars Wars*, 121–122.

The White House quickly fought back against the House subcommittee action. The Space Council organized a series of White House briefings for interested constituencies, intended to rally support for SEI. In Huntsville, Alabama, on 20 June, President Bush visited NASA's Marshall Space Flight Center and made a strong plea for supporting SEI:

> Unfortunately, not everyone on Capitol Hill shares this commitment to investing in America's future. And last week, the House Appropriations Subcommittee for Space voted to pull the plug on this historic undertaking, completely gutting the seed money we proposed for the Moon-Mars mission.
>
> But you know, space used to be a bipartisan effort, just a plain American effort. And the last time a President visited Marshall, John F. Kennedy compared those who were uncertain about America's leadership in space to those in Queen Isabella's court who counseled, in effect, "Turn back. Leave the riches and rewards for other nations and braver hearts."
>
> * * *
>
> Many an American schoolkid has read the story of Columbus' doubters and shook their heads in disbelief that these naysayers could have been so shortsighted. We must not let the children of the future shake their heads at our behavior. And right now, in the funding wars on Congress, we face a central question—the question of whether America will continue to be a pioneering nation.
>
> And when John F. Kennedy stood before the Congress in 1961 and spoke about the Moon, he spoke to a nation of pioneers. Now some in Congress appear ready to give up on that pioneering spirit, to turn their sights inward, to concede that America's days as a leader in space have passed. Well, I, for one, am not ready to give up. America has always been and will always be a nation of pioneers.[22]

The day after Bush's speech, the White House coordinated a daylong set of activities aimed at bolstering support for SEI, including newspaper editorials, television appearances by Vice President Quayle, radio spots, and supporting remarks in both houses of Congress. This campaign did not have the desired effect. At the end of June, the full House Appropriations Committee sustained the subcommittee's budget cut. In addition, NASA's authorizing committee in the Senate, chaired by Al Gore (D-TN), approved a bill that zeroed SEI funding. If there were to be any funds for SEI in the fiscal year to start on 1 October 1990, the Senate Appropriations Committee would have to reverse these decisions.[23]

Although the White House had marshalled a vigorous campaign in support of SEI, that was not the case for NASA. *The Washington Post* on 29 June, as the House passed the NASA appropriations bill, reported that SEI was "a top priority for the President but not for NASA." The *Post* quoted Representative Robert Walker (R-PA) as saying that the Appropriations Committee had been influenced by "bureaucrats

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22. George H. W. Bush, "Remarks to Employees of the George C. Marshall Space Flight Center in Huntsville, Alabama," 20 June 1990, *https://bush41library.tamu.edu/archives/public-papers/2013* (accessed 29 January 2024).

23. Hogan, *Mars Wars*, 117–122.

from NASA who come up here and say that the President thinks this is a good idea, but we don't think so." Albrecht commented, "We had an internecine war on our hands that we couldn't ignore."[24]

Vice President Quayle and the Space Council staff met with Senate appropriators over the summer to try to rescue funding for SEI. The Vice President raised a new reason for getting started on a human exploration effort, suggesting, "The Japanese and others have targeted space—this is why we can't wait." This attempt to create international competition in addition to the other reasons offered for funding SEI was not convincing. When members of the Senate appropriations subcommittee with NASA jurisdiction met on 13 September, they agreed with the House and "pulled the plug" on SEI, not adding back any of the funds that had been cut by the House. In the report providing reasons for its actions, the committee said: "It is premature to proceed with an extensive planning and technology program . . . without a clear, sustainable revenue source." As an additional "slap in the face" to the exploration initiative, the Senate bill also cut funding for Space Council operations by 40 percent. Those cuts were sustained by the overall Appropriations Committee. Relations between the Space Council staff and some congressional staffers had been tense for more than a year, and Albrecht characterized the budget cut as reflecting a "bully the Space Council" sentiment.[25]

When the House and Senate met to reconcile their appropriation bills, they did provide a token $15 million to continue exploration mission studies. Looking back on this period, influential House staffer Dick Malow commented, "The [Moon/Mars] initiative started to fall off the cliff by the middle of 1990. The Administration kept going through the motions, but SEI went from birth to death in 12 to 15 months and was never heard from again." If not dead, SEI by September 1990 was certainly on life support.[26]

Outreach and Synthesis

When Vice President Quayle asked NASA in December 1989 to undertake an outreach effort, he had directed the space agency to "cast our net widely." NASA's leaders had responded with what they thought was the kind of very robust approach the Space Council wanted. Once funding was secured, the RAND Corporation, the think tank NASA had contracted to lead the outreach effort, in June 1990 began a public solicitation of ideas "by a variety of advertising methods," including paid advertisements in general circulation newspapers and magazines. Those who expressed interest were asked to contact RAND, which would then mail them an information packet outlining how to submit their ideas. NASA Administrator Truly also wrote personal letters soliciting input to the heads of numerous organizations. Nearly 11,000 information packets were mailed out by RAND, and NASA mailed out an additional 34,500. There were 1,697 resulting submissions to RAND. Of these, 63 percent were from individuals, 22 percent from industry, and 5 percent from educational institutions. Submissions came from all but three states and from Argentina, Australia, Canada, Israel, and Scotland. In addition, even before the outreach effort had formally begun, NASA had asked the leading aerospace professional society, AIAA, to poll its 44,000 members for suggestions; there were 542 responses. AIAA also organized a 5–6 September 1990 workshop on "Innovative

24. Dan Morgan and Tom Kenworthy, "House Stops Attempts to Trim $83.6 Billion Spending Bill," *The Washington Post*, 29 June 1990, A11; Albrecht, *Falling Back to Earth,* 126.

25. Memorandum from Mark Albrecht to Bill Kristol and Spence Abraham, "VP Phone Calls for Tuesday and Wednesday," no date but September 1990, Box 2, Mark Albrecht Files, B41L.

26. Memorandum from Mark Albrecht, "Meetings with Senators Garn, Mikulski, Nickles, Gramm, Grassley & D'Amato," 10 July 1990, Box 2, Mark Albrecht Files, B41L; Malow is quoted in Hogan, *Mars Wars*, 125.

Technologies for the Exploration of Space." NASA asked cabinet departments and other government agencies and laboratories to submit ideas, and the Departments of Defense, Energy, and Interior came forward with numerous suggestions. Eighteen member companies of the Aerospace Industries Association prepared presentations. All this material was provided to the Synthesis Group, which began operation in September 1990.[27]

The person the Vice President chose to chair the Synthesis Group was Lieutenant General Thomas Stafford, USAF (Retired). Stafford was a well-respected former astronaut who had flown during the Gemini program and had commanded both the May 1969 Apollo 10 mission that was the "dress rehearsal" for the initial lunar landing and the July 1975 Apollo–Soyuz "handshake in space" mission. He then went on to a distinguished Air Force career and after his retirement became a successful private sector consultant. Vice chair was Robert Seamans from the Massachusetts Institute of Technology (MIT), a former NASA top official who had also served as Secretary of the Air Force and Administrator of the Energy Research and Development Administration. Managing the group on a day-to-day basis were Lieutenant General Spence Armstrong, USAF (Retired), and NASA veteran George Abbey. A steering committee that included more than 20 senior individuals with a variety of aerospace and technical backgrounds provided top-level guidance to the effort. The day-to-day work of the Synthesis Group was carried out by individuals detailed to the group from the military services and Department of Defense laboratories, the Department of Energy, and other public and private organizations. There were only a few members from NASA, given the push for new ideas from outside the Agency; in that sense, the Synthesis Group was the Space Council counterpart to the Johnson Space Center staff who had carried out the 90-Day Study.

The effort was housed in rented space in Crystal City, Virginia, just across the Potomac River from Washington; on any given day, some 30 to 40 people were working in that office. In the group's final report, 45 people are listed as members of the Synthesis Group; another 35 are identified as technical advisors. After the group had finished its work, Stafford told Truly that chairing the effort "was a lot of fun. I was fortunate enough to assemble a group of 'young tigers' who were bright and enthusiastic. I have not been part of such a spirited endeavor since the Apollo days!"[28]

During the first three months of Synthesis Group activity, there were numerous "tutorials" and other presentations, which ran "all day, every day."[29] Many of those involved with the Synthesis Group had no prior exposure to space exploration, and these briefings made sure that all members of the group became familiar with the issues involved. The writing of the group's report did not begin until after Thanksgiving and picked up in intensity as 1991 began. By this time, George Abbey had emerged as the group's leader, with Stafford and members of the steering committee providing occasional oversight. Abbey, working with Stafford, recruited many of the group's members. During his many years as Director of Flight Operations at NASA's Johnson Space Center, where he had the responsibility for both selecting people as astronaut candidates and choosing the crew for a particular Space Shuttle flight, Abbey had developed a reputation as an influential but secretive operator. He had an almost photographic memory and a voracious appetite for information gathering, but he usually operated behind the scenes and seldom took credit for his decisions

27. Report of the Synthesis Group on America's Space Exploration Initiative, *America at the Threshold*, A-44–A-49, *https://www.lpi.usra.edu/lunar/strategies/Threshold.pdf* (accessed 1 February 2024).

