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Chapter 7

How Sputnik Put a Man on the Moon*

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Abstract

On October 4, 1957, the world witnessed an event that would change our perception of everything around us: the launch of *Sputnik*. In 2017, the world celebrates the 50th anniversary of the event that set the pace for one of mankind's biggest achievements: a man on the Moon.

Sputnik's political impact, the advancement of science and the endless possibilities provoked surprise, fear and illusion. It marked the beginning of an era and, even indirectly, contributed to the development of technology and society's support that would allow, just four years later, US President John F. Kennedy to announce the dramatic and ambitious goal of sending an American safely to the Moon before the end of the decade.

After *Sputnik*, a number of political factors affected Kennedy's decision and the timing of it. In general, the United States was under pressure to "catch up and overtake" the Soviet Union in the space race. Cosmonaut Yuri Gagarin had become the first human in space on April 12, 1961, greatly embarrassing the US. Although Alan Shepard became the first American in space on May 5, 1961, he

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only flew a short suborbital flight instead of orbiting the Earth, as Gagarin had done. In addition, some international events like the Bay of Pigs fiasco in mid-April contributed to increasing pressure on the US president. Kennedy wanted to announce a program that the United States had a strong chance of achieving before the Soviet Union. After consulting with its vice president, NASA administrator, and other officials, Kennedy concluded that landing an American on the Moon would be a very challenging technological feat, but an area of space exploration in which the United States actually had a potential lead.

This chapter analyzes key events, both political and space related, that began with *Sputnik's* launch and occurred until the US announcement to put a man on the Moon in May 1961. It will also cover *Sputnik's* preparation and launch, the reaction to it and how it affected the decision to go to the Moon, taking into account the political context of the Cold War at the time.

I. Introduction

After the Second World War, the world became bipolar, divided between two different ideologies (Socialism vs Capitalism) represented by the USSR and the United States. This was the main reason for the Cold War that lasted until 1989 when the Berlin Wall was demolished.

The first half of the Cold War can be divided into three periods.

1. 1945–1947: gradual beginning
2. 1947–1949: declaration of the Cold War
3. 1950–1962: Cold War apogee

William Burrows says “the Cold War would become the engine, the supreme catalyst that sent rockets and their cargoes far above Earth.”¹ After the end of World War II, the superpowers realized that satellites would be more effective than airplanes because they would provide more range for collecting intelligence. In addition, satellites would bring an additional increase in the security margin because they would not violate international law, unlike an airplane that would be flying over a foreign country without its permission.

Since end of the 1940s, supporters of space exploration were preparing for space conquest “with elaborate visions of promise and fear.” The launch of the first satellites, combined with the promotion of spaceflights in a popular culture, led political leaders to pursue more ambitious goals.

This chapter will focus on the third period, in particular between 1957 (launch of *Sputnik* by the USSR) and 1962 (Kennedy speech of May 25 announcing a man on the Moon before the end of the decade).

During this period, a number of technical, scientific, and political events took place that set the right conditions put a man on the Moon.

II. 1957: The Tipping Point

In October 1957, in the midst of the Cold War, the USSR launched *Sputnik*, the first artificial satellite, into orbit, proving that the Soviets were not as technologically backward as Americans thought.

The day after the launch, the Soviet newspaper *Pravda* published only a small factual report, following the Soviet leader's motto of discretion. The next day, after soviet leader Khrushchev realized that the launch had been a tremendous advertising success in the West, *Pravda* published headlines describing the achievement.² The Soviet press described the importance of artificial satellites as a means for "interplanetary travel, and apparently, our contemporaries will witness how the freed and conscientious work of the people of the new socialist society makes the most daring dreams of mankind a reality."³

Before *Sputnik*'s success, Khrushchev considered the Soviet space program as an impediment to the missile program and a waste of resources⁴. However, when he realized the international reaction to the launch of the Soviet satellite, *Sputnik*, he changed his mind.

