

History of Rocketry and Astronautics

**Proceedings of the Thirty-Sixth History Symposium of
the International Academy of Astronautics**

Houston, Texas, U.S.A., 2002

Michael L. Ciancone, Volume Editor

Rick W. Sturdevant, Series Editor

AAS History Series, Volume 33

A Supplement to Advances in the Astronautical Sciences

IAA History Symposia, Volume 22

Copyright 2010

by

AMERICAN ASTRONAUTICAL SOCIETY

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

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

First Printing 2010

ISSN 0730-3564

ISBN 978-0-87703-558-9 (Hard Cover)

ISBN 978-0-87703-559-6 (Soft Cover)

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

Printed and Bound in the U.S.A.

Chapter 13

Brothers in Arms: The CIA and the American Civilian Space Program, 1958–1968*

Dwayne A. Day[†]

Abstract

The Central Intelligence Agency (CIA) and the National Aeronautics and Space Administration (NASA) represented two different bureaucratic weapons in the U.S. arsenal during the space race with the Soviet Union. They had to cooperate in order to further U.S. national interests. The CIA provided information to NASA, and NASA occasionally provided expertise and other services to the CIA. The degree of their interaction is becoming apparent only now that the Cold War has ended. Newly declassified documents reveal that NASA was not simply a consumer of intelligence information, but also supplied it to the CIA. But there is no firm evidence to indicate that intelligence information played a significant

* Presented at the Thirty-Sixth History Symposium of the International Academy of Astronautics, 10–19 October 2002, Houston, Texas, U.S.A.

[†] Dwayne A. Day received a PhD in political science from George Washington University. He was previously a Guggenheim Fellow and a Verville Fellow at the National Air and Space Museum. He is the author of *Lightning Rod*, a history of the Air Force Chief Scientist's Office, and primary editor of *Eye in the Sky: The CORONA Spy Satellite Program*. He has also authored more than three dozen published articles on various military and civilian space topics. He served as an investigator for the *Columbia* Accident Investigation Board and as of 2010 was a senior program officer with the Space Studies Board of the National Research Council, where he served as study director on projects concerning the future of NASA robotic planetary exploration, protection of Earth from asteroid collisions, and numerous other studies. This work represents the author's opinions only and not those of his employer.

role in the Apollo schedule, which was dictated far more by other factors. However, intelligence information apparently did have a powerful effect on the thinking of NASA Administrator James Webb and was a major factor in his fight to preserve NASA's budget in order to counter Soviet space capabilities.

Introduction

In late February 1961, James A. Cunningham, Jr., the Assistant Chief to Richard Bissell (the CIA's Deputy for Development Planning and the second most powerful man in the CIA), wrote a secret memorandum for the record concerning his recent briefing of James Webb. Webb was the new NASA Administrator. Cunningham wrote that he and two other CIA officials had briefed Webb on the U-2 spy plane, CORONA reconnaissance satellite, and the ARGON mapping satellite program in Webb's office a few days before. Webb was also cleared to receive U-2 and satellite photography, in addition to other "SENSINT" or sensitive information.¹

Cunningham wrote: "The briefing lasted for well over an hour, and Mr. Webb very carefully read every word of the briefing material and security forms. My personal opinion is that we should have little problem with Mr. Webb in terms of his ability to separate one program and system from the other, which is a refreshing change in the briefing of high level officials of other Agencies."

Webb informed Cunningham of his plans for the management of NASA, such as including Deputy Administrator Dr. Hugh Dryden in decision making and his appointment of Dr. Robert Seamans as "General Manager of NASA." It was Webb's intention "to prove to the Nation that scientists can effectively manage a billion dollar a year program without the need of non-technical administrative supervision." Webb also wanted Seamans given the same security access that Webb had. In addition, Webb wanted to retain former Administrator T. Keith Glennan as a consultant.

Cunningham concluded: "On the whole I believe this was a very useful discussion. Mr. Webb strikes us as a completely receptive and energetic individual whose questions about our Projects and whose desires to know what is going on in the intelligence field are considerable. Mr. Webb indicated that he would shortly seek to have some substantive discussions with Mr. Dulles [Director of Central Intelligence] and Mr. Amory on subjects such as the status of the Soviet missile and space programs and the like."

This was not the first time that a NASA administrator had been admitted to the top secret world of the CIA. Indeed, NASA and the CIA had a close relationship since even before the formal creation of the civilian space agency. NASA

had been created largely to present U.S. space activities as peaceful, civilian, and non-threatening. The civilian space agency had an important propaganda role to fill, advancing U.S. national interests. As such, it was simply another means of countering the communist threat to U.S. interests. NASA leaders naturally needed to know what their counterparts in the Soviet Union were up to so that they could plan their own schedule.

Despite this close relationship, there is no substantive information to support the contention that NASA altered its schedules based on intelligence information, although NASA officials, such as Webb, desired intelligence data that would allow them to do exactly that if necessary. There were several reasons for this: first, the intelligence information was somewhat ambiguous and constantly changing. Second, the information was never as complete as NASA wanted. Finally, even if these first two factors had not been true, NASA had only limited ability to alter its schedule. The space agency was already moving as fast as it could to meet the President's goal for reaching the Moon by the end of the decade.

All major NASA Apollo program decisions appear to have been schedule driven, rather than intelligence driven. However, Webb viewed CIA reports of a new Soviet rocket that was more powerful than the Saturn V as an ominous indication that the Soviet Union would soon surpass the United States in space, even if it did not actually beat the United States to the Moon. These reports prompted him to increase his rhetoric in front of Congress and the press, and to seek a greater NASA budget. Intelligence information therefore *did* have an effect on NASA policy, although ultimately that policy was not implemented.

This article will discuss the first ten years of the relationship between the CIA and NASA. This is a subject that has not been extensively researched or written about, due largely to the fact that much relevant information was not declassified until relatively recently.² This is only a preliminary review of the subject, based almost entirely on documentary sources. It cannot be comprehensive due to space constraints. Instead, this article is intended to be a foundation for further research. Although declassified CIA reports are referenced, this paper is not intended to be primarily about CIA monitoring of the Soviet Union or its space program, but rather will demonstrate the close relationship between the two bureaucracies and their partnership in a joint endeavor to defeat the Soviet Union.

The Early Relationship

The first contact between the CIA and NASA actually came several weeks before NASA was even officially created. On 10 September 1958, Acting Director of Central Intelligence General C. P. Cabell wrote to Dr. T. Keith Glennan, the incoming administrator of the new civilian space agency. Cabell wrote: "You are undoubtedly aware of the deep concern of this Agency with the challenge to the United States posed by Soviet advance in space technology. Our work in this area of intelligence may be of material assistance to you in furthering the aims of NASA." Cabell continued: "With this in mind, it occurs to me that you may desire an oral briefing from our Office of Scientific Intelligence. This Office monitors and reports on the entire spectrum of Soviet science and devotes a sizeable effort to assessing the Soviet space program." Cabell then offered to have the Assistant Director for Scientific Intelligence, Dr. Herbert Scoville, Jr., brief Glennan at his convenience. Cabell closed his letter by stating: "Additionally, when you feel the time to be appropriate, we can arrange to make available to you on a continuing basis intelligence reports prepared by us which may bear on your problem."³

Glennan replied to Cabell's letter two days later. He indicated that he would like to be briefed as Cabell offered. "In the meantime, it would be entirely appropriate for you to now make available on a continuing basis the intelligence reports prepared by your office which may be of interest to NASA," Glennan concluded.⁴

The reports that Glennan referred to were the National Intelligence Estimates, or NIEs, which were the highest-level intelligence assessments of various aspects of the Soviet Union produced by the CIA. NIEs were essentially overviews of specific topics and at the time, the CIA was producing a joint NIE on Soviet ballistic missile and space programs. In 1961, the CIA separated these subjects into two individual reports. The space NIE was only produced every other year, whereas the ballistic missile report continued to be produced annually. This was essentially a tacit admission by the CIA that it considered space subjects to be less important than missiles—a fact confirmed by several former intelligence officials.

During the next several years, the CIA gathered intelligence on various Soviet space efforts, such as its lunar program and its plans for orbiting a human. However, there are as yet no indications of what intelligence information was provided to NASA during this time period. According to an article in a declassified CIA journal, for instance, the United States monitored transmissions from Yuri Gagarin's flight around Earth. But it is unknown if this information was

provided to NASA. More important, it remains unknown if the CIA had information about the Gagarin flight before it happened. NASA officials knew that they were in a race to place the first human in space, but it is unclear if the CIA kept them informed as to how close that race was.⁵

Although the specifics remain unknown, before Gagarin's spaceflight, NASA officials were still kept apprised of some intelligence matters. Dr. Werner von Braun, who was head of the Marshall Space Flight Center in Huntsville, Alabama, and therefore responsible for the Redstone rocket that would launch the first U.S. manned spaceflights, was scheduled for a CIA briefing during a NASA staff conference in Luray, Virginia, on extra-light-lift, light-lift, and medium-lift types of rockets on 9 March 1961.⁶ The nature of the briefing and whether it included other NASA officials (as it probably did) is unknown.