28. Letter from Tom Stafford to Richard Truly, no date, File 08999, NHRC.

29. Interview with Doug Cooke, 22 May 2020.

and actions.[30] At the Synthesis Group, Abbey brought together an inner circle of diverse individuals who were particularly influential in putting the group's report together. Among them were Pete Worden, who had come over from the Space Council; Stuart Nozette from Lawrence Livermore Laboratory[31]; Michael Mott, a recently retired Marine; Doug Cooke from Johnson Space Center, who had been involved in putting together the 90-Day Study; Paul Spudis from the Lunar and Planetary Institute; and Doug Beason from the Air Force Phillips Laboratory. These and others from the Synthesis Group often spent their evenings in informal conversations with Abbey. He also organized a regular Friday afternoon gathering he called "Vespers," at which an outside speaker would bring a new perspective to the group for discussion.

The Synthesis Group finished its work in early May 1991. Its report, titled *America at the Threshold,* was not publicly released until 11 June. One press report suggested that "NASA forced a last-minute rewrite . . . to bolster support for [Space Station] Freedom."[32] The Space Station program was facing a crucial congressional vote in early June, and the original draft of the Synthesis Group report was reportedly lukewarm in its support for the station. Once this revision was finished, some 40,000 glossy copies of the lavishly illustrated, 180-page report were printed and widely distributed.

America at the Threshold identified two capabilities as "fundamental" to space exploration: 1) "restoration of a heavy lift launch capability," using, among other technologies, the F-1 engines that had powered the Saturn V Moon rockets; and 2) "redevelopment of a nuclear propulsion capability." Neither of these suggestions was new or particularly innovative. Four approaches were identified, differentiated primarily based on what would be done once astronauts arrived on the Moon and Mars, not on how they got there:

- Mars Exploration—Emphasis on Mars exploration and science, with only those activities on the Moon needed to gain experience with Mars systems and operations;
- Science Emphasis for the Moon and Mars—Equal emphasis to research activities on the Moon and Mars;
- Moon to Stay and Mars Exploration—Emphasis on establishing permanent human presence on the Moon while carrying out initial human exploration of Mars; and
- Space Resource Utilization—Emphasis on maximum use of in situ resources to support exploration and other space-based activities.

No cost estimates were provided for these alternative approaches, an omission that was a primary source of criticism once the report was released. The report contained 10 recommendations. Among them was a recommendation to establish a Strategic Defense Initiative Organization (SDIO)-like "National Program Office" for space exploration, based in NASA but with additional staff from the Department of Defense and the Department of Energy.[33]

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30. For a biography of George Abbey, see Michael Cassutt, *The Astronaut Maker* (Chicago, IL: Chicago Review Press, 2018); discussion of Abbey and the Synthesis Group is on pp. 327–333.

31. Nozette in 2009 would be arrested on charges of providing highly classified information to individuals he thought were Israeli intelligence operatives but who were actually FBI agents. He was sentenced in 2012 to 13 years in prison.

32. Gene Koprowski, "Synthesis Delay Continued Even After Quayle's Order," *Washington Technology*, 8 August 1991, File 08999, NHRC.

33. Synthesis Group, *America at the Threshold*. The capabilities quote appears on p. 83; the four approaches, or "architectures," are discussed on pp. 16–57; and the National Program Office is described on pp. 84–89.

The report "in some ways was a . . . disappointment to SEI proponents." According to Synthesis Group member Doug Cooke, many of the submissions were "science fiction"; the group received many ideas that probably should have been eliminated by RAND during the screening process. The Synthesis Group "found neither magic solutions nor insurmountable technical obstacles" to implementing SEI. Rather, the group concluded that "the old ideas, for now, are the best" and "There are no golden bullets." This conclusion was a vindication of NASA's technological conservatism; Truly later commented, "The effort turned up few practical ideas that could change the equation. The principal obstacles [to SEI] were actually money and politics."[34]

There was one unanticipated benefit of the outreach effort: submissions from "young children who could someday participate in the Space Exploration program." In its final report, the Synthesis Group emphasized stimulating technical interest and education as a major objective of an exploration program. By the time the outreach and synthesis effort was completed in mid-1991, it had cost some $4.3 million—$2.2 million for the outreach effort and $2.1 million for Synthesis Group operations.[35]

Conclusion

There had been indications as early as July 1989, as the Space Council and NASA alerted key stakeholders regarding what the White House had in mind, that Congress was skeptical about a major new space initiative, even one with modest financial demands in its early years. Aerospace industry leaders were more interested in maintaining their existing Space Shuttle and Space Station Freedom contracts than they were in supporting speculative new space funding. Without the promise of adequate funding and substantial political support, the outlook for SEI, even as it was announced by President Bush, was not promising. The misunderstandings and antagonism between the Space Council and NASA that appeared following the President's speech reinforced the negative prospects for SEI. The Synthesis Group's conclusion that the old ideas were satisfactory undermined the Space Council's premise that there were other approaches to human exploration that were technologically preferable to the path that NASA was on.

There may never been a chance that SEI would succeed in either restarting human exploration or moving NASA away from its conservative approach to human spaceflight. Hogan concludes that "the demise of SEI was a classic example of a defective decision-making process," one which proposed a path forward that never had a chance of being realized.[36]

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34. Day, "Aiming for the Moon," Part 2. Interview with Doug Cooke. For discussions of the Synthesis Group report, see Kathy Sawyer, "Build Nuclear-Powered Rocket for Mars Mission, Panel Urges," *The Washington Post*, 12 June 1991, *https://www.washingtonpost.com/archive/politics/1991/06/12/build-nuclear-powered-rocket-for-mars-mission-panel-urges/bf8e8c8d-887f-4141-8816-1ceb5223d12f/* (accessed 5 May 2024); "Martian Chronicles," *Aviation Week & Space Technology*, 17 June 1991, *https://archive.aviationweek.com/search?QueryTerm=martian+chronicles* (accessed 5 May 2024); Greg Easterbrook, "Lost in Space: NASA's Slow Mid-Course Corrections," *The Washington Post,* 18 August 1991, *https://www.washingtonpost.com/archive/opinions/1991/08/18/lost-in-space-nasas-slow-mid-course-corrections/bceb303f-277a-4a60-91d7-aba21bbae1f4* (accessed 5 May 2024); Richard Truly, unpublished manuscript. For the "neither magic solutions" quote, see "Martian Chronicles." See Sawyer, "Build Nuclear-Powered Rocket," for the "old ideas, for now, are the best" quote. The "golden bullets" quote is this author's as cited in Sawyer's article.

35. The quotation is from Synthesis Group, *America at the Threshold*, A-45. The cost of the outreach and synthesis program is taken from a letter from Richard Truly to Evelyn Mihelich, no date, NASA History Office, Histories and Books, Headquarters Historical Reports, NASA Headquarters Archives, HQ-DM-2024-001, Box 1, Folder 5, "Chapter 4."

36. Hogan, *Mars Wars*, 2.

The initial flaw in the policy process was the Space Council belief that giving NASA a challenging new goal would induce the Agency to shift away from its existing programs in pursuit of an exciting new opportunity. Then, without significant guidelines, the Space Council tasked NASA in June 1989 with preparing a proposal for the President's approval, which effectively allowed NASA to seize control of designing the new initiative. NASA presented to the Vice President and the Space Council staff a proposal that embraced the Agency's ambitions but had virtually no chance of congressional approval.

It was also a mistake to have President Bush announce SEI when he did. As Vice President Quayle later commented, the proposal was "half baked"; a major reason for this was the ill-advised rush to get the initiative announced on the Apollo 11 anniversary. The timing of that announcement created an unintended but unavoidable link between SEI and the Apollo program. The Space Council's hope that the initiative, as announced on 20 July, could be modified after the fact was, as Albrecht later would write, "naive."[37]

How this happened is worth noting. Albrecht's decision to carry out the policy development process in secret meant that there were limited opportunities for other White House officials to raise a "red flag" about the political or budgetary wisdom of making such an initiative a presidential priority. The rush to get the initiative announced on the Apollo 11 anniversary also meant there was limited time for those who may have been skeptical to voice their reservations. Warnings that the Congress had no appetite for a major space initiative requiring eventual increases in NASA funding went unheeded. After the President's speech, the Space Council lost the opportunity to define SEI in terms of its goals by standing by as NASA, in the 90-Day Study, defined a "reference approach" to SEI. Once the 90-Day Study became public, it indeed became the starting point for subsequent discussions of the initiative. The Synthesis Group, which was supposed to produce an alternative to NASA's plans, instead essentially endorsed them.