Khrushchev told a Danish journalist in January 1958 "the launch of the Soviet Sputniks shows in the first place ... that there has been a serious shift in the balance of power between the socialist and capitalist countries in favor of the socialist nations."⁵ In a single coup, the Soviet Union defeated the United States not only scientifically but also militarily: this success meant that the Soviet Union could target the United States with intercontinental ballistic missiles (IC-BMs), especially in the potentially decisive new arena—space.

In the United States, news of the launch was received with a mixture of surprise and panic as it realized that American cities were now within reach of a nuclear attack by Soviet missiles.⁶ It became clear that the balance of power had changed, allowing the potential enemy to drop nuclear weapons from orbit without warning.

Before the launch of *Sputnik*, the United States was going through a period of economic growth and national pride since the end of World War II. The nation was "buoyed by its resolve, courage, and confidence in its scientists, engineers and technicians to create stunning technological advances on short notice."⁷ The launch of *Sputnik* changed all that.

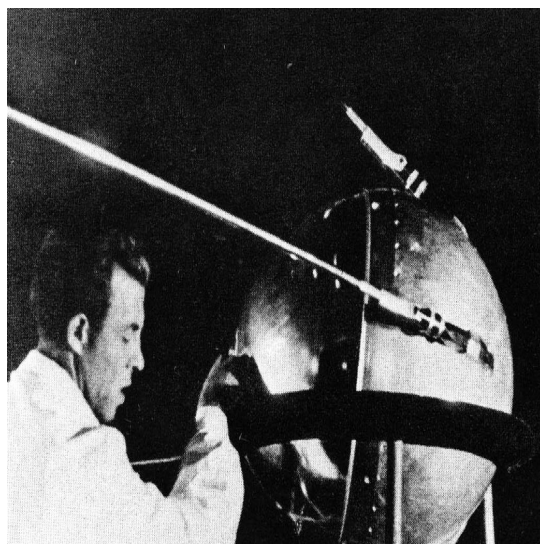


Figure 7-1: The image shows a technician putting the finishing touches on *Sputnik*. The pressurized sphere, made of aluminum alloy, had five primary scientific objectives: Test the method of placing an artificial satellite into Earth orbit; provide information on the density of the atmosphere by calculating its lifetime in orbit; test radio and optical methods of orbital tracking; determine the effects of radio wave propagation through the atmosphere; and, check principles of pressurization used on the satellites. Credit: NASA/Asif A. Siddiqi.

In January 1958, hours after *Sputnik* re-entered the atmosphere, Gabriel Heatter, an influential commentator on the Mutual Broadcasting System, in a radio editorial titled “Thank You Mr. Sputnik,” said:

“You will never know how big a noise you made. You gave us a shock, which hit many people as hard as Pearl Harbor. You hit our pride a frightful blow. You suddenly made us realize that we are not the best in everything. You reminded us of an old-fashioned American word, humility. You woke us up out a long sleep. You made us realize a nation can talk too much, too long, too hard about money. A nation, like a man, can grow soft and complacent. It can fall behind when it thinks it is Number One in everything. Comrade Sputnik, you taught us more about the Russians in one hour than we had learned in forty years.”⁸

Soviet success elicited a worldwide reaction that James Killian described as “Confidence in American science, technology, and education suddenly evaporated.”⁹

The United States Information Agency, in a report drawn up shortly after *Sputnik*’s orbit, stated, “Soviet claims of scientific and technological superiority over the West and especially the US have gained greatly wider acceptance. Pub-

lic opinion in friendly countries concerts concerning the possibility that the balance of military power has shifted or may shift in favor of the USSR.”¹⁰



Figure 7-2: First page, *New York Times*, October 5, 1957. Credit: *New York Times*.