Other agencies of the U.S. government and military also obtained intelligence information that they provided to NASA during this period. The U.S. Air Force (USAF) tracked various Soviet spacecraft and provided this information to NASA on a near real-time basis. In addition, von Braun had close ties to the Army and obtained information from Army Intelligence. The National Security Agency (NSA) monitored Soviet spacecraft transmissions and undoubtedly provided at least some of this information to NASA, most likely through the CIA rather than directly, in the form of raw intelligence.

The U-2 Affair

The CIA–NASA relationship was not simply a one-way street, with NASA receiving CIA intelligence and not providing anything in return. In 1960, the CIA sought to receive something from NASA. But the outcome was embarrassing and apparently led to a short-term rift between the two agencies.

The CIA and the military had long used military scientific projects to mask intelligence collection efforts. Balloons carrying reconnaissance cameras had been portrayed as USAF meteorological efforts. The CIA's CORONA reconnaissance satellite, started in early 1958, was publicly declared to be a USAF engineering and scientific program named Discoverer. The U.S. Navy had started a project after the launch of *Sputnik* to fly a scientific satellite named *Solrad* that actually concealed a signals intelligence payload named GRAB.⁷ Other ground- and sea-based military "scientific" operations, such as the development of large arrays of underwater microphones and Arctic exploration, were in reality intelligence efforts. But these efforts were always military operations used to conceal military or CIA intelligence operations. There is no indication that *civilian* government operations were used to cover military or CIA intelligence collection

efforts.⁸ The one notable exception to this involved NACA and its successor, NASA.

On 1 May 1960 CIA pilot Francis Gary Powers was shot down above the Soviet Union by a Soviet SA-2 missile that had locked onto his U-2 reconnaissance aircraft. As the news reached Washington, CIA officials decided to implement a long-established cover story that the U-2 was on a NASA “weather reconnaissance” mission.

In 1956, two years before NASA’s existence, the CIA asked its predecessor organization, the National Advisory Committee for Aeronautics (NACA), to provide civilian cover for the CIA reconnaissance aircraft. NACA Director Hugh Dryden agreed. The U-2 appeared in NACA markings several times, and the NACA produced press releases about the U-2 and its work in upper atmosphere science.⁹

At that time President Dwight Eisenhower also approved a NACA cover story in event of an incident, such as the aircraft crashing or being shot down above Soviet territory. When NASA was created, it assumed the responsibility for the U-2 cover story and continued issuing press releases about its U-2 operations.¹⁰ But NACA had no international activities and a close working relationship with the U.S. military. In contrast, NASA had been established in order to *differentiate* civilian and military space efforts, and *did* have an international mission and international ties.

When Gary Powers’ U-2 failed to reach its destination, CIA officials knew that it had crashed somewhere in the Soviet Union. They implemented the cover story. To conceal the fact that the plane had been launched from Pakistan, a USAF airbase commander in Adana, Turkey, announced on 2 May that a NASA aircraft from his base was missing, but the story did not appear in newspapers until the next day. On 3 May NASA released a statement that one of its aircraft was missing and attempted to explain why the airplane, which was supposed to be flying inside of Turkey, had traveled so far off course. The statement indicated that this was possibly due to the pilot running out of oxygen at altitude and the plane coasting on before crashing inside Soviet territory.¹¹ On 5 May the Department of State and NASA issued another statement.¹² On 6 May a U-2 at the secret North Base at Edwards Air Force Base was wheeled over to the main part of the base. A yellow NASA tail band and a fictitious serial number were painted on the aircraft and reporters were allowed to photograph it. They assumed that it was a NASA aircraft. Behind the scenes, NASA Deputy Administrator Dryden consulted on 3–4 May with Richard Bissell, who ran the U-2 program for the CIA.

The cover story that the CIA had developed nearly four years before had been created for a “best case” scenario—at least from the government’s point of view. The “best case” was that neither the pilot nor the plane or its reconnaissance film survived. This was not a very good assumption, as CIA officials soon found out.¹³ By 7 May Soviet Premier Nikita Khrushchev revealed that the Soviet Union was in possession not only of wreckage, but also a healthy pilot. He also displayed a reconnaissance photograph that he claimed was from the mission (a claim that CIA photo-interpreters instantly realized was truthful). The story was splashed all over the Sunday newspapers the next day. While the information was astonishing to many, it was embarrassing to NASA, which had lied for the CIA and was now exposed. CIA officials had assured President Eisenhower that no pilot could survive the shoot-down of such an aircraft at its operating altitude and presumably NASA officials also had been told this.

The U-2 incident had potential consequences for other NASA operations. NASA had agreements to base civilian tracking facilities in other countries. These agreements were predicated on the belief that the facilities were civilian in nature. If foreign governments feared that NASA was covering intelligence operations, or might be using its foreign ground stations to communicate with spy satellites, this could jeopardize those agreements.

Some members of the press sympathetically portrayed NASA as the “fall guy” of the arrangement, designated to take the blame if something went wrong with a U-2 mission.¹⁴ But others claimed that the arrangement had damaged NASA’s scientific integrity. A reporter wrote: “Now NASA is wondering how, after apparently having been tagged as doing some spying on the side, it can do its job of persuading all nations to join in peaceful space projects.”¹⁵ Congressman Leonard G. Wolf sounded a warning when he said of NASA: “Either that agency should be what we have been telling the world it is—an operation set up for the peaceful exploration of outer space—or it should be disbanded and its area of responsibility returned to the military.”¹⁶

But rather surprisingly, there were virtually no international repercussions for the civilian space agency. Dryden testified before Congress that there was no lack of international cooperation because of the incident. Glennan claimed that “what appear to be communist-inspired criticisms of the nature of our programs have caused some real concern in Zanzibar, Nigeria, and one or two other places” as a result of the U-2 incident. Glennan felt that the best way to assuage such concerns was to have political and technical representatives from these countries visit the United States and get an “intimate glimpse at Project Mercury so they can satisfy themselves about the nature of the program.”¹⁷

The nature of NASA–CIA relations after the U-2 cover story embarrassment was apparently not good. A carefully worded memo from Administrator Glennan to Deputy Administrator Dryden from July 1960 implies that the CIA wished to continue to use NASA in some manner to cover intelligence operations. It is written in the deliberately vague way that unclassified documents about sensitive matters were often written. Glennan wrote: “I have had no further word from our friends about the Bissell desires. On two occasions, I have had notes from Under Secretary Livingston Merchant saying that he continues to look into this matter but is not able as yet to talk. It may be that this will come up during my absence. If it does, I think we hold fast to the decision which we have stated before—namely, that we must be instructed to undertake further activities of any kind.”¹⁸ One possible interpretation of this letter is that Glennan was stating that NASA would no longer cover for any CIA U-2 missions unless it was specifically ordered to do so by the President.

It was probably this incident that a CIA official was referring to when he mentioned in response to the James Webb briefing in February 1961: “I gained the distinct impression that if Mr. Webb had been in charge of NASA last summer, the outcome of our problem with the U-2 might well have been different.” Perhaps it was Glennan’s reluctance to continue covering CIA operations that another official referred to when he stated that “for the time being we should not attempt to deflect any move to keep Glennan in the family.” This statement implies that CIA officials were not happy with Glennan, and some of them may have wanted him denied access to intelligence information, i.e. ‘kicked out of the family.’¹⁹

Early CIA Assessments of the Soviet Lunar Program

President John F. Kennedy established the Apollo lunar landing goal in May 1961. Kennedy’s National Space Council, which was chaired by Vice President Lyndon Johnson, was given intelligence briefings about the nature of the Soviet space program. NASA officials such as Jim Webb and Hugh Dryden attended these briefings.

A CIA National Intelligence Estimate produced in April 1961 addressed the subject of a Soviet manned lunar flight and stated:

Contingent upon successes with manned earth satellites and the development of large booster vehicles, the Soviets are believed capable of a manned circumlunar flight with reasonable chance of success in 1966; of recoverable manned lunar satellites in 1967; and of lunar landings and re-

turn to earth by about 1969. These are all estimated to be the earliest possible dates.²⁰

These were guesses, for at the time, there was no intelligence evidence indicating that the Soviet Union then had an active manned lunar landing program. There was no intelligence information because the Soviets had not started their program. The CIA assumed that the Soviets were already planning a lunar program because it was an obvious goal in the space race, not because they had evidence supporting this assumption.