As the Synthesis Group's report appeared in June 1991, SEI was "no longer politically viable."[38] There was just enough life left in SEI to carry it forward on a low-priority basis, on the hope it could be resuscitated during an anticipated second Bush term. If reform were to come to NASA, it would have to emerge from a different approach.

37. Quayle, *Standing Firm*, 182–183; Albrecht, *Falling Back to Earth*, 40.

38. Hogan, *Mars Wars,* 129.

Chapter 5

NASA Under Review

On 27 June 1990, NASA announced that that the primary mirror of the multibillion-dollar Hubble Space Telescope, which had been launched with great fanfare on 24 April, could not be properly focused, resulting in blurry images from two of its imaging instruments. Truly characterized the reaction to the Hubble announcement as "ferocious and negative. I thought it was deservedly so. . . . It happened on my watch, so I took the heat." Then, two days later, NASA announced that its Space Shuttle fleet would be grounded indefinitely because of liquid hydrogen fuel line leaks in two of its three shuttles. Commenting on the two unrelated but embarrassing issues, *The Washington Post* suggested that they could "foster beliefs that the United States is a sunset power, incapable of repeating its technological feats of the past."[1]

Investigating NASA

After these June announcements the Space Council staff shifted its focus from promoting SEI to organizing "a thorough, independent assessment of NASA, its organization, management, and program plans." The need for such a review was discussed as Vice President Quayle on 11 July 1990 flew from Houston to Washington after a Group of 7 summit meeting. Aboard Air Force Two, Quayle met with several senior space leaders for a "serious, no-holds-barred discussion about NASA and its future." The group, organized by Mark Albrecht, included Apollo 17 astronaut Gene Cernan, former NASA Administrator Tom Paine, former Deputy Administrator Hans Mark, and former Jet Propulsion Laboratory Director Bruce Murray. All were known to be critical of the path that NASA was on. Joining the Vice President and Albrecht for the discussion were White House Chief of Staff John Sununu and former Bush Chief of Staff Craig Fuller. After a probing discussion of NASA's problems, a consensus emerged in favor of a "Presidential commission to review the civil space program," with "everything . . . on the table, including the very existence of the Agency itself." Quayle and Sununu agreed to take the commission idea to President Bush; they "were sure he would support it."[2]

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1. Richard Truly, unpublished manuscript; John Burgess, "Can U.S. Get Things Right Anymore?" *The Washington Post*, 3 July 1990, quoted in Hogan, *Mars Wars*, 121.

2. Albrecht, *Falling Back to Earth*, 128–132.

The fact of this meeting occurring was leaked, likely by the Space Council staff, to the *Wall Street Journal*. A 13 July column titled "NASA's Flyboys Have Grown Old and Fat" suggested, "The Bush administration faces a dilemma. As the most pro-space administration since Jack Kennedy's, it can decide now to defend NASA. . . . Or it can lead an effort to shake up or kill the plodding behemoth that NASA has become." The column continued: "Reform is an especially good opportunity for Vice President Quayle. . . . Reforming NASA would prove that he is a player."[3]

Albrecht recounts that he met with NASA Administrator Truly within hours after his return to Washington on 11 July to give him notice of the idea of an independent commission. He recalls that "Truly looked stunned." He told Albrecht, "I don't see how this helps at all. . . .The only problem NASA has is some technical issues with the Hubble and shuttle hydrogen plumbing. Those will be fixed and we will be on our way." Albrecht responded that the reason for a review was that NASA's "credibility has been compromised." Truly asked him to reconsider the idea of an independent review, but if it was a "done deal," Truly asked for a "personal favor: . . . have it report to NASA so the Agency could save a little face."[4]

Truly remembers the sequence of events differently; he says that he did not become aware of the Air Force Two meeting until several days later, after the *Wall Street Journal* article had appeared. When he saw the article, he was "incensed. Not only was I not invited or informed that this serious and pivotal discussion was taking place, but I had to read about it in the newspaper." Truly called Sununu "to vent," asking, "How was progress to be made on improving the space program if NASA was not part of the discussion?" Without telling Truly that he had been on the Vice President's flight, "Sununu agreed that I [Truly] should have been part of the discussion."[5]

Truly met with Albrecht and Vice President Quayle on Monday, 16 July, to discuss the commission idea. By then, President Bush had been consulted and had given his go-ahead to the investigation. Over the weekend, there had been rumors that Bush was preparing to fire Truly; this was not the case, but the rumors upset the President, who disliked firing any of his appointees. Bush contacted Truly to assure him of his continuing support. According to Quayle, by the time he met with the NASA chief, "Truly was ready to accept the appointment of an outside commission." Truly tried to limit the scope of the committee's investigation, but Quayle insisted that "everything is on the table, and let the chips fall where they may." Quayle says he "tried to soothe Truly's feelings by making the commission report through him to me, but everyone understood this was my baby."[6]

There was at least one area of agreement between Quayle and Truly; both thought that Norm Augustine, head of the aerospace corporation Martin Marietta, would make an excellent chair for the commission. Augustine was well known in Washington policy circles and had a reputation for high integrity. The other members of the commission were recruited (primarily by the Space Council staff, not NASA) over the next two weeks, and on 2 August the White House announced the names of Augustine and the other 11 individuals who would make up the "Advisory Committee on the Future of the U.S. Space Program." Truly thought that Augustine and his colleagues on the committee "were a well-rounded and experienced group." The committee would "submit its findings to the Administrator of NASA and, with the Administrator, to

3. Paul A. Gigot, "NASA's Flyboys Have Grown Old and Fat," *Wall Street Journal*, 13 July 1990, A8.

4. Albrecht, *Falling Back to Earth*, 132–133.

5. Richard Truly, unpublished manuscript.

6. Quayle, *Standing Firm*, 184–185.

the Vice President in his capacity as Chairman of the National Space Council." The group quickly became known as the Augustine Committee. Over the next four months, it would conduct an intense and comprehensive assessment of all aspects of NASA's current and planned activities.[7]

As the committee conducted its investigation, it provided periodic reports of its progress to the Space Council staff. Those reports reflected the basic gap in perception between the Space Council staff and NASA that had been at the root of the tensions of the past months. For example, on 16 August, as the committee was just beginning its work, Augustine reported that he was getting "mixed signals" on expectations. "From NASA staffers" he was being told that NASA's programs were already set and that the "focus of this review should be on whether NASA is structured properly to manage them." Any assessment of the programs themselves "should be a secondary issue." From the Space Council staff, he was being told that his committee should address "the totality of the civilian space program." In mid-September, Augustine observed that "the Committee's biggest problem was the dichotomy between how NASA views itself and how it is perceived by others. . . . Admiral Truly and all of his senior managers are absolutely convinced the NASA organization, management and programs are 'just fine'. . . . Those outside NASA . . . universally perceive that there are fundamental problems within NASA" and that his committee's review was "the last chance to fix serious problems in the civil space program."[8]

Augustine Committee Reports

The Augustine Committee finished its assessment and drafted its report by early December 1990. Although the Augustine committee formally reported to the NASA Administrator, Truly was not among the guests at a 4 December celebratory dinner at the Vice President's residence for the committee members and a few government officials. At the dinner, Augustine reported that the committee had ranked NASA's areas of activity in order of priority: space science; technology development; Earth science; replacement of the Space Shuttle; and only then, human exploration. This was hardly a vote of confidence in the initiative that Quayle and the Space Council staff had been pushing for the past 18 months. OMB Director Dick Darman reminded the group that placing an activity last on a list of priorities was an invitation to cancel it. The committee members recognized the validity of Darman's observation and agreed to redraft their report, still giving space science top priority but not assigning a priority to NASA's other activities.[9]

The Advisory Committee on the Future of the U.S. Space Program formally presented its report to a Space Council meeting on 10 December. The committee concluded that "the space program was not in such bad shape as its critics charged." The group did list several concerns. First among them was "the lack of a national consensus as to what should be the goals of the civil space program. . . . Most Americans do

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7. Office of the Press Secretary, The Vice President's Office, "Advisory Committee Members Appointed," 2 August 1990, Box 2, Mark Albrecht Files, B41L. The members were Chair Norm Augustine, CEO, Martin Marietta; Vice Chair Laurel Wilkening, Provost, University of Washington; Edward "Pete" Aldridge, former Secretary of the Air Force; Joseph Allen, former astronaut and President, Space Industries; James Baker, President, Joint Oceanographic Institutions; Edward Boland, former member of Congress; Daniel Fink, former Senior Vice President, General Electric; Don Fuqua, former member of Congress and President, Aerospace Industries Association; General Robert Herres, former Commander-in-Chief, U.S. Space Command; David Kearns, Chairman, Xerox Corporation; Louis Lanzerotti, Bell Laboratories; and Thomas Paine, former Administrator, NASA. See also Richard Truly, unpublished manuscript.