Director of the Central Intelligence Agency Allen Dulles reported to the National Security Council on October 10 that the speed of Soviet advancements that put *Sputnik* in orbit was partially related to the Soviets reconciling the ICBM program and the satellite program.¹¹

The launch of *Sputnik* was a humiliating defeat for the United States, but also a fact that changed American policy, giving new impetus to the US space program. Three days after the launch, US President Eisenhower pressed the Pentagon to speed up the development of a spy satellite, a program that had been

quietly pursued previously having in mind the increasing vulnerability of reconnaissance aircraft (e.g., U-2).

With the launch of *Sputnik* and the worldwide reaction to it, Khrushchev began to outline a new space strategy as well: “Of course we tried to derive maximum political advantage from the fact that we were the first to launch our rockets into space. We wanted to exert pressure on American militarists—and influence the minds of more reasonable politicians so that the United States would start treating us better.”¹²

Although the military balance still favored the West, Khrushchev made a point of minimizing this by stating that “our missiles were still imperfect in performance and insignificant in number” but “we can launch satellites because we have a carrier for them, namely the ballistic rocket.”¹³

Meanwhile, the United States considered the launch of *Sputnik* as a major legal precedent in air/space freedom. Donald Quarles¹⁴ highlighted “that none of the many nations that have been overflown by the Soviet satellite appears to have raised objection on the ground that its territorial rights have been infringed. This seems to establish the validity of the concept that outer space is international in character.”¹⁵ Days after *Sputnik* launched into orbit, US President Eisenhower specifically questioned the possibility of developing reconnaissance satellites. Donald Quarles of the Pentagon then described the Air Force project WS-117L.

Speaking to the press, Eisenhower (unsuccessfully) attempted to downplay US concerns about Soviet success by describing it as “one small ball in the air.”¹⁶ However, he recognized that the USSR had developed a powerful propulsion system, but at the same time did not publicly show any intention to accelerate the program of intercontinental missiles or US satellites although the US was not in the forefront of production in that field.¹⁷ Although they had been developing space technology programs since 1954, (civilian) US efforts to put a satellite into orbit had remained modest and only started growing on a large scale with the launch of *Sputnik*.¹⁸

As it fueled the space race, *Sputnik* also led to the development and production of technological weapons. As George Kennan wrote in his memoirs:

“It caused Western alarmists... to demand the immediate subordination of all other national interests to the launching of immensely expensive crash programs to outdo the Russians in this competition. It gave arguments to the various enthusiasts for nuclear armament in the American military—industrial complex. That the dangerousness and expensiveness of this competition should be raised to a new and higher order just at the time when the prospects for negotiation in this field were being worsened by the introduction of nuclear weapons into the armed forces of the Continental NATO powers was a development that brought alarm and dismay to many people besides myself.”¹⁹

The launch of the first US satellite was scheduled for December 1957, but anyone familiar with poorly-funded civilian Vanguard program knew that this was extremely optimistic. Meanwhile, the Soviets had already launched *Sputnik II* and the dog Laika had started her space flight. On November 7, Eisenhower made a statement to the American people, stressing the nation's military strength:

“It's my conviction, supported by trusted scientific and military advisers, that although the Soviets are quite likely ahead in some missile and special areas and are obviously ahead of us in satellite development, as of today the over-all military strength of the free world is distinctly greater than that of the Communist countries. We must see to it that whatever advantages they have are temporary only.”²⁰

III. 1958 and 1959: Let's Do It Peacefully

The year 1958 started with good news for the United States. On January 31, 1958, the United States successfully launched *Explorer 1*, the first US satellite. After this launch and throughout the year, the United States attempted to launch four more *Explorer* satellites. However, only two of these launches were successful.