Kennedy's lunar goal undoubtedly increased NASA interest in the nature of the Soviet space program and any evidence that the Soviets might be planning a Moon shot of their own. But intelligence analysts did not automatically know what would constitute evidence of a Soviet manned lunar program. For this information they turned to NASA.

The earliest known communication between NASA and the CIA on this subject was in November 1962, a year and a half *after* Kennedy's decision. The single-page document's author is unknown, but may have been Deputy Administrator Hugh Dryden. It contains only a cryptic marginal note stating that it was prepared for presentation at, or as a result of, a "meeting at CIA 3 pm 11/19" that Dryden apparently attended.²¹ The document, titled "NASA Comments on Soviet Space Program," pointed out the difficulties of identifying evidence that the Soviets were undertaking a manned lunar program:

It is generally believed that if the Soviets are competing with the U.S. in the lunar landing program, some flight testing clearly associated with that program should begin within about a year or two.

The problem was that it would be difficult to tell the difference between simply a large rocket test and the start of a lunar program. Project Apollo proved this, for NASA planned on launching a number of Saturn I rockets as precursors to actual lunar test flights and the Soviet Union would probably take the same approach. The document further stated:

It therefore appears possible that the Soviets also might be able to run a flight test program that does not give clear indications of an active manned lunar program, until shortly before they actually land on the moon.

The question arises whether, if the Soviets are developing a 1.5 million pound booster, they might attempt a manned circumlunar flight somewhat earlier than 1965-1966. Even with a highly sophisticated program (high-energy upper stages) a 1.5 million pound thrust booster would yield payload-to-escape capabilities of less than 20,000 pounds. If one assumes Vostok technology, plus additional equipment required for circumlunar flights (heat shielding, guidance equipment, etc.), it may not have been possible for the Soviets to achieve escape capability within a 20,000 pound payload limitation.

Although it did not state so directly, this document strongly implied that NASA officials desired better knowledge of Soviet capabilities in electronics, life support, heat shield technology, and launch vehicle technology and told their CIA contacts this. Presumably the NASA officials who presented it to the CIA made clear that they wanted this kind of information from the intelligence community and that CIA officials should look for it in addition to looking for evidence of a large new rocket. Presumably, NASA officials wanted access to raw data, not simply the biannual National Intelligence Estimates.²²

On 25 April 1963, Sherman Kent, the chair of the CIA's Board of National Estimates, which was charged with approving the highest-level CIA intelligence assessments of foreign capabilities, approved a memorandum for the Director of Central Intelligence on the Soviet manned lunar landing program. The 10-page report conceded that it had no evidence of a Soviet program, but added that: "On balance, we have no basis for changing our earlier estimate that the chances are better than even that the Soviets will seek to accomplish a manned lunar landing ahead of or in close competition with the U.S. It remains possible, nevertheless, that Soviet lunar objectives are less ambitious."²³

In July 1963, British astronomer Sir Bernard Lovell wrote to NASA Deputy Administrator Hugh L. Dryden about his recent trip to several important aerospace facilities within the Soviet Union. Lovell stated that Soviet Academy of Sciences President Mstislav V. Keldysh had informed him that the Soviet Union had rejected "(at least for the time being)... plans for the manned lunar landing."²⁴ Lovell's comment was at the time accurate. This letter had repercussions throughout NASA and led to claims in the press that NASA was "racing itself" to the Moon and therefore wasting taxpayers' money.²⁵

Lovell's letter probably led to another, still unreleased, CIA assessment of the Soviet space program, written by Sayre Stevens. In October 1963, after reading this secret report on the Soviet space program, Administrator James Webb wrote a secret internal memorandum about the importance of studying Soviet space efforts in order to plan U.S. responses.²⁶ Webb stated:

I believe we should compare now our better known capability in this regard with estimates of what the Soviets are likely to do and to then consider whether there are some modifications in our program or additional items to be included which will prevent them from:

1. Taking the steam out of the initiative for easing the Cold War tensions which the President has embarked on as a matter of major governmental policy,
2. Taking some sudden turn in a direction that would make our own program subject to reductions in important areas on the basis that these are no longer needed, and

3. Indicating a basis for military capability which is not included in the U.S. program.

But CIA assessments of the Soviet manned lunar program, and hence NASA responses to such a program, were severely constrained by the fact that there was no evidence of such a program because it did not yet exist. The Soviet Premier, Nikita Khrushchev, did not approve a Soviet manned lunar mission until mid-March 1964. Before late 1963 all Soviet activities were largely confined to the drawing table or were indoors. U.S. intelligence collection concerning Soviet space and rocket programs during the early 1960s relied almost entirely on satellite reconnaissance and the interception of telemetry. Until a Soviet lunar program began producing this kind of data, there was no way that the CIA could collect it.

NASA Support to the CIA

The November 1962 document “NASA Comments on Soviet Space Program” demonstrated a simple fact about the intelligence and space communities: there was a finite supply of expertise in the U.S. government about rocketry and spaceflight. NASA and industry naturally possessed a great amount of expertise concerning human spaceflight. It was therefore only natural for NASA to share this expertise with the CIA in order to assist the CIA in its mission of collecting information that it could then share with NASA.

In May 1965, CIA Deputy Director for Science and Technology, Dr. Albert D. “Bud” Wheelon contacted Fred Boone, NASA’s Assistant Administrator for Defense Affairs, and asked if NASA would consider providing people to serve on five CIA advisory panels. NASA officials considered the request and replied on 12 July 1965. NASA Associate Administrator Robert Seamans, Jr. recommended to Wheelon that instead of five panels, the CIA should establish eight panels.²⁷ These would be:

1. Manned Space Flight
2. Launch Vehicles
3. Launch and Test Facilities
4. Scientific and Technical Satellites
5. Lunar and Planetary Probes
6. Aeronautics
7. Advanced Research and Technology
8. Tracking, Data Acquisition, and Reduction.

Seamans also sent Wheelon a proposed agreement for NASA participation in the advisory panels. From two to seven NASA personnel would serve on each

panel for a period of at least two years. The panels would be chaired by a senior CIA official and would normally meet only twice a year at NASA field centers. According to the agreement: "The functions of the NASA panel members will be purely consultative and advisory in nature. They will not be expected to furnish or participate in formal analyses or evaluations of intelligence." Presumably this was to ensure that NASA personnel were not expected to produce actual reports and had no obligations to the CIA. Seamans signed the agreement on 12 July and Wheelon signed it on 29 July.²⁸

NASA also supplied the CIA with a long list of potential NASA personnel to serve on the panels. These included such obvious NASA officials as Dr. Robert Gilruth, Director of the Manned Space Center, and Dr. Joseph Shea, manager of the Apollo Spacecraft Program Office, both serving on the Manned Space Flight Advisory Panel. The list also included astronaut James McDivitt, Wernher von Braun, Chris Kraft, Rocco Petrone, and Oran Nicks, the Lunar and Planetary Programs Director of the Office of Space Science and Applications.²⁹

As a result of the creation of these new panels, NASA Associate Administrator for Manned Space Flight George Mueller ordered a review of NASA technical support to the CIA for the previous two years. Mueller reported to Robert Seamans that his office was then conducting approximately 10 studies for the CIA, concentrated primarily in Houston, Marshall Space Flight Center, and the Jet Propulsion Laboratory. The nature of these studies is unknown.³⁰

The results of these panels, or how often they actually met, also remain unknown. No documentation has been released on their activities, and none of the participants have commented on them.

A slight glitch in the CIA–NASA relationship occurred in the fall of 1965. In September 1965, the manager of the joint NASA/Atomic Energy Commission (AEC) Space Nuclear Propulsion Office briefed the CIA on nuclear rocket propulsion. At the end of the briefing, CIA Director of Science and Technology Bud Wheelon asked him to serve on a new advisory panel on Soviet manned spaceflight that was being established to advise the Director of Central Intelligence—this was not one of the existing advisory panels.³¹ The official accepted, apparently without first clearing this with his superiors at NASA, or presumably the AEC. Although NASA did not object, NASA's Associate Administrator for Defense Affairs suggested that any such requests from the CIA go to the leadership at NASA.³²

Based on limited information, it appears that in addition to the NASA panels, there were additional panels, apparently intended to provide more direct advice to the intelligence community. Dr. Joseph F. Shea, the Apollo Spacecraft Program Manager, served on the CIA's Space Intelligence Panel during 1966. So

did Dr. Raymond Lewis Bisplinghoff, a special assistant to NASA Administrator Webb, and JPL Director Dr. William H. Pickering. Shea and Bisplinghoff both had appointments that were scheduled to expire in September 1969. Pickering's appointment was scheduled to expire in September 1968.³³ What this panel did or how it differed from the other, more focused NASA panels remains unknown.