8. Memorandum from Mark Albrecht, "Private Meeting, August 16, 1990," 14 August 1990; and Memorandum from Mark Albrecht, "Meeting with Norman Augustine," 19 September 1990, both in Box 2, Mark Albrecht Files, B41L.

9. Hogan, *Mars Wars*, 126.

support a viable space program for the nation—but no two individuals seem able to agree on *what* that space program should be." A second concern was that "NASA is currently overcommitted . . . it is trying to do too much." The committee reported that "among the concerns that has most often been heard . . . has been the suggestion that the civil space program has gradually become afflicted with some of the same ailments that are found in many other large mature institutions. . . . On occasion, projects appear to have been tailored to help perpetuate the work force, rather than the work force having been tailored to meet the needs of the project."[10]

Among its 15 recommendations, the committee proposed a "Mission *from* Planet Earth," with its "long term magnet" being journeys to Mars. But such an effort "should be tailored to respond to the availability of funding, rather than adhering to a rigid schedule." The committee also recommended that NASA create the position of Associate Administrator for Exploration, with "responsibility for both robotic and manned exploration of the Moon and Mars." The committee suggested that to accommodate all the programs it thought important, the NASA budget should increase by 10 percent each year for the next decade, an unlikely prospect.[11]

In the aftermath of the Augustine Committee report, President Bush in February 1991 proposed a NASA budget of $15.7 billion for FY 1992, a 13 percent increase over the final FY 1991 NASA budget of $13.9 billion, which had contained a token $15 million for SEI. The Democratic majority in both the Senate and the House of Representatives had grown as a result of the November 1990 midterm election. There was little chance of Congress approving such a large increase. By September 1991, Congress agreed on a FY 1992 NASA appropriation of $14.3 billion, only a three percent increase over the FY 1991 allocation. The SEI budget was set at $32 million, an amount that would allow only limited research and development activities related to exploration technology and further analysis of the alternate architectures identified in the Synthesis Group report. Even so, the Space Council staff considered this "a relatively favorable outcome"; at least the SEI budget had not been zeroed out, as had almost been the case the year before. But in terms of its original intent of being a forcing vehicle for organizational change, SEI was stillborn.[12]

New Policy Guidance

After the Synthesis Group report was issued in June 1991, George Abbey joined the Space Council staff. Albrecht suggests that Abbey "was an absolutely pivotal and crucial influence" in improving communication between the Space Council and NASA. . . . It was with George's joining the Space Council (two years after the Bush 20 July 1989 speech) that we really were able to communicate effectively and to understand how to properly motivate [NASA] and to understand from NASA's perspective their requirements and practicalities." Abbey, with his deep knowledge of NASA, was able to put Albrecht "in contact with people of enormous internal influence on NASA and bring instant credibility to those communications." Abbey

10. *Report of the Advisory Committee of the Future of the U.S. Space Program,* December 1990, 2 and 20 (the first two quotes are from p. 2 and the second two are from p. 20), *https://ntrs.nasa.gov/citations/19910012869* (accessed 21 February 2024).

11. Hogan, *Mars Wars,* 125–128; Albrecht, *Falling Back to Earth*, 137–139; Quayle, *Standing Firm*, 185–187; Day, "Aiming for the Moon," Part 2; *Report of the Advisory Committee of the Future of the U.S. Space Program*, 6 and 37 (the first two quotes are from p. 6 and the third is from p. 37).

12. Memorandum from Mark Albrecht for the Vice President, "Appropriations Conference Outcome for NASA," 27 September 1991, Box 3, Mark Albrecht Files, B41L.

also brought "institutional stability to our organization."[13] Abbey agreed with Albrecht that NASA's human spaceflight program needed organizational reform. He had been quite upset with the decisions that had led to the Challenger accident and believed that NASA in carrying out the Space Shuttle program had lost many of the qualities that had made Apollo so successful. Joining the Space Council staff would give him an opportunity to help restore those qualities.

In addition to advising Albrecht on issues related to NASA, Abbey was put in charge of revising the February 1990 presidential policy guidance for SEI to reflect the findings and recommendations of the Augustine Committee and the Synthesis Group. He chaired an interagency working group dealing with that revision. This effort ignored the reality that by now SEI was barely alive. The group labored through fall 1991 and early 1992. The revised policy guidance was issued on 13 March 1992 as National Space Policy Directive 6. That directive stated that "NASA is the principal implementing agency for the SEI. DOD [Department of Defense] and DOE [Department of Energy], as participating agencies, will have major roles in support of the SEI in the conduct of technology development and concept definition." NASA was directed to "establish an exploration office headed by the Associate Administrator for Exploration and staffed by NASA and representatives from other participating agencies."[14]

This directive would transform NASA's Office of Exploration, created by Truly in December 1990 after the Augustine Committee report was issued, to an organization along the lines of the multiagency national exploration program office recommended by the Synthesis Group. Heading the enlarged office would be Mike Griffin, who had been selected as NASA Associate Administrator for Exploration in August 1991, shortly after the release of the Synthesis Group report. Griffin had come to NASA from his position as Deputy for Technology at the Strategic Defense Initiative Organization (SDIO), where he had become identified with the "faster, better, cheaper" approach to capability development that the Space Council staff had been urging on NASA since early 1989. In letting Vice President Quayle know of Griffin's appointment, Albrecht said that "we have been pushing Mike for over a year." Albrecht titled his memorandum "Perestroika Comes to NASA," saying that Griffin's appointment "would be widely perceived as a sign of change at NASA" and noting "we have done nothing to dissuade the widespread perception that Mike is 'Quayle's guy.'"[15]

Conclusion

Vice President Quayle characterized the Augustine Committee report as "devastating" in its criticism; Albrecht called it a "major indictment of NASA."[16] But Albrecht was not satisfied with either the content or the impact of the review. He commented that "while we had worked to move NASA . . . to the next level—a sustained and ever expanding engine of technology advancement, economic achievement, and global leadership," the Augustine Committee report only "provided a respectable and responsible blueprint"

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13. Albrecht, oral history transcript, 12-22 and 12-23.

14. The directive is reprinted in Vice President Dan Quayle, *Final Report to the President on the U.S. Space Program*, January 1993, III-33–III-35, *https://www.nasa.gov/wp-content/uploads/2023/08/final-report-to-the-president-on-the-u.s.-space-program.pdf?emrc=90eedf* (accessed 6 February 2024).

15. NASA Press Release 91-139, "NASA Associate Administrator for Exploration Appointed," 23 August 1991, *https://www3.nasa.gov/home/hqnews/1991/91-139.txt*; Memorandum from Mark Albrecht for the Vice President, "Perestroika Comes to NASA," 23 August 1991, Box 3, Mark Albrecht Files, B41L.

16. Quayle, *Standing Firm*, 203, and Albrecht, *Falling Back to Earth*, 137.

for a "civil space science and technology thrust of the federal government that would set its sights based on our wallets not our will, and that would reflect the nation's values, not its aspirations," providing a "recipe for comfortable, bureaucratic middle age."[17] This was not the outcome that Albrecht had hoped for, since the report in his view did not call for the type of organizational transformation that he thought was needed.

The Vice President and Albrecht had visited NASA in February 1990 to deliver the message that "hunkering down" was the wrong thing to do. But that was precisely what NASA was doing. The Agency was giving lip service to SEI while pursuing the path it was already on prior to President Bush's 20 July speech, focusing on returning the Space Shuttle to regular flight and developing Space Station Freedom. Albrecht notes that "NASA largely ignored" the Augustine Committee report; "neither the Space Station nor the Shuttle program were fundamentally changed or redirected, there was no appreciable change to the space science program, no significant new technology developments were undertaken, and the long-term space exploration program remained orphaned inside NASA."[18] Albrecht and his colleagues had discovered that neither the opportunity to pursue challenging new goals nor a critical external review of NASA by a group as experienced as the Augustine Committee was sufficient to significantly shift the organization's behavior. In addition, NASA was not paying a financial price for stonewalling Space Council pressure. The OMB had approved double digit increases in NASA's budget in the President's budget requests for both FY 1991 and FY 1992 while approving only modest funds for SEI.