Perhaps the 1958 action with the greatest impact on the future of US space exploration was the creation by the US Congress of ad hoc committees, chaired by the majority leaders, to consider legislative needs to meet the new problems created by the beginning of the Space Age. In the summer, the National Aeronautics and Space Act came into being. President Dwight D. Eisenhower and Congress formally established the National Aeronautics and Space Administration—NASA—on October 1, 1958. According to NASA, its “birth was directly related to the pressures of national defense.”²¹

Only seven days after its birth, NASA announced its Human Space Flight Program. The human spaceflight initiatives included: Project Mercury's single astronaut program (flights during 1961–1963) to ascertain if a human could survive in space; Project Gemini (flights during 1965–1966) with two astronauts to practice space operations, especially rendezvous and docking of spacecraft and extravehicular activity (EVA); and Project Apollo (flights during 1968–1972) to explore the Moon.²²

III.1. Berlin Crisis

Despite all the progress and successes of the civilian (and military) US space program, the Cold War was still very much a reality.

The demonstration of an intercontinental ballistic missile capability that the USSR demonstrated in 1956, followed by the launch of *Sputnik* in 1957 and *Vostok* in 1961, led to growing worries from the US and its allies about the military balance in Europe. Because of this, the US and its allies decided in late 1957 to deploy US intermediate range missiles that would presumably also be available to West Germany.²³

By December, the Cold War escalated further when Khrushchev demanded Western powers withdraw their occupation forces from their Berlin sectors within six months. In his ultimatum, Khrushchev threatened to give control of all access routes of West Berlin to East Germany. In response, the United States, United Kingdom, and France strongly expressed their determination to remain in West Berlin and to maintain their legal right of free access to it. This led to one of the most dangerous and longest crises of the Cold War.²⁴

Tensions mounted over this period, with both sides taking action to protect their interests, one of which was guaranteed access to and from West Berlin.

In May 1959, although USSR withdrew its deadline, the foreign ministers of the four occupation countries spent three months meeting in vain. No major agreement was achieved. This process led to further negotiations. Khrushchev visited the United States in September 1959. At the end of the visit, both leaders asserted that general disarmament was of utmost importance and that issues such as Berlin “should be settled, not by the application of force, but by peaceful means through negotiations.”²⁵

The Eisenhower-Khrushchev talks held at Camp David did not get further than an agreement to disagree: “There was nothing more inadvisable in this situation,” said Eisenhower, “than to talk about ultimatums, since both sides knew very well what would happen if an ultimatum were to be implemented.”²⁶ Khrushchev responded that he did not understand how the American people could regard a peace treaty as a “threat to peace.” Eisenhower admitted that the situation in Berlin was “abnormal” and that “human affairs got very badly tangled at times.”²⁷

Khrushchev left the US with the impression that a deal was possible over Berlin, and they agreed to continue the dialogue at a summit schedule to take place in Paris in May 1960. However, the Paris Summit that was to solve the Berlin question was cancelled in the fallout from Gary Powers’ failed U-2 spy flight on May 1, 1960.

2. Final Kennedy-Khrushchev Exchange on Berlin, June 4

In a last brief meeting with Khrushchev alone in the afternoon of June 4, the President once more pointed out to him Berlin's importance to the United States and expressed the hope that the Soviet Union would not present him with a situation deeply involving America's national interest. The President conceded that the Soviet Union had to make its own decisions regarding Berlin, but he urged that these decisions be considered carefully and that Soviet-American relations be developed in a way that would avoid a direct confrontation between the two countries.

Khrushchev stated in reply that he appreciated the President's frankness but also said that if the borders of the GDR on land, sea, or in the air were violated, as a result of insistence by the United States on its rights in Berlin following the signing of a separate peace treaty, they would be defended. The Soviet Premier warned that, if the United States envisaged any action that would bring about unhappy consequences, "force would be met by force," and that both countries would have to prepare themselves for that situation. Khrushchev made also clear, in answer to a question by the President, that under an interim agreement Western forces would remain in Berlin for six months but would then have to be withdrawn.

The President declared that either Khrushchev did not believe that the United States was serious or the Soviet Union found the existing situation in Berlin so unsatisfactory that it felt compelled to take such drastic action. President Kennedy stated that at his forthcoming meeting with British Prime Minister Macmillan he would have to state his impression that the USSR was presenting him with the alternative of accepting the Soviet Union's action on Berlin or having to face confrontation. He, the President, had come to Vienna to prevent such a confrontation and he therefore regretted that he had to leave Vienna with this impression.