There were other examples of NASA support to the CIA. For instance, an engineer at Marshall, Willard Taub, was researching the Soviet SS-6/R-7 rocket. Taub concluded that the CIA's assessment of the SS-6 was inaccurate. He believed that the SS-6 was shaped like an ice cream cone, whereas the CIA had determined that it was shaped like a cylinder. He also determined that the Soviet claim that Voskhod 2's booster weighed 1.43 million pounds was correct, whereas the intelligence community's claim of 965,000 pounds was not.³⁴

It was not until 1967, when the Soviet Union displayed its SS-6/R-7 rocket at the Paris Air Show, that the intelligence community realized that it had erred significantly in its assessment of the Soviet intercontinental ballistic missile (ICBM). For one thing, as Taub had claimed two years earlier, the vehicle was indeed shaped like an ice cream cone. One intelligence officer later wrote that the discovery "jolted the U.S. scientific astronautics intelligence community into awareness of many weaknesses in its evaluative processes." Many of the mistakes were due to the assumption that the Soviet Union designed its rockets in a similar manner to the United States, which was not true.³⁵ The report noted:

In particular, the specific propellant combination employed by the system was incorrectly determined because the volumetric ratio of the bi-liquid was derived from a telemetry interpretation which *assumed* the sustainer tanks were of the same diameter. [emphasis in the original]

It is not possible, based on the limited evidence available, to determine how many of Taub's conclusions were correct. Taub was right about both the shape and weight of the rocket, but wrong about some of his other assumptions. According to the article quoted above, not everyone involved in analyzing the SS-6 agreed that the first stage tanks were cylindrical. It is entirely possible that Taub reached the right conclusion for the wrong reason. In addition, the intelligence community made several other false assumptions about the SS-6 that Taub may have also made. The episode highlights that good information and expertise is not sufficient; an intelligence assessment must constantly question its assumptions.

NASA also provided support to the CIA in other, minor ways. In January 1965, James Cunningham, who had been one of the CIA officials who briefed Jim Webb about CIA intelligence capabilities, contacted Deputy Administrator Dryden. Cunningham wanted to visit NASA to discuss NASA's experience with

contractor Pratt and Whitney on the development of the RL-10 engine for the Centaur upper stage. The CIA wanted to know about schedules, cost overruns, and what to expect when dealing with Pratt and Whitney on hydrogen engines.³⁶ Why the CIA was interested in this subject is unknown. The agency had conducted some work on a high-altitude reconnaissance aircraft, code named SUNTAN, in the mid-1950s, but had abandoned this work. However, by the mid-1960s, the CIA was evaluating possible replacements to the A-12 OXCART Mach 3 reconnaissance aircraft. The CIA was starting an aircraft program known as ISINGLASS which used a Pratt & Whitney rocket engine.

Other CIA Analysis of Space Programs

The CIA, NSA, and other government agencies monitored Soviet spacecraft telemetry transmissions and attempted to interpret them. These intelligence agencies did this in part to provide additional information for strategic weapons assessment. For instance, knowing the payload weight of a craft launched to the Moon could indicate the throw weight of the ICBM-derived rocket that launched it. But several assessments clearly had no strategic weapons value and the CIA and other agencies conducted them solely to assist NASA in its mission or to achieve propaganda scoops on the Soviet Union.

A good example of CIA analysis to support NASA activities is a photographic assessment of Soviet manned launch equipment and facilities. In December 1963, the CIA's National Photographic Interpretation Center (NPIC), which was charged with evaluating satellite reconnaissance imagery, produced a report on Soviet manned spaceflight launch facilities which had supported Yuri Gagarin and later manned spaceflights. This report, somewhat unusually, was not based primarily on satellite imagery. Instead, it relied on two Soviet propaganda films that had been obtained by the agency, in addition to articles in two Soviet magazines. It included some speculation about how the Soviet Union operated its manned space launcher.³⁷

A clear example of intelligence information being used to achieve a propaganda coup is the case of the images of the far side of the Moon transmitted from the Soviet spacecraft *Lunik 3* in October 1959. Jodrell Bank in England "cooperated" with the CIA to obtain a picture from the *Lunik 3*. This picture was probably of a test pattern. Jodrell Bank was often used as a means of announcing Soviet space achievements ahead of official Soviet announcements.³⁸

Intelligence information could also assist NASA in its international role. Photographs from Soviet meteorology satellites were also intercepted by the Na-

tional Security Agency in 1962 and the CIA subsequently briefed NASA, which was about to enter into an agreement with the Soviet Union to share weather data.³⁹

In June 1966, the Technical Intelligence Division of the National Photographic Interpretation Center produced an analysis of the recent Soviet *Luna 9* mission, which had landed a small payload on the Moon. The introduction to the report stated that “the objective of the analysis was to provide information about the photographic system, the spacecraft, and the lunar surface independent of previously published Soviet and U.S. data.”⁴⁰

NASA Intelligence Collection and Analysis

NASA conducted its own analyses of Soviet space achievements, using unclassified sources. For instance, in October 1967, the Soviet Union conducted a rendezvous of two unmanned space vehicles, *Cosmos 186* and *Cosmos 188*. Two NASA engineers in the Rendezvous Analysis Branch of the Manned Spacecraft Center’s Mission Planning and Analysis Division conducted an assessment of the achievement using NORAD tracking data and Soviet press announcements. They determined that “the lighting conditions appear to have been close to what we would choose for a manned rendezvous.” But the approach from the front and above was not optimum for manned braking because the astronauts would be facing a rising Sun and sunlit Earth. But they added that “it is possible that the lighting was actually chosen to facilitate the ground controlled TV-monitored docking over Russia.”⁴¹

NASA also used its extensive network of radio dishes around the world intended for receiving signals from U.S. spacecraft to intercept Soviet telemetry. The Jet Propulsion Laboratory in Pasadena, California, conducted some of this work. It remains unclear to what extent this research was funded by the Central Intelligence Agency or the National Security Agency, which is responsible for signals intelligence collection and analysis. The CIA and NSA may have supplied specialized equipment and computers to analyze Soviet signals. But NASA had a vested interest in snooping on Soviet lunar and planetary probes, for their data could be used by NASA itself.

During the flight of *Voskhod 2* in March 1965, NASA was able to monitor Alexei Leonov’s heart rate and intercepted television signals from the spacecraft (which were unfortunately unintelligible). Hugh Dryden wrote an extensive summary of the mission and sent it to the White House.⁴²

Later CIA Assessments of the Soviet Lunar Program

Naturally, although NASA officials were interested in many aspects of the Soviet manned and unmanned space effort, their primary interest was certainly the Soviet manned lunar program. The Soviet lunar project began launch site construction at Tyura-Tam in the fall of 1963, and this construction was almost immediately detected by U.S. CORONA reconnaissance satellites. However, for several months in late 1963 and into early 1964, the nature of this construction was unknown and NPIC photo-interpreters initially designated the construction activity as a new “support area.”⁴³

By April 1964, NPIC had declared that this construction was actually a launch complex, which they designated “Complex J.” The CIA had designated all launch complexes at Tyura-Tam according to an alphabetical sequence. The R-7/SS-6 facility that launched *Sputnik* and Yuri Gagarin, for instance, was designated “Complex A” and additional facilities were designated B, C, D, and so on.

Construction of two massive buildings was also detected in the CORONA photography by the summer of 1964.⁴⁴ Apparently some confusion existed for several months about the purpose of Complex J among the analysts of the Ballistic Missiles and Space Division of the Office of Scientific Intelligence (OSI) at the CIA. In October or November 1964, the Ballistic Missiles and Space Division at OSI requested that NPIC compare Complex J with another Tyura-Tam complex, Complex K, and with single silo ICBM sites at Zhengiz-Tobe and Olovyanaya.⁴⁵

The Chief of the Photographic Intelligence Division at NPIC reported:

The construction activity at Complex J does not resemble single silos at Zhangiz-Tobe or Olovyanaya. The overall scope of activity and size of facilities being constructed at Complex J suggests a large and elaborate research or space program, rather than the testing of strategic missile or ICBM deployment concept.

According to a 1967 editorial in the trade magazine *Aviation Week and Space Technology*, NASA officials had begun warning as early as 1964 that the Soviet Union was developing a new rocket larger than the Saturn V.⁴⁶ Although no evidence of this can be found in contemporary print media from 1964, the story is consistent with the intelligence collection chronology. Clearly, a NASA official who knew about satellite reconnaissance photos of Complex J was talking about them to people in the press, because the information on the new launch complex had not yet been included in a National Intelligence Estimate.