By the second half of 1991, Albrecht had reached the conclusion that "without a change at the top, NASA was on a course that could not, would not be altered."[19] He soon set about convincing Vice President Quayle, and ultimately President Bush, of the necessity of removing Richard Truly as NASA Administrator.

17. Albrecht, *Falling Back to Earth*, 138–139.

18. Albrecht, *Falling Back to Earth*, 138.

19. Hogan, *Mars Wars,* 127; Albrecht, *Falling Back to Earth*, 138–139.

Chapter 6

New Leadership for NASA

Having reached the conclusion that a change in NASA's top management was the only way to move the Agency toward the transformation he thought was needed, Mark Albrecht sought an opportunity to cause that change to happen. That opportunity appeared in late 1991. NASA Deputy Administrator J. R. Thompson in September 1991 unexpectedly submitted his resignation to take a job in the aerospace industry. Truly wanted as Thompson's successor "someone who was intimately familiar with all the myriad budgetary, operational, and personnel issues that NASA continually faced." But it became "clear early on that Quayle believed that an insider wouldn't do." Instead, the Vice President "handed me a list of names, some of whom had previously served at NASA, some had not. I knew them all." There was one person on the list who Truly thought "would be a good deputy, a CEO of a company based in the Washington area." Truly set up a meeting between this individual and the Vice President; he reported that "after discussing the possibility with Quayle, the candidate declined."[1]

Richard Truly Leaves NASA

Albrecht had the lead role for the White House in identifying candidates to replace Thompson. He soon discovered that some individuals were not willing to come to NASA while Truly was Administrator. He reported this finding to Quayle, who asked him to investigate whether there was indeed significant support in the space community for Truly's dismissal.

A recent change in White House senior staff had removed one barrier to Truly's firing. Bush's Chief of Staff John Sununu, under political attack because of the disarray in the administration's domestic policy, resigned on 4 December. He was quickly replaced by Secretary of Transportation Sam Skinner. Sununu since the start of the Bush administration had served as a buffer between President Bush and Quayle's and Albrecht's criticism of Truly; with Sununu no longer there to play that role, reflects Truly, "Quayle and Albrecht pounced, and I was headed for the exit."[2]

Quayle and Albrecht on 18 December met with former NASA Administrators Thomas Paine and James Beggs and heard by telephone from former Administrator James Fletcher, who was literally on his

1. Richard Truly, unpublished manuscript. The individual suggested to Quayle was very likely David Thompson, the CEO of Orbital Sciences Corporation. This was the company that J. R. Thompson (no relation) was leaving NASA to join.

2. Richard Truly, unpublished manuscript.

deathbed.[3] All three agreed that because Truly was resisting the changes the White House thought necessary, it was time for him to leave. Paine commented that Truly was "over his head as NASA administrator" and added that "NASA needs a change." Beggs suggested that "you need new leadership. . . . Truly has insulated and isolated himself and has developed a 'bunker mentality,' avoiding negative feedback and missing important opportunities to improve things by making needed changes in programs and organization." Brewer in his 1988 critique of NASA had suggested that NASA's post-Apollo leaders were likely to exhibit "flawed decision-making, self-deception, introversion, and a diminished curiosity about the world outside the perfect place. . . . As every signal from the outside world shouts 'change,' . . . the institution plows resolutely along. . . . Those locked into perfect places have trouble seeing and reacting to flawed practices and failing performance." This forecast was reflected in the December 1991 assessment of Truly's performance.[4]

Quayle relayed these comments to President Bush. The message was not welcome; Bush did not like firing people, and on top of that, he and his wife Barbara were occasional social friends with Truly and his wife, Cody. But Bush reluctantly agreed that Quayle should ask Truly to resign.

On 22 December, Truly met with Quayle. Going into the meeting, Truly thought that its purpose was to continue discussing Thompson's replacement. But when he arrived in the Vice President's office, Quayle told him, "I had breakfast with the President this morning and he's thinking about making a change at NASA." Truly quickly realized that "the meeting was not about J. R., it was about me." Quayle suggested that the President would appoint Truly as an ambassador if he would resign, rather than go through "a messy firing." Truly responded that he was not interested in an ambassadorship. Taken aback, he told Quayle that "President Bush deserves the person of his choice as NASA Administrator" and that "if he ultimately decides to make a change, I would certainly resign." Truly asked for time over the Christmas holidays to think through how he wanted to respond.[5]

Quayle, several times during the meeting, made the point that "there's only three people that know about this," implying that Truly should keep their interchange closely held. But when Truly visited the Kennedy Space Center in the days after Christmas, the content of his meeting with Quayle was already circulating in the space contractor community. A former astronaut colleague casually remarked, "I hear you are planning to retire as NASA Administrator and be appointed an ambassador by President Bush." Truly "instantly realized that I had been lied to by the Vice President" about the confidentiality of their meeting. He decided that he "would no longer deal again with the Vice President on the matter" of his resignation. Instead, he requested a meeting with Skinner, the President's new Chief of Staff, to learn whether Quayle was really speaking for the President. Quayle describes Truly's actions: "He tried to go around me."[6]

Truly met with Skinner shortly after the turn of the year and filled him in about his meeting with Quayle. Skinner was "poker-faced. . . . I could not tell if he knew about the change in NASA leadership." Skinner called Albrecht to find out what was going on, even though, according to Quayle, Skinner had "been with me when the President had agreed to the change. So suddenly the thing was coming unraveled and we had to do it all over again. It went back up to the President, who agreed to the change once more."

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3. Fletcher died of lung cancer on 22 December.

4. Albrecht, *Falling Back to Earth,* xiii; Brewer, "Perfect Places," 166, 159.

5. Quayle, *Standing Firm*, 189; Richard Truly, unpublished manuscript.

6. Richard Truly, unpublished manuscript; Quayle, *Standing Firm*, 189.

On 7 February 1992, Truly received a brief phone call from Skinner, who confirmed that "the President would like a letter of resignation."[7]

On the following Monday, Truly called Skinner, telling him that he had written the letter, but he had "a personal request. I would like to hand it to the President myself." Skinner told Truly to be at the White House at 5:00 p.m. that afternoon. Meeting in the Oval Office, Truly first briefed Bush on the state of NASA. Truly then handed Bush his letter, which said, "It is with deepest regret that I submit this letter of resignation. . . . Because NASA is without a Deputy, I will remain until April 1." (Based on the Challenger experience, when NASA had only an Acting Administrator, Truly "believed most strongly that NASA should not be without an administrator during a Shuttle launch." The next launch was scheduled for late March, and Truly did not think that a new Administrator could be in place by then.) He then said to Bush, "Mr. President, I have only one question. Why?" Bush did not give a reason, saying only, "You need to talk to Dan." To Truly, "the President's response told me everything I needed to know." Truly took a parting shot at Quayle and the Space Council staff, saying in his letter that managing the space program was "not an endeavor which some would have you think has quick, brilliant and easy solutions." Vice President Quayle, in his memoir, remarked, "The President, gentleman that he is . . . should not have had to go through" such an awkward process.[8]

As Truly's resignation was announced on 12 February, there was no mention of the fact that it had been requested; Albrecht had cautioned others in the White House that "nothing but a positive spin should be put on this event, even on background or deep background." When Press Secretary Marlin Fitzwater was asked why Truly had resigned, all he would say was, "Well, he submitted his resignation, and we have responded with the praise we think he deserves, and we do not intend to say anything critical. . . . He has done an admirable and a dedicated job of restoring confidence to that agency." This approach did not work; the *Post* headlined its next-day story "Truly Fired as NASA Chief, Apparently at Quayle Behest." The article quoted Truly as saying, "I'm floored. I can't explain it. . . . It was not my idea." One unnamed administration official was quoted as saying, "'Truly wasn't doing the President any good,' either politically or in terms of furthering Bush's space policy goals." The *Washington Post* article suggested that Truly "has been viewed by many in the administration, and by some in the broader aerospace community, as too much a creature of the NASA culture, particularly the astronaut corps." He was "captive of his bureaucracy and incapable of making the changes, the reforms, that the administration wanted." On 26 February Truly spoke to an aerospace industry meeting, confirming that he had been asked to resign and saying that NASA was "in jeopardy" and that "the cheap shots [from the Space Council staff] must stop."[9]

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7. Richard Truly, unpublished manuscript.

8. Richard Truly, unpublished manuscript; Letter from Richard Truly to the President, 10 February 1992, Papers of Richard Truly, Regis University Library, Denver, CO; Quayle, *Standing Firm*, 189.