Khrushchev then stated that for the sake of saving prestige one might agree that token contingents of troops, including Soviet troops, could be maintained in West Berlin although not on the basis of occupation rights but of some agreement registered with the United Nations. Khrushchev made it clear, however, that access to Berlin would be subject to control by the GDR. In the course of this particular discussion, Khrushchev asserted that

Figure 7-3: A State Department analysis of the June 4 Kennedy-Khrushchev meeting reported on the Soviet premier's hard stance, that his nation would defend any violation of the German Democratic Republic's borders on land, sea, or in the air, thus cutting access to West Berlin. Kennedy responded that the USSR was presenting him with the choice of accepting the Soviet Union's actions in Berlin or having to face confrontation. Credit: United States National Archives.

IV. 1960

The year 1960 was marked by politic events that set the tone in Kennedy's speech pushing to put a man on the Moon the following year.

IV.1. May: U-2 Shot Down

Eisenhower's Cold War strategy explicitly included covert action. During World War II, European Theatre Commander Eisenhower gained a passion for intelligence based on aerial imagery that was reflected in his presidency. From the beginning of his term, Eisenhower strongly promoted the development of American intelligence through image collection. While recognizing that satellite

photo-reconnaissance would be much safer than risky overflights of foreign territory, it was assumed that technological problems, including the development of viable launch vehicles, would delay the operation of the system until the mid-1960s, at best. For this reason, the Eisenhower administration also went ahead with advanced aviation projects, including a supersonic spy plane after it became clear that even the U-2 could be detected by Soviet radar.²⁸

Although Eisenhower considered the U-2 missions of extreme importance, he was eager for an alternative data-gathering solution in order not to provoke the Kremlin. For this reason, he was quite reluctant to authorize as many missions as Richard Bissel²⁹ wanted.³⁰

The U-2's primary mission was to search for and monitor the production of ICBMs and the development of atomic energy facilities on Soviet territory.³¹

In 1960, the U-2 missions on Soviet soil abruptly ended when one of the planes was shot down on May 1. The flight plan of this U-2, piloted by Gary Powers, would have given him the possibility of photographing the new Soviet missile base in Plesetsk, in the north east of the Soviet territory. It would also fly over Tyuratam's missile and space test sites and the bomb-building complex in Chelyabinsk. However, the long flight time allowed the Soviets to detect the U-2 while still flying over Afghan territory. The Soviets fired three SA-2 missiles as Powers' U-2 flew over the area near Sverdlovsk.³²



Figure 7-4: Flight route of Gary Powers over the Soviet Union.
Credit: aerospaceweb.org.

On May 3, Eisenhower approved a cover story to hide the real U-2 missile mission: “The NASA U-2 research plane, being flown in Turkey on a joint NASA-USAF Air Weather Service Mission, apparently went down in the Lake Van, Turkey, area at about 9:00 a.m. (3:00 e.d.t) Sunday, May 1.”³³

Khrushchev issued a statement that stressed, “this latest flight, towards Sverdlovsk, was an especially deep penetration into our territory and therefore an arrogant violation of our sovereignty. We are sick and tired of these unpleasant surprises, sick and tired of being subject to these indignities. They were making these flights to show our impotence. Well, we were not impotent any longer.”³⁴ Georgi Zhukov, the dean of Russian space law theorists, warned in October 1960 that since the USSR proved that it could shoot down US spy planes, the United States would hasten the development of new methods of putting satellites into orbit. The kind of information provided by spy satellites “can be of importance ... solely for the state which contemplates aggression and intends to strike the first blow.”³⁵

On August 18 of that year, the United States successfully launched the *Discoverer XIV* satellite from the Vandenberg Air Force Base, starting a new era in imagery intelligence. This spy-satellite, covered up as a civilian experiment, showed the first images of four operational Soviet ICBMs.³⁶

IV.2. Kennedy Elected

It was in this climate of defeat, mistrust and tension that the American presidential elections took place on November 8, 1960. The two main candidates were Richard M. Nixon and Senator John F. Kennedy.