In January 1965 the CIA produced a new NIE on the Soviet space program. The report stated: "We estimate that the Soviets also have under development a very large booster with a thrust on the order of five million pounds. We believe it unlikely that this vehicle will be flight-tested before 1967, but it is possible that such a test could occur in the latter half of 1966." The report suggested that such a booster may have been intended to orbit a large space station. But it noted: "Considering the variety of techniques open to the Soviets for conducting a manned lunar landing, such a new booster also could be used for this mission."⁴⁷

The CIA document also stated: "It seems certain that the Soviets intend to land a man on the moon sometime in the future, but there are at present no specific indications of any such project aimed at 1968–1969, i.e., intended to be competitive with the U.S. Apollo project."

One paragraph later, the CIA stated:

If the earth-orbit rendezvous technique were used, some one to three rendezvous probably would be required, depending on the actual thrust of the booster and Soviet success in reducing the weights of structures and components below present levels. Thus a Soviet attempt at a manned lunar landing in a period competitive with the present U.S. Apollo schedule cannot be ruled out.

To compete in this fashion, however, the Soviets would have had to make an initial decision to this effect several years ago and to have sustained a high priority for the project in the ensuing period . . . The appearance and non-appearance of various technical developments, economic considerations, leadership statements, and continued commitments to other major space missions all lead us to the conclusion that a manned lunar landing ahead of the present Apollo schedule probably is not a Soviet objective.⁴⁸

Throughout the next several years, CORONA and GAMBIT reconnaissance satellites continued to photograph the Tyura-Tam test range and watched as the Soviet lunar rocket facilities were erected. By May 1965, CORONA photography revealed obvious large launch pad construction.

James Webb was kept aware of these developments, for they apparently had a sobering effect on his optimism about NASA's ability to beat the Soviet Union to the Moon. In 1966, during the House Authorization Committee hearings for NASA's 1967 budget, Webb was asked if the Soviet Union might beat NASA to the Moon. Webb replied: "In terms of what has happened in the past year, I am more of this mind than I was a year ago."⁴⁹

In March 1967, the CIA produced an updated version of its NIE assessment of the Soviet space program. Compared to the 1965 NIE, it had increased its estimate of the Soviet large booster. Whereas the 1965 document estimated the thrust at 5 million pounds, the CIA increased this estimate to 8–16 million

pounds, which was larger than the Saturn V's 7.5 million pounds. It speculated that such a rocket could use upper stages from the Proton rocket:

If such a combination were to be launched initially by about mid-1968, it could be ready for manned space missions by about mid-1969. If the entire vehicle is new, however, and uses conventional propellants in all its stages (we define conventional propellants as those which have been used thus far in the Soviet launch vehicles), it could probably not be man-rated before 1970 at the earliest.⁵⁰

Only a few months before, NASA had suffered its most devastating blow, with the deaths of three astronauts in the *Apollo 1* fire. The recovery effort was still underway and NASA officials did not have a clear idea of when they would be able to attempt a Moon landing. Now, only a month-and-a-half later, the CIA was indicating that the Soviet Union might try a landing by mid-1969.

This report was surprisingly accurate in its assessment of the Soviet schedule, although many of its assumptions were wrong. Soviet designers never considered using upper stages from the Proton, but Soviet plans around the same time proposed a first flight in March 1968 and a manned lunar landing by no sooner than the third quarter of 1969. Both the CIA assessment and the Soviet development schedule assumed that the Soviet program would not suffer any development problems. That was not a good assumption for either party.

The authors of the report concluded:

[In NIE 11-5-65] we estimated that the Soviet manned lunar landing program was probably not intended to be competitive with the Apollo program as then projected, (i.e. aimed at the 1968–1969 time period). We believe this is probably still the case. There is the possibility, however, that depending upon the present Soviet view of the Apollo timetable, they may feel that there is some prospect of their getting to the moon first and they may press their program in hopes of being able to do so.

In July 1967, in testimony on NASA's 1968 budget before the Senate Committee on Appropriations, Webb was again asked about the Soviet space program. He replied: "In my view, they are preparing to launch a booster with an appropriate large payload that will be larger than the Saturn V and that will give them the image and capability for the next several years of being ahead of the U.S. program."⁵¹ Webb's information obviously came straight from NIE-11-1-67.

In August, Webb testified before a closed session of a House Appropriations subcommittee and stated: "We find ourselves in the position where even [the Saturn V] with the rough equivalent power in the first stage of 6,000 Boeing 707 airplanes, the USSR is building a larger booster and will shortly, I believe, in calendar year 1968, be flying a booster larger than the Saturn V."⁵²

After his July testimony, the press began to derisively refer to the new Soviet rocket as “Webb’s Giant,” implying that it did not exist. Because Webb was the only U.S. official mentioning this vehicle, and he was mentioning it in the context of seeking more money for NASA, his critics obviously doubted that it was real. Webb could not defend himself by referring to highly classified satellite imagery, which at that time was not even officially acknowledged by the U.S. government (and would not be for another 28 years).⁵³

What the newly declassified intelligence information now indicates is that Webb did have reason to worry, considering the information that he was given. The CIA had declared that the Soviet lunar landing program was “not competitive” in 1965. But its very existence had caused Webb to become more sober during the 1966 congressional hearings. The CIA’s more grim 1967 assessment, combined with NASA’s setback after the *Apollo 1* fire, now apparently put the Soviets back in the race, although barely. Furthermore, the 1967 CIA assessment was that the Soviet lunar rocket was more powerful than the Saturn V, which would have given the Soviet Union a *long-term* edge over the United States. This fact, more than the schedule, apparently had a greater effect on Webb’s outlook for the space race with the Soviet Union.

In October 1967, at a news conference in Houston, Texas, Webb was asked about how much bigger the Soviet rocket was compared to the Saturn V. He replied: “I am not able to be precise on that. I will simply state that in our view from all that I have seen it is larger, has a larger capability by, shall I say, some margin. I am not going to go beyond that statement—by some margin. The very fact that it is larger is an important and significant thing in itself.”⁵⁴ Also in October 1967, NPIC produced an overall assessment of Complex J at Tyura-Tam. Whether that report prompted Webb’s comments remains unknown. However, it is known that the actual Soviet N-1 rocket was not seen until a CORONA mission spotted it in December 1967.

In April 1968, the CIA issued a “Memorandum to Holders” of its March 1967 National Intelligence Estimate. Because the CIA produced the space NIE every other year instead of annually, this update was necessary to report any changes. The NIE noted that “In the year since publication of NIE 11-1-67, the Soviets have conducted more space launches than in any comparable period since the program began.”⁵⁵ The report also stated:

Considering additional evidence and further analysis, we continue to estimate that the Soviet manned lunar landing program is not intended to be competitive with the U.S. Apollo program. We now estimate that the Soviets will attempt a manned lunar landing in the latter half of 1971 or in 1972, and we believe that 1972 is the more likely date. The earliest possible date, involving a high risk, failure-free program, would be late in 1970. In NIE

11-1-67 we estimated that they would probably make such an attempt in the 1970–1971 period; the second half of 1969 was considered the earliest possible time.⁵⁶

In light of this, the report stated:

The Soviets will probably attempt a manned circumlunar flight both as a preliminary to a manned lunar landing and as an attempt to lessen the psychological impact of the Apollo program. In NIE 11-1-67, we estimated that the Soviets would attempt such a mission in the first half of 1968 or the first half of 1969 (or even as early as late 1967 for an anniversary spectacular). The failure of the unmanned circumlunar test in November 1967 leads us now to estimate that a manned attempt is unlikely before the last half of 1968, with 1969 being more likely. The Soviets soon will probably attempt another unmanned circumlunar flight.

In other words, the CIA had slipped back the date of the earliest possible Soviet lunar landing, making it possible, even probable, that NASA would land there first. But it now raised the specter that the Soviet Union could fly around the Moon first.

CIA assessments of the Soviet manned lunar landing program continued throughout 1968 and 1969, and became increasingly detailed. By February 1969 NPIC reported that Complex J consisted of: “a launch area containing two rail-served launch pads (Launch Pads J1 and J2) a missile assembly and checkout facility, a spacecraft assembly and checkout facility.” It noted that construction of the launch area was not yet complete. “From the size of the launch pads and associated equipment it is evident that the complex will be used for launchings of large space boosters.” The report also noted that “In [deleted mission date] and again in [deleted mission date] a 335-foot missile was observed on Launch Pad J1.”⁵⁷

The first Soviet lunar rocket had been spotted on the pad in a CORONA image in December 1967. The CIA referred to it as “the J vehicle.” The USAF designated it “TT-15” or the 15th missile known to have been developed at Tyura-Tam. Charles Sheldon, an analyst at the Congressional Research Service, a support agency for the U.S. Congress, labeled it the “G” vehicle. The Soviet Union designated the vehicle as the N-1. In actuality, the CIA’s measurement of 335 feet was off by 35 feet, or 10 percent.