9. Note from Mark A. [Albrecht], 11 February 1992, National Space Council Files, Papers of Dan Quayle, B41L; Kathy Sawyer, "Truly Fired as NASA Chief, Apparently at Quayle Behest," *The Washington Post*, 13 February 1992, A1; "Lost in Space?" *The Washington Post*, 14 February 1992; Paul Hoverston, "Ex-Chief: NASA in 'Jeopardy,'" *USA Today*, 27 February 1992, A1.

Finding an Agent of Change

The task of finding a replacement for Truly fell to Albrecht, whom "many in the White House were blaming for the whole Truly mess." On the day after Truly resigned, Albrecht was on his way to a meeting when he encountered President Bush, who "gave Albrecht a look he had never seen before and hoped never to see again." Bush told Albrecht, "Your job is to get me the best NASA Administrator in history, and do it before Truly's resignation is effective."[10]

Within a few days, Albrecht had compiled a list of possible replacements. Most were well-known members of the space community, but there was one unfamiliar name on the list: Daniel S. Goldin. Albrecht in his time at the Space Council and before that as a Senate staff member had come to know Goldin, an executive working on the Strategic Defense Initiative and other highly classified national security space projects at the California aerospace firm TRW Inc. Goldin was known to be outspoken and energetic, with a reputation for an "impatient, demanding, intimidating" management style. Goldin had started his career with NASA in 1962 but had left after a few years, having become disenchanted with the Agency's direction. He had never lost his fascination with space exploration; he was "an unabashed romantic on the subject of spaceflight." Goldin was another advocate of the "faster, better, cheaper" approach to capability development. He had earlier suggested applying this approach to NASA's Earth observation efforts, but he had been rebuffed, with the threat that if he persisted, NASA would cancel its contracts with TRW.[11]

Albrecht judged that replacing Truly with Goldin would place at the helm of NASA an individual committed to the kind of revitalization he had been seeking, without success, through external pressure. Working from inside the Agency, Goldin might be able to accomplish what had not been possible from outside. Albrecht convinced Quayle that Goldin was the right person for the NASA job, and Quayle cleared his candidacy with key members of the Senate. The fact that Goldin was a registered Democrat made that task easier, given the Democratic control of the Senate.

President Bush met with Quayle and Goldin on 9 March, less than a month after Truly had resigned. Quayle told Bush that Goldin was "just what NASA needs, and just what we need." The President agreed; that same day Goldin's nomination to be NASA Administrator was announced. During his Senate confirmation hearing, Goldin made a positive impression on Senator Al Gore, soon to be the Democratic candidate for Vice President. His nomination was quickly approved. Goldin was sworn in as NASA Administrator in an Oval Office ceremony on 1 April 1992, the day after Truly's departure.[12]

With the removal of Truly and the hiring of Goldin, Albrecht decided that he had reached a stopping point as the Space Council's Executive Secretary. He "was tired. After almost four years of turbulent relations with NASA . . . it was simply time to go." Albrecht submitted his resignation in mid-May, effective 1 June. In accepting his resignation, President Bush wrote Albrecht, "One day, human beings—Americans—will land on Mars for the first time. When they do, I hope you'll tell your grandchildren where you were on July 20, 1989, and in the weeks and months preceding that hot summer day when we began the great

10. Hogan, *Mars Wars*, 131.

11. Lambright, *Transforming Government,* 11–12.

12. Burrough, *Dragonfly*, 243–245; Lambright, *Transforming Government*, 12; Hogan, *Mars Wars*, 131–133; Mark Albrecht, "Suggested Talking Points for March 9, 1992 Meeting with the President," no date, National Space Council Files, Papers of Dan Quayle, B41L.

journey. They'll be proud to know that you were among the happy few whose vision was so critical to that historic decision."[13]

Albrecht's successor as Space Council Executive Secretary was Brian Dailey, who had a doctorate in international relations and came from the staff of the Senate Armed Services Committee. In contrast to the tensions between Albrecht and Truly that had poisoned Space Council–NASA relationships, Dailey inherited a positive relationship with the new NASA Administrator, with George Abbey as a crucial intermediary. Abbey had moved from the Space Council staff to NASA, where he became a trusted counselor to Goldin. Many evenings, Dailey, Goldin, and Abbey would meet to discuss the events of the day and how they related to the future of the space program. That future certainly included human exploration. Both Goldin and Abbey saw human trips to Mars as the desirable goal of U.S. spaceflight efforts; they hoped, after the presidential election a few months away, that steps in that direction could begin during a second Bush term.

Goldin was eager to get started on the journey to Mars. But other issues took higher priority on the 1992 White House space agenda. Space Station Freedom was in political trouble, particularly in the House of Representatives, with the possibility of its cancellation very real. Goldin soon came to recognize that if the Space Station program were ended, there was essentially no chance of getting started on a human exploration program. Goldin thus set rallying congressional support for Freedom as a top priority, a shift in strategy from the Space Council's previous attempts to "rationalize" the Space Station program as part of SEI. Another focus for Goldin was the emerging relationship with what was left of the space activities of the former Soviet Union, most of which had been taken over by the Russian Federation. Discussions had begun already in 1990 about U.S.–Russian cooperation in human spaceflight; in 1992 those discussions led to an agreement to fly a Russian cosmonaut on the Space Shuttle and send an American astronaut to the Russian space station Mir.

In his early months in office, Goldin "shook up the agency by asking it to seek a new vision and strategy, while also restructuring offices, replacing officials, and making preemptive cuts in the budget." He was outspoken and forceful in articulating the future changes he planned to make in NASA's organization and management, in the process alienating many of NASA's senior officials threatened by those changes.[14]

Then, on 3 November 1992, Arkansas Governor Bill Clinton, with Senator Al Gore as his vice-presidential running mate, defeated George H. W. Bush in the presidential election. This result cast the future of Goldin's effort to revitalize NASA, and indeed Goldin's future as NASA Administrator, in doubt. There was little clarity regarding the path the new administration would follow in space. Shortly after the election, the trade weekly *Space News* editorialized that "the Clinton administration should continue the revolution at NASA, with the goal of reinvigorating the agency and preventing the space program from fizzling out in the 1990s."[15] Whether the new administration would take that advice was far from clear.

An Uncertain Transition

As he became NASA Administrator in April 1992, it had been Dan Goldin's challenging task to take an agency that "was middle-aged and in many ways calcified" and reinvent it to reflect the realities of "the

13. Albrecht, *Falling Back to Earth,* 141; Letter from President George Bush to Mark Albrecht, 12 May 1992, FG467 File, B41L.

14. Lambright, *Transforming Government*, 4.

15. "What Clinton Can Do for NASA," *Space News*, 16–22 November 1992, 20.

post-Cold War era and take it into the 21st century."[16] Given the results of the November 1992 election, whether Goldin would have the opportunity for such reinvention was uncertain. Unless the new Clinton administration kept him on as Administrator, he would not have the time needed to make major organizational and programmatic changes.

Goldin was eager to continue as NASA Administrator. But there had been post-election reports that "NASA employees angered by Goldin's efforts to shake up the agency" were "lobbying to have him fired" and that there was "a massive campaign by senior NASA officials and some people on the [Capitol] Hill to get rid of him." There were suggestions that those advising the incoming administration had been "casting the net very widely" for candidates for a new Administrator. With "many of his initiatives mired in agency infighting," with his "harsh management style" alienating NASA employees, and considering his "volatility of temper" and "complete lack of communication," many in the space community were convinced that Goldin should be replaced.[17]

While most Bush-appointed leaders of executive agencies submitted their resignation effective on 20 January, Goldin in a 14 January letter to the White House offered to stay on as NASA Administrator. Clinton took no action to name a replacement, and Goldin, still uncertain how long he would stay there, remained in his NASA position on 20 January 1993 as Bill Clinton was sworn in as President.

Goldin Stays On

The Clinton administration, after trying and failing to identify a suitable successor to Goldin, decided to keep him on as NASA Administrator. In fact, after serving as NASA's top official for the final 9 months of the George H. W. Bush presidency, Goldin would continue in that position for the full 8 years that Bill Clinton was in the White House and for the first 11 months of the George W. Bush administration. Goldin's almost 10 years in NASA's top job would make him the longest-serving NASA Administrator ever. Once he was confident that he would remain in his position, Goldin persevered "in what became an ongoing campaign to transform NASA and align it with a new environment." He was determined "to finish the task of change . . . started under George H. W. Bush."[18]

Goldin had a key supporter in the new administration. As a senator, Al Gore had been impressed by Goldin during his confirmation hearing. During the presidential campaign, Gore had praised Goldin's reform efforts at NASA, since they paralleled in many respects his interest in "reinventing government." Gore was slated to have a lead role on space issues for the Clinton administration. However, there would be no equivalent of Mark Albrecht using his White House position to urge major changes on NASA. The White House soon decided to deactivate the National Space Council. During his campaign, Bill Clinton had pledged to reduce the staff of the White House and the Executive Office of the President by 25 percent. Deactivating the Space Council, thereby eliminating the council staff and a recently established part-time, unpaid space advisory committee to the Vice President, contributed to this reduction in staff.