John F. Kennedy won the US presidency in part by attacking Eisenhower’s domestic and foreign policy, with an emphasis on defense and space, but also by claiming that Eisenhower was both too soft and too rash in regards to Cuban affairs (see point IV.3). Kennedy saw space as a conflict arena and, in his inaugural speech, made a point of highlighting US achievements in space despite the clear Soviet advance in that field. At the same time, he appealed for Soviet cooperation to explore the stars jointly, while warning that if the Communists continued to challenge the United States in space, they would be acting in a dangerous way and as such should be prepared for the consequences that would follow.³⁷



Figure 7–5: “A New Leader for the 60’s” campaign pamphlet. Credit: JFK Library and Museum.

IV.3. Cuba Aligns with USSR

Until 1959, Cuba was ruled by Fulgencio Batista, a US-backed dictator who was overthrown by a group of rebels led by Fidel Castro. Tensions arose in US-Cuba relations when the US cut off all aid. In response, Castro nationalized all US assets on the island. Intelligence information reaching the desk of Eisenhower led him to believe that “Communists began permeating Cuba’s life and government,”³⁸ and therefore actions should be taken against Castro. “We could not afford to appear the bully.”³⁹ The common perception was that if the Communist influence was just a few miles away from the US, they were able to do anything!



Figure 7–6: Castro leads his victorious troops.
Credit: History Archive/Rex/Shutterstock.

On August 18, 1959, the CIA’s Richard Bissel and Allen Dulles presented a paramilitary operation plan to Eisenhower to create a unified Cuban opposition because there was no organized resistance in Cuba.⁴⁰

In December 1959, J. C. King⁴¹ recommended to Allen Dulles that “thorough consideration be given to the elimination of Fidel Castro.”⁴² However, Dulles showed little enthusiasm for such drastic measures. Still several assassinations were ordered with or without Eisenhower’s knowledge with few practical results.

US actions did not stop there, and Eisenhower authorized a covert action to oust Castro from power: The Bay of Pigs. This action actually only took place in April 1961. Eisenhower was no longer in the White House. Kennedy, the recently elected US president, was.

V. 1961: Setting the Target

V.1. Man in Space

The year 1961 started with bad news for the United States. Yuri Gagarin, a pilot and cosmonaut from the Soviet Union, became the first man in space, in his *Vostok* spacecraft on April 12.



Figure 7-7: Russian cosmonaut Yuri Gagarin (left, on the way to the launch pad) became the first human in space, in the flight of his *Vostok 1* spacecraft. Newspapers like the *Huntsville Times* (right) trumpeted Gagarin's accomplishment. Credit: NASA.

In fact, the US was not far away from putting a man in space. Alan Shepard achieved it 23 days later, on May 5, 1961. However, Alan Shepard's mission also had two major downsides: he was the second and not the first man in space; it was also less impressive than Gagarin as his craft entered space but did not achieve orbit around Earth.

Once again, USSR was first in space field. According to John Logsdon, "This wasn't a Soviet success, but an American failure."⁴³

V.2. Bay of Pigs Crisis

The Bay of Pigs invasion took place in April 1961, a few days after Gagarin's achievement. The Bay of Pigs was a disaster for the US. In total, about 1,500 rebels were killed or captured.⁴⁴

The consequences of such a failure were quite predictable. Although the action had been prepared (but not approved) under his predecessor, Kennedy was the executive in power at the time the green light was given. Unfair or not, it was his reputation that was damaged. Kennedy did his best to downplay the damage.

Four days after the event he stated, “There’s an old saying that victory has 100 fathers and defeat