By April 1968 it was clear to intelligence analysts that the Soviet Union was not going to beat the United States to a landing before the end of 1969 unless NASA suffered another major setback. As this information became available to Webb and other senior NASA officials, they naturally turned their attention to the Soviet Zond circumlunar missions.

Zond and the *Apollo 8* Decision

There is one instance in the Apollo program where some authors have claimed that NASA may have altered its schedule based on Soviet actions, specifically their Zond flights around the Moon. That instance was the decision to launch *Apollo 8* around the Moon. This was a bold act, for it was the second launch of a manned Apollo spacecraft, and the first launch of a manned Saturn V. Sending it to the Moon was certainly riskier than keeping the astronauts in orbit.⁵⁸

But no good evidence has been supplied to support this theory. Although intelligence documents on the Zond flight exist, and Webb and other NASA officials certainly responded with alarm to the November 1968 flight, there are no documents or oral interviews demonstrating a firm linkage between concern about Zond and the decision to fly *Apollo 8* around the Moon.⁵⁹

The first mention of the possibility of a circumlunar mission for *Apollo 8* appears to have been made in the spring of 1968. But there is no indication that this suggestion was made because of intelligence information. The proposal gained momentum during the summer, particularly when it became clear to Apollo managers that the Command and Service Modules would be available on time for *Apollo 8*, but the Lunar Module (LM) would not be available. Apollo officials could thus delay the mission, fly a less ambitious mission without the LM, or take a slightly greater risk and make a circumlunar flight. They chose the latter option.⁶⁰

Intelligence Information and NASA Rhetoric and Budgeting

Although there is no evidence that intelligence information changed any NASA schedules during the 1958–1968 period, there is ample information that it affected NASA rhetoric and policy.

In mid-September 1968, the Soviet Union launched *Zond 5* around the Moon. The spacecraft was recovered on returning to Earth. The flight was widely reported in the press and White House Science Advisor Donald Hornig was angered by statements made by Webb, NASA Deputy Administrator Tom Paine, and others, which he believed “have unnecessarily inflated the Soviet accomplishment and were undoubtedly motivated by their budgetary problems.”⁶¹ Hornig felt that in the case of the Moon race, the United States was at least a year ahead of the Soviet Union. Hornig wrote President Lyndon Johnson, who advised him to drop the matter. (Hornig’s memo included three options at the end. Johnson ticked the one labeled “Drop the matter.”)

An unsigned memorandum, possibly written by President Johnson, was sent to Hornig in reply to his letter.⁶² The memo stated:

It is hard for me to believe that Jim Webb would make “unconscionable statements” or be “motivated” entirely by budgetary problems. During each of the past two budgetary preparation periods, he has carefully and responsibly arranged to have before me the intelligence estimates and data on which he based his serious concern regarding the USSR: the trend of the Soviet program upward and the U.S. program downward that could produce for the Soviets a base of competence that would provide options they could take up and use to achieve both the image and reality of power and forward motion. I know he now feels they are beginning to take up these options.

Instead of dropping the matter as Johnson suggested, Hornig apparently took it to the Executive Secretary of the National Aeronautics and Space Council, Edward Welsh. Welsh wrote a summary of the accomplishments of the *Zond 5* mission and determined that: “As far as preparation for manned flight at lunar re-entry speed is concerned, the U.S. is somewhat ahead of the Soviets.”⁶³ Welsh then wrote the President on his own, stating: “Assertions that the United States is trailing the USSR in space accomplishments and space capabilities are, in my judgment, inaccurate.”⁶⁴

On 1 October, Webb wrote President Johnson, defending his public comments about the budget and noting that: “The Soviets show every indication of continuing to build upon their capabilities to demonstrate their power in aeronautics and to master space.” Webb continued: “We have the best of reasons to believe that the Soviets are nearing the end of a long developmental period in aerospace technology which will give them the ability to advance significantly ahead of us in space and challenge us in important areas of aeronautics.”⁶⁵

On 2 October, Webb followed this up with another letter to Johnson where he stated: “The importance that I have attached to the successful circumlunar flight of the Soviet *Zond V* derives not from the feat itself but from the confirmation it gives to accumulating mission successes as indications that the USSR is thrusting forward across a broad spectrum.” Webb continued: “As I told the press, the mission represented in my view ‘the most important demonstration to date of all the capabilities required for operations around the earth and outward to the moon and planets—in other words, all the capabilities for any purpose in space.’”⁶⁶

President Johnson suggested that Webb and Welsh sit down and discuss their disagreement, which they did. As a result, Webb wrote a final letter to the President on 5 October 1968, in which he indicated that he and Welsh had engaged in a friendly chat. Webb stated: “The real difference between us is, I believe, in how to appraise our present situation with reference to that of the USSR.

Dr. Welsh uses, as a basis of measurement, what has been accomplished by the United States to date, including accomplishments by the Department of Defense. My statements have been based on a present and growing capability in the USSR for future use, as demonstrated by USSR accomplishments such as the Zond 5 flight.”⁶⁷

What this little incident demonstrates is that the intelligence did have an effect on NASA, particularly James Webb. But it also indicates that the intelligence information on the Soviet space program was sufficiently ambiguous that different people with access to it could reach different conclusions. Welsh and Hornig interpreted the intelligence far more conservatively and did not feel that the Soviet Union was competitive with the U.S. lunar program. But they were in essence viewing the issue from a different perspective than Webb—solely in terms of achieving the immediate goals of a circumlunar flight and a manned lunar landing. Webb never indicated that he felt the intelligence demonstrated that the Soviet Union would *beat the United States to the Moon*, but he did feel that it indicated that they would soon have an *overall lead in space capability*. In other words, the Moon landing was not the end of the race in Webb’s view, only a major milestone in an ongoing race. Simply put, Webb’s view was compatible with that of Welsh and Hornig; they simply did not recognize it yet.

But Webb was virtually alone in this view outside of NASA, where many other Johnson administration officials had other priorities and saw the lunar landing as the end of the finish line of the space race. The political environment had shifted considerably since 1961, and Johnson, Welsh, Hornig, and many others did not care if the Soviet Union would eventually surpass the United States in space capability as long as the United States beat them to the Moon. By the time this argument occurred, Webb had already announced his resignation, and he left NASA later in October.⁶⁸ Neither the *Apollo 8* circumlunar flight nor the *Apollo 11* Moon landing happened on his watch.

The one person in the White House who most definitely was not upset by Webb’s comments was President Johnson himself. Following the *Zond 5* flight and Webb’s comments to the press, Johnson’s National Security Advisor Walt Rostow wrote a Top Secret memo on 24 September 1968—before either Hornig or Welsh complained. Someone hand-wrote on the bottom of the note: “Pres doesn’t consider anything Webb says as irresponsible. It’s those pipsqueeks.”⁶⁹ It is not clear if it was Johnson or the author who used the term “pipsqueeks,” or who they were referring to, but it may have been members of the press who reported Webb’s remarks. In any event, the sentiment was clear.

In early December 1968, the Acting NASA Administrator, Thomas Paine, wrote to the Director of Central Intelligence, Richard Helms, requesting updated

“estimates, reports, or memoranda covering, if possible, projections of Soviet activities and achievements in the areas of interest to NASA.” Paine continued: “I am particularly interested in having a feel for the ‘earliest likely’ and ‘most probable’ dates for certain key activities which parallel our own program planning.”⁷⁰ Slightly less than two months later, Helms sent over the requested material and Paine asked one of his aides to prepare an initial analysis of the USSR projections “in a matrix-type format which will compare” current and alternative NASA programs.⁷¹

The change in management at NASA did not affect the agency’s desire for intelligence information to continue pursuing the space race with the Soviet Union.⁷² The CIA–NASA relationship continued.

Conclusion

Unfortunately, although a significant amount of new documentation on the relationship between NASA and the CIA during the Cold War has emerged in the past several years, it still only allows us to sketch the broad outlines of their interaction. For instance, we still do not know how many times the NASA–CIA advisory committees met, or what they discussed. We do not have any of the internal CIA assessments of the Soviet manned space program after 1963. We also do not know what kinds of technical studies NASA performed for the CIA, only that they occurred. And we do not know what value NASA technical assistance was to the CIA.

But it is possible to draw firmer conclusions about NASA’s use of CIA intelligence information, if only based on circumstantial evidence, as opposed to direct testimony from Webb or his senior staff. From the available data we now know:

- James Webb and probably his senior advisors were all given access to high-level raw intelligence information, including satellite photography, and not simply the biannual National Intelligence Estimates.
- NASA officials did not overestimate Soviet capabilities on their own, but based their conclusions on sometimes inaccurate intelligence information. James Webb’s comments about the Soviet space effort were consistent with what the CIA was telling him.
- Top NASA officials, probably Webb, leaked intelligence information to the press.
- Different people interpreted ambiguous intelligence information in different ways.

- There is no firm and overriding evidence to support the conclusion that the *Apollo 8* decision was based on intelligence information about the Soviet Zond missions.
- The end-of-decade goal for Apollo overwhelmed any intelligence considerations. Schedule was the primary driver of Apollo in all cases.
- Although intelligence information did not affect the Apollo schedule, it did have an effect on space program planning, although Webb was unable to gain the funding he needed to maintain the level of activity he thought necessary to maintain pace with the Soviet Union.

NASA's experience using intelligence information is not significantly different from other government agencies during this time period. Government officials found that CIA intelligence information was useful for longer-term planning, such as procurement decisions, but much less useful for daily operational decisions. The CIA was looking through a glass darkly, trying to determine what the Soviet Union was doing, and often never gaining a full understanding of the country's activities. The primary intelligence tool, satellite reconnaissance, also took days to return useful data. Even the best intelligence information had gaps and frequently arrived too late for real-time decisions. In NASA's case, the agency was usually moving as fast as it could to beat the Soviet Union to the Moon and did not have much additional flexibility in its schedule. Better intelligence was not going to allow NASA to move any faster.

Acknowledgments

The author would like to acknowledge the assistance of Dr. Michael Neufeld, who supplied several of the documents referenced here, and Dr. Roger Launius. Also, the following people supplied information and suggestions: Asif Siddiqi, Dr. Nicholas Watkins, Robert Kennedy, Glen Swanson, Allen Thompson, and Tom Frieling.

Reference Notes

Author's note: The majority of the source materials for this paper were obtained from the CIA Reference Search Tool (CREST) collection in the library of the National Archives and Records Administration's Archives II facility in College Park, Maryland, outside of Washington, D.C. CREST is a remarkably useful database on certain intelligence subjects.

- ¹ James A. Cunningham, Jr., Assistant Chief, DPD-DD/P, Memorandum for the Record, "Briefing of Mr. James E. Webb, NASA Administrator, on 24 February 1961," 28 February 1961.
- ² Very few articles or books have addressed the issue of intelligence inputs to the civilian space program. See: Roger D. Launius, "NASA Looks to the East: American Intelligence Estimates of Soviet Capabilities and Project Apollo," *Air Power History* (Fall 2001): pp. 4–15. However, that article predated significant document declassifications. My conclusions differ from those of Dr. Launius. See also Dwayne A. Day et al., *Eye in the Sky* (Washington, DC: Smithsonian Institution Press, 1997).
- ³ General C. P. Cabell, USAF, Acting Director, CIA, to Dr. T. Keith Glennan, Director [*sic*] NASA, 10 September 1958.
- ⁴ T. Keith Glennan, Administrator, NASA, to General C. P. Cabell, USAF, Acting Director, Central Intelligence Agency, 12 September 1958.
- ⁵ Henry G. Plaster, "Snooping on Space Pictures," *Studies in Intelligence* (Fall 1964), RG263, "Articles From Studies in Intelligence, 1955–1992," National Archives and Records Administration. Sven Grahn has concluded that in order for the CIA or National Security Agency to intercept the television signals when claimed in this article, they would have required a listening station on the island of Shemya. He speculates that another interception station may have been required and this was either in southern Argentina or at Palmer Station in Antarctica. See "TV from Vostok," <http://www.users.wineasy.se/svengrahn>.
- ⁶ Itinerary of Dr. Wernher von Braun—New York, Luray, Washington, etc., 9 March 1961, NASA Historical Reference Collection.
- ⁷ Dwayne A. Day, "Listening from Above: The First Signals Intelligence Satellite," *Spaceflight* (August 1999): pp. 338–346.
- ⁸ By this I mean large projects. CIA operatives probably occasionally went undercover as civilian scientists.
- ⁹ "NACA Announces Start of New Research Program," 7 May 1956, NASA Historical Reference Collection.
- ¹⁰ Gregory W. Pedlow and Donald E. Welzenbach, *The CIA and the U-2 Program, 1954–1974* (Washington, DC: History Staff, Center for the Study of Intelligence, CIA, 1998), p. 178.
- ¹¹ Pedlow, *The CIA*, p. 178.
- ¹² Pedlow, *The CIA*, p. 179.
- ¹³ Pedlow, *The CIA*, p. 179. Later the CIA conducted tests that indicated that the tightly wrapped film could easily survive both an explosion and a fire. Pilots also successfully bailed out from several U-2's struck by missiles, proving that CIA assumptions that nobody could survive such an attack were poorly founded.
- ¹⁴ "PCR Response to Queries," 7 May 1960, NASA Historical Reference Collection.

- ¹⁵ “Americans’ Spy Plane Reaction: It’s Too Bad We Got Caught,” *Wall Street Journal* (10 May 1960); “Readers’ Reactions to the Spy-in-the-Sky Case Vary,” *The Washington Star* (12 May 1960); Robert Hotz, “Lockheed U-2 over Sverdlovsk: A Study in Fabrication,” *Congressional Record*—Senate (June 1960): p. 11118; “Burned Fingers for U.S. Officials,” *The Washington Star* (11 May 1960).
- ¹⁶ Leonard Wolf, “NASA Peaceful Exploration Agency?” *Congressional Record*—House (1960): p. 9957.
- ¹⁷ J. D. Hunley, ed., *The Birth of NASA: The Diary of T. Keith Glennan* (Washington, DC: NASA SP-4105, 1993), p. 167.
- ¹⁸ T. Keith Glennan, Administrator, NASA, Memorandum to Dr. Dryden, 15 July 1960.
- ¹⁹ James A. Cunningham, Jr., Assistant Chief, DPD-DD/P, Memorandum for the Record, “Briefing of Mr. James E. Webb, NASA Administrator, on 24 February 1961,” 28 February 1961.
- ²⁰ Central Intelligence Agency, “National Intelligence Estimate Number 11-5-61, Soviet Technical Capabilities in Guided Missiles and Space Vehicles,” 25 April 1962, p. 43.
- ²¹ “NASA Comments on Soviet Space Program,” 19 November 1962. The time and date of the meeting at the CIA is contained in a cryptic note written in the margins of the document.
- ²² The document states: “If knowledge is available on the degree of advancement of . . . then it might be possible to assess whether the Soviet lunar program can indeed be carried out within the present state of their art, or whether they need major new developments.”
- ²³ For the Board of National Estimates [deleted author], Sherman Kent, Chairman, Memorandum for the Director, “Soviet Intentions Concerning a Manned Lunar Landing,” 25 April 1963.
- ²⁴ Sir Bernard Lovell to Hugh L. Dryden, 23 July 1963.
- ²⁵ Dodd L. Harvey and Linda C. Ciccoritti, *U.S.—Soviet Cooperation in Space* (Miami, Florida: Center for Advanced International Studies, University of Miami, 1974), pp. 114–119.
- ²⁶ James E. Webb, Administrator, NASA, Memorandum for Dr. Simpson, 11 October 1963.
- ²⁷ Robert C. Seamans, Jr., Associate Administrator, NASA, to Dr. Albert D. Wheelon, Deputy Director (Science and Technology), Central Intelligence Agency, 12 July 1965.
- ²⁸ “Guidelines Governing the Serving of Officials of the NASA (NASA) as Consultants on Advisory Panels of the CIA (CIA),” [draft], signed by Robert C. Seamans, Jr., Associate Administrator, NASA, 12 July 1965.
- ²⁹ “Initial Assignment of NASA Personnel to CIA Advisory Panels,” [no date, but probably 12 July 1965].
- ³⁰ George E. Mueller, Associate Administrator for Manned Space Flight, NASA, to Associate Administrator, NASA, 1 September 1965.
- ³¹ Harold B Finger, Manager, Space Nuclear Propulsion Office, to Admiral W. F. Boone, “Recent Contacts with CIA,” 2 November 1965.
- ³² W. F. Boone to Dr. Seamans, NASA, “CIA Advisory Panels,” 4 November 1965.
- ³³ [deleted] Memorandum for Mr. Duckett, “Scientific Advisory Panels,” 11 October 1966.
- ³⁴ Irwin P. Halpern, Memorandum for Mr. Webb, “Soviet Launch Vehicles,” 20 October 1965.

- ³⁵ M. C. Wonus, "The Case of the SS-6," *Studies in Intelligence* (Winter 1969), RG263, "Articles From Studies in Intelligence, 1955–1992," National Archives and Records Administration, pp. 25–31. This was not the only time that the intelligence community had misunderstood a Soviet missile. There also was considerable disagreement within the community about the SS-8 missile. During the Richard Nixon presidential administration, there was a major controversy about the nature of the SS-9 ICBM. See David S. Brandwein, "The SS-8 Controversy," *Studies in Intelligence* (Summer 1969).
- ³⁶ "Telephone Conversation Dr. von Braun/Dr. Dryden, 1/13/65, 11:12 a.m.," NASA Historical Reference Collection.
- ³⁷ National Photographic Interpretation Center, "Analysis of Soviet Manned Space Flight Launch Facilities," NPIC/R-1567/63, December 1963. The Soviet propaganda films were titled "First Voyage to the Stars," and "Again to the Stars," and depicted the flights of Yuri Gagarin and Gherman Titov, respectively. The magazines were *USSR* and *Soviet Union*.
- ³⁸ Henry G. Plaster, "Snooping on Space Pictures," p. 32.
- ³⁹ Plaster, "Snooping," 34–38.
- ⁴⁰ National Photographic Interpretation Center, "Preliminary Analysis of *Luna-9* Photography," NPIC/R-5017/66, June 1966, p. 1.
- ⁴¹ Kenneth A. Young and Stephen P. Condon, Rendezvous Analysis Branch, to Informal Distribution, "Analysis of Unmanned Russian Rendezvous Mission," 23 December 1967, Apollo Collection, University of Houston, Clear Lake.
- ⁴² Hugh L. Dryden, Deputy Administrator, NASA, Memorandum for Horace Busby, Special Assistant to the President, 19 March 1965.
- ⁴³ Ironically, at this point the rocket that was to use this launch complex was intended for launching a space station, not a manned mission to the Moon. It was only later that the rocket was redirected toward the lunar goal. This fact highlights just how difficult the intelligence job could be.
- ⁴⁴ National Photographic Interpretation Center, "Tyuratam Missile Test Center," TCS-2681/64, 2 July 1964.
- ⁴⁵ Chief, CIA/PID, Memorandum for Chief, Ballistic Missiles and Space Division, OSI, "Comparison of Complex J, Tyuratam Missile Test Center with Launch Complex K and Deployed Single Silo ICBM Sites," TCS 9144/64, 9 November 1964.
- ⁴⁶ "Soviet Space Progress," *Aviation Week and Space Technology* (13 November 1967): p. 33.
- ⁴⁷ Central Intelligence Agency, "National Intelligence Estimate, Number 11-1-65, The Soviet Space Program," 27 January 1965, p. 11.
- ⁴⁸ Central Intelligence Agency, "National Intelligence Estimate, Number 11-1-65," pp. 18–19.
- ⁴⁹ James E. Webb, Administrator, NASA, Memorandum for Dr. Wernher von Braun, Director, Marshall Space Flight Center, 17 December 1966. In October 1966, at the annual meeting of the International Astronautical Federation in Milan, Italy, rumors surfaced of a new large Soviet Moon rocket. These rumors soon apparently made their way into the European press, for James Webb quickly left Milan to return to the United States in order to avoid being asked about the reports.
- ⁵⁰ Central Intelligence Agency, "National Intelligence Estimate, Number 11-1-67, The Soviet Space Program," 2 March 1967, p. 23.

- ⁵¹ Julian Scheer, Assistant Administrator for Public Affairs, Memorandum to Distribution, 7 November 1967, with attached: "Background Material: Some Representative Statements by Mr. Webb to Congress or the Press on the Soviet Space Program," p. 2.
- ⁵² Evert Clark, "New Soviet Shot Is Expected Soon," *The New York Times* (19 August 1967): A1.
- ⁵³ The earliest reference I have found to the term "Webb's Giant" dates from September 1969. But the author wrote that the rocket vehicle "is sometimes referred to as 'Webb's Giant,'" indicating that the author himself had not coined the term. If anybody can supply an earlier example of the use of this term, I would appreciate it. G. Harry Stein, "The Big Boosters of the U.S.S.R.," *Analog, Science Fiction, Science Fact* (September 1969): p. 68.
- ⁵⁴ "Background Material: Some Representative Statements by Mr. Webb to Congress or the Press on the Soviet Space Program," Stein, "The Big Boosters," p. 6.
- ⁵⁵ Central Intelligence Agency, "Memorandum to Holders, National Intelligence Estimate Number 11-1-67, The Soviet Space Program," 4 April 1968, p. 1.
- ⁵⁶ Central Intelligence Agency, "Memorandum to Holders," pp. 1-2.
- ⁵⁷ National Photographic Interpretation Center, "Tyuratam Missile Test Center," RCA-15/0009/69, February 1969, p. 6. There were clear weaknesses to CIA intelligence assessments. The 1969 NIE, released in June 1969, stated "there is no evidence that the program is experiencing major technical difficulties." The CIA was completely unaware of the failure of the first launch in February 1969. Central Intelligence Agency, "National Intelligence Estimate, Number 11-1-67, The Soviet Space Program," 19 June 1969, p. 14.
- ⁵⁸ Launius, "NASA Looks to the East," pp. 10-12.
- ⁵⁹ Probably the most detailed discussion of the *Apollo 8* decision is in Murray and Cox's excellent history of Apollo. Charles Murray and Catherine Bly Cox, *Apollo: The Race to the Moon* (New York: Simon and Schuster, 1989), pp. 315-324.
- ⁶⁰ There was no propaganda aspect to the decision to fly the mission during Christmas. This was determined by the available launch windows.
- ⁶¹ Donald Hornig, Memorandum for the President, "NASA Distortion of Where the U.S. Stands in Space," 26 September 1968, Lyndon Johnson Presidential Library.
- ⁶² Memorandum for Dr. Hornig [no author, no date], Lyndon Johnson Presidential Library. The memo is confusing, for the author states "I have supported his strong desire to present to the Congress . . ." But it also refers to Webb's service "during both the Kennedy and Johnson Administrations." If the memo was written by Johnson, why does he not write "my administration"? Nevertheless, the most obvious conclusion is that the memo was written by Johnson, and it certainly offers a firm defense of James Webb.
- ⁶³ E. C. Welsh, "Zond 5," 28 September 1968, Lyndon Johnson Presidential Library. It is unclear to whom Welsh wrote this memo or if it ever reached the President.
- ⁶⁴ E. C. Welsh to the President, 30 September 1968, Lyndon Johnson Presidential Library.
- ⁶⁵ James E. Webb, Administrator, to the President, 1 October 1968, Lyndon Johnson Presidential Library.
- ⁶⁶ James E. Webb, Administrator, to the President, 2 October 1968, Lyndon Johnson Presidential Library.

- ⁶⁷ James E. Webb, Administrator, NASA, Memorandum for the President, "Letter from Dr. Edward C. Welsh with respect to my statement on US and USSR positions in space," 5 October 1968, Lyndon Johnson Presidential Library.
- ⁶⁸ Although the reasons why Webb announced his resignation when he did are somewhat unclear, this debate is ultimately of limited importance, for Webb was going to be out of a job no matter what, and whether he left in October or in December made little difference.
- ⁶⁹ W. W. Rostow, to President, "Information," 24 September 1968, Lyndon Johnson Presidential Library.
- ⁷⁰ T. O. Paine, Acting Administrator, NASA, to Richard M. Helms, Director of Central Intelligence, 4 December 1968.
- ⁷¹ T. O. Paine, Administrator, NASA, Memorandum to Dr. Mueller, Dr. Naugle, and Mr. Beggs, "Comparison of Projections of USSR and U.S. Space and Aeronautics Programs," 31 January 1969.
- ⁷² On 2 December, Science Advisor Donald F. Hornig sent Johnson an assessment of the Soviet space program produced by his Space Science and Technology Panel based on access to "high level intelligence data." The panel concluded that "The United States is leading in its manned lunar landing program by at least a year relative to the Soviets." It further determined that "The Soviets are likely to try to minimize the effect of this leadership by attempting: a) a manned circumlunar flight within the next three months, b) an unmanned soft lunar landing with the return of a lunar sample to earth before the U.S. manned lunar landing." The panel also concluded: "With the present trend towards stretchout of manned lunar exploration by the United States following the first successful Apollo mission, it is probable that the Soviet Union will at least equal U.S. efforts in manned lunar exploration in the early [19]70's. The mode of accomplishment of the manned lunar landing that we expect the U.S.S.R. to adopt will be particularly well adapted to follow on exploration after the first landing." In other words, *Hornig's panel reached the same conclusion that Webb had*—the Soviet Union would eventually catch up and possibly surpass the United States in lunar and planetary exploration. Of course, both Webb and Hornig's panel were wrong. The Soviet Union suffered a string of launch failures involving the N-1 and the country never made major strides beyond low Earth orbit. Donald F. Hornig, Memorandum for the President, "Assessment of the Soviet Space Program," 2 December 1968, with attached: "Space Science and Technology Panel Report: An Assessment of the Soviet Space Program," Lyndon Johnson Presidential Library.