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16. Lambright, *Transforming Government*, 11.

17. Liz Tucci, "NASA Chief Awaits Fate as Clinton Takes Over," *Space News*, 11–17 January 1993, 1; Andrew Lawler, "Opinions Still Divided on NASA Chief's Tenure" and "Goldin Awaits Clinton Decision," *Space News*, 25–31 January 1993, 1; Interview with Alan Ladwig, 1 July 2020.

18. Lambright, *Transforming Government,* 17.

A major reason for keeping Goldin in his position was his leadership in the early months of the Clinton administration in redesigning Space Station Freedom, reducing its budget needs and simplifying its management. The Clinton administration's first inclination had been to cancel Freedom, given its intention to keep the NASA budget flat for the foreseeable future. Goldin asked for the chance to come up with an acceptable, lower cost station design and a simplified management structure that could fit within the funding that the Clinton administration was forecasting. He was in the midst of that effort when the opportunity to add Russia as a space station partner appeared. Goldin during 1993 spearheaded both the redesign effort and then the strategically significant addition of Russia as a space station partner. Freedom's replacement, the International Space Station, became NASA's central program during the Clinton administration, with Goldin as its vocal advocate.[19]

Many of the changes during Goldin's time at NASA were directed at reorganizing NASA Headquarters and changing its relationship to the various NASA field centers and emphasizing a "faster, better, cheaper" approach to NASA's robotic space science program.[20] Although Goldin did initiate major restructuring of the Space Shuttle and Space Station programs, he was not successful in transforming NASA's traditional human spaceflight culture that had been a primary target of the Space Council. If anything, Goldin's 1996 appointment of George Abbey as Director of the Johnson Space Center reinforced NASA's traditional way of doing business. Abbey was a firm believer in the values of the original, Apollo-era human spaceflight culture. Believing NASA had lost important elements of that culture during the Space Shuttle program, Abbey set about recreating at the Johnson Space Center as many of the positive features of the Apollo-era human spaceflight culture as possible.

With attention focused on the Space Station, the Space Exploration Initiative quietly disappeared from NASA's planning. There was little White House attention during the Clinton years to human exploration beyond Earth orbit. The Office of Exploration, set up just a few years earlier, was shuttered. The National Space Policy statement that a "long-range goal" for NASA was "to expand human presence and activity beyond Earth orbit into the solar system," which had first appeared in 1988, was deleted in a 1996 revision of the policy and replaced by the modest statement that "the International Space Station will support future decisions on the feasibility and desirability of conducting further human exploration activities."[21]

Conclusion

The dismissal of Richard Truly as NASA Administrator was the culmination of a three-year struggle between two incompatible views of NASA's future. That struggle had been accurately portrayed by Norm Augustine in September 1990 as he began a sweeping assessment of NASA and its programs. He told

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19. The redesign effort is described in Cassutt, *The Astronaut Maker*, 352–358. For an account of the process of bringing Russia into the space station partnership, see John M. Logsdon, "The Evolution of U.S.–Russian Cooperation in Human Space Flight," Appendix B in John M. Logsdon and James Millar, eds., *U.S.–Russian Cooperation in Human Space Flight: Assessing the Impacts*, Space Policy Institute and Institute for Russian and Eurasian Studies, Elliott School of International Affairs, The George Washington University, February 2001.

20. See Howard McCurdy, *Faster, Better, Cheaper: Low-Cost Innovation in the U.S. Space Program* (Baltimore, MD: The Johns Hopkins University Press, 2001) for a discussion of Goldin's efforts in this regard.

21. Presidential Directive on National Space Policy, 11 February 1988, *https://www.nasa.gov/history/presidential-directive-on-national-space-policy-february-11-1988/* (accessed 30 January 2024); National Space Policy, 19 September 1996, *https://clintonwhitehouse3.archives.gov/WH/EOP/OSTP/NSTC/html/pdd8.html* (accessed 2 February 2024).

Albrecht that "Admiral Truly and all of his senior managers are absolutely convinced the NASA organization, management and programs are 'just fine'. . . . Those outside NASA . . . universally perceive that there are fundamental problems" within the Agency.[22]

Yale policy analyst Gary Brewer observed in his 1989 analysis of NASA that "it seems to require the shock of heavy cannon to loosen dissent in a perfect place."[23] For NASA, Goldin was intended to be that "heavy cannon." Quayle and Albrecht put Goldin in place to make the changes at NASA that they had not been able to accomplish through either the carrot of challenging new goals or the stick of a critical external review. In his first nine months on the job Goldin had eagerly started on that assignment. The decision by the Clinton administration to keep him in the top NASA position gave him the time he needed to institute many transformative changes.

Lambright observes that "Goldin engineered not one or two policy changes, but a torrent of changes. This was not evolutionary change, but radical or discontinuous change. . . . Had he been less able and willing to move decisively, NASA might have collapsed." He concludes, "In the history of NASA, Goldin will likely stand out as a man who preserved the agency by forcing it to change."[24] By making Dan Goldin the head of NASA, Quayle and Albrecht ended up enabling much of the organizational transformation they had thought necessary. Although the Space Exploration Initiative itself had not succeeded, it had set the stage for the changes that would follow; according to Albrecht, "A battle was lost, but a war was won."

22. Memorandum from Mark Albrecht, "Meeting with Norman Augustine," 19 September 1990, Box 2, Mark Albrecht Files, B41L.

23. Brewer, "Perfect Places," 159–160.

24. Lambright, *Transforming Government*, 29.

Epilogue

A Continuing Tension

By the time George W. Bush succeeded Bill Clinton in January 2001, interest in making additional major changes to restore NASA's status as a high-performance organization had largely dissipated. The focus for reform shifted to getting the costs of the International Space Station program under control. As the first long-duration crew began occupancy of the nascent station in November 2000, the program was behind schedule and well above cost. NASA in March 2001 with Goldin still the NASA head "shocked the administration and Congress by revealing that it would overshoot a $25 billion congressional cap by almost $5 billion." An external task force assessing the state of the station program recommended that "NASA be given two years to get its management act together" or face the likelihood that the station would be downsized to limit it to a three-person crew, rather than the six or seven crew members then planned. The result of such a change would be "a station of minimal capabilities."[1]

Goldin left NASA in November 2001, as the station task force submitted its report. His replacement, Sean O'Keefe, pledged that he would carry out the task force's recommendations for programmatic and managerial changes to the International Space Station effort. That effort was proceeding when on 1 February 2003 Shuttle orbiter Columbia broke up during reentry; all seven crewmembers perished. A Columbia Accident Investigation Board was established to determine the cause of the accident and the steps needed to return the Space Shuttle to operation. That task would occupy NASA for the next several years. The Board, in its report, suggested that the accident was as much the result of the history of the Shuttle program as it was based on a technical failure. Echoing what the Space Council had discovered 14 years earlier, the Board commented that "NASA's deeply ingrained human spaceflight culture—one that has evolved over 30 years . . . remained strong enough to resist external pressures for adaptation and change."[2]

Vision for Space Exploration

The reaction to the Columbia accident was in many ways parallel to the aftermath of the Challenger tragedy. Once again, a President decided to declare a bold exploration goal. On 14 January 2004, President George W. Bush, son of the President who had in 1989 proposed the Space Exploration Initiative,

1. Editorial, "A Space Station Out of Control," *The New York Times*, 25 November 2001, 4–10.

2. *Columbia Accident Investigation Board Report Volume I*, August 2003, 118, *https://sma.nasa.gov/SignificantIncidents/assets/columbia-accident-investigation-board-report-volume-1.pdf* (accessed 28 February 2024).

announced that he would "set a new course for America's space program. We will give NASA a new focus and vision for future exploration." The effort proposed by Bush soon came to be known as the Vision for Space Exploration (VSE). Key elements of the VSE included retiring the Space Shuttle in 2010, after International Space Station assembly was completed, and replacing it with a new crew-carrying spacecraft. Bush set 2020 as a date for returning to the Moon. Unlike the situation in 1989, however, transforming NASA as an organization was not a central goal of the VSE agenda.[3]

The VSE got off to a halting start until Mike Griffin, who had been an ally of the Space Council during its attempts to reinvigorate NASA during the first Bush administration, became NASA Administrator in April 2005. Griffin initiated a crash study that identified the hardware systems needed to implement the VSE. Those systems were incorporated into what was designated as the Constellation program. As that program got under way, Griffin described Orion, its crew-carrying spacecraft, as "Apollo on steroids." This casual comment came to define the totality of the Constellation program—an undertaking close to Apollo in design, management, and ambition, not one based on technological innovation and multiagency direction.[4]

A New Attempt at Organizational Transformation

Constellation did not survive the change in administrations after the 2008 election. Barack Obama succeeded George W. Bush as President in January 2009. After several months of uncertainty about who would lead NASA, the President nominated retired Marine Major General and former astronaut Charlie Bolden as Administrator, and aerospace consultant and space activist Lori Garver, who had held senior positions at NASA under Goldin, as Deputy Administrator. These choices brought into NASA's two top positions individuals who themselves embodied the lingering tension between the traditional NASA human spaceflight culture and the belief that that culture required significant change to remain relevant to 21st century realities.[5]

While Bolden's management approach reflected his long experience with NASA, Garver had strong ties to those outside NASA who had been advocating major changes in NASA's organization and programs, including many of those who had been involved in the Space Exploration Initiative push two decades earlier. She had led President-elect Obama's space transition team, which had recommended that NASA should not continue on its present path. She soon set out on what she characterized as a "quest to transform NASA and launch a new space age." Key elements in this "quest" were cancelling Constellation, spending a few years investing in "game-changing" technologies, and only then developing new launch and spacecraft systems. Existing Constellation contracts for the Orion spacecraft and Constellation launch vehicles Ares I and Ares V would be cancelled. An innovative partnership between NASA and commercial providers, with

3. "President Bush Announces New Vision for Space Exploration Program: Remarks by the President on U.S. Space Policy, 14 January 2004," NASA History Resource: Vision for Space Exploration, *https://www.nasa.gov/history/vision-for-space-exploration/#speech* (accessed 2 February 2024).

4. Jason Davis, "'Apollo on Steroids': the Rise and Fall of NASA's Constellation Moon Program," 1 August 2016, *https://www.planetary.org/articles/20160801-horizon-goal-part-2* (accessed 2 February 2024).

5. Lori Garver describes the differences in view between herself and Bolden in her highly personal book *Escaping Gravity: My Quest to Transform NASA and Launch a New Space Age* (New York: Diversion Books, 2022).

the private sector playing a crucial role, would develop the capability to ferry astronauts to and from the International Space Station.

Garver and her allies on the White House staff, largely bypassing Administrator Bolden, were able to convince President Obama to include these changes in the NASA budget proposal that was released in February 2010. The space community's reaction to that proposal was a mixture of great surprise and high concern, since it meant the cancellation of multibillion-dollar contracts and the potential elimination of thousands of jobs. Garver in her account of the resulting controversy suggests, "The similarities between what the Vice President [Dan Quayle] and the National Space Council found in the early 1990s and what I experienced twenty years later are numerous." The President's proposal led to what she describes as an "epic battle . . . that pitted traditional space loyalists against a new generation of space advocates. . . . On one side were the large stakeholders—aerospace companies, lobbyists, astronauts, trade associations, self-interested congressional delegations, and most of NASA. On the other side—a handful of outspoken space enthusiasts and bureaucrats, a few billionaires, political appointees, and the President of the United States."[6]

The outcome of this battle was an uneasy compromise that was incorporated into the NASA authorization legislation for 2010. The proposal for what came to be called the Commercial Crew Program was in principle accepted, even in the face of opposition from many of those with past involvement with human spaceflight. But the bill also directed NASA to develop without delay a heavy-lift Space Launch System (SLS) "that can access cis-lunar space and the regions of space beyond low-Earth orbit"; it even specified the weight-lifting capability and other technical aspects of the new launch vehicle. It also directed NASA to continue development of a Multi-Purpose Crew Vehicle to serve as "the primary crew vehicle for missions beyond low-Earth orbit." In developing the SLS and the Crew Vehicle, NASA was directed "to the extent practicable to utilize existing contracts, investments, workforce, industrial base, and capabilities from the Space Shuttle and Orion and Ares 1 projects."[7]

Rather than expend the political capital to defend his original transformational proposal, President Obama on 11 October 2010 signed the NASA authorization bill. The bill restored the key elements of the Constellation program, and the directive that NASA use the management and procurement approaches of the existing programs meant that the SLS and the new spacecraft (in essence a continuation of Constellation's Orion vehicle) would be developed in the style of NASA's traditional human spaceflight culture rather than through any innovative form of government-industry partnership. A proposal for a radical transformation of the way NASA does business failed in its overall intent while still producing significant changes in a reluctant organization.

For more than a decade now, NASA has been pursuing a human spaceflight program using the hardware elements and approaches outlined in the 2010 Authorization Act. The innovative Commercial Crew Program began transporting astronauts to the International Space Station in May 2020. The Trump administration in 2017 added specific destinations to the exploration effort, directing NASA to "lead the return of humans to the Moon for long-term exploration and utilization, followed by human missions to Mars and other destinations."[8] NASA named this program Artemis. The SLS and the Orion spacecraft had

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6. Garver, *Escaping Gravity*, 36, 13. For a more detached view of these events, see John M. Logsdon, "A New US Approach to Human Spaceflight," *Space Policy*, 27, no. 1, February 2011, 15–19.

7. *National Aeronautics and Space Administration Authorization Act of 2010*, Public Law 111-267, 11 October 2010.

8. White House Presidential Memorandum, "Space Policy Directive-1, Reinvigorating America's Human Spaceflight Program," 11 December 2017.

their first launch, the uncrewed Artemis I mission to lunar orbit, in November 2022. As of January 2024, a second orbital test mission, Artemis II, this time with a crew aboard, is planned for September 2025, and Artemis III, the first mission carrying humans to the surface of the Moon since 1972, for September 2026.

It may be that Artemis will be the last human spaceflight program using NASA's traditional procurement and management approaches. NASA is under pressure with the success to date of the Commercial Crew Program and the growth of the commercial space industry to use commercial capabilities and a government–industry partnership for later aspects of Artemis and for whatever follows in low Earth orbit after the retirement of the International Space Station. The transformation of NASA begun in 1989 continues.

Acronyms

AIAA	American Institute of Aeronautics and Astronautics
CBS	CBS Broadcasting Inc., previously Columbia Broadcasting System
CEO	chief executive officer
COVID-19	coronavirus disease 2019
CSIS	Center for Strategic and International Studies
DOD	Department of Defense
DOE	Department of Energy
EOP	Executive Office of the President
FBI	Federal Bureau of Investigation
FY	fiscal year
JFK	John F. Kennedy
JSC	Johnson Space Center
MIT	Massachusetts Institute of Technology
NASA	National Aeronautics and Space Administration
NHRC	NASA Historical Reference Collection
NSC	National Security Council
OMB	Office of Management and Budget
RAND	corporation name; contraction of "research and development"
SDI	Strategic Defense Initiative
SDIO	Strategic Defense Initiative Organization
SEI	Space Exploration Initiative
SLS	Space Launch System
TRW	TRW Inc.; previously named Thompson Ramo Wooldridge Inc.
USAF	United States Air Force
VP	Vice President
VSE	Vision for Space Exploration

About the Author

Dr. John M. Logsdon is Professor Emeritus at George Washington University's Elliott School of International Affairs, where he was the founder and longtime director of GW's Space Policy Institute. He is the author, among many articles, essays, and edited books, of the award-winning studies *Ronald Reagan and the Space Frontier* (2019), *After Apollo? Richard Nixon and the American Space Program* (2015), *John F. Kennedy and the Race to the Moon* (2010), and *The Decision to Go to the Moon: Project Apollo and the National Interest* (1970). He is editor of the Penguin Classics compilation *The Penguin Book of Outer Space Exploration* (2018) and the seven-volume series *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program*. He is a sought-after commentator on space issues by the electronic and print media. In 2003 he was a member of the Columbia Accident Investigation Board, and he was formerly a member of the NASA Advisory Council.

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Yale policy analyst Gary Brewer, writing in the aftermath of the Space Shuttle Challenger accident, asked, “What do CBS, General Motors, the Bank of America, the U.S. Naval Academy, Yale University, and the horse cavalry have in common with NASA?” In Brewer’s view, each of these organizations had at some time in its history been a “perfect place,” defined as “the best organization human beings could create to accomplish selected goals.” NASA, the National Aeronautics and Space Administration, had “perfected itself in the reality of Apollo.” But by the time of Brewer’s perceptive analysis, he judged that NASA was “no longer a perfect place. . . . [Apollo’s] success is past and the lessons from it are obsolete.” Brewer suggested that to regain its excellence NASA “needs new ways of thinking.” This account describes attempts during the administration of President George H. W. Bush (1989–1993) to force a reluctant NASA to adopt such “new ways of thinking.”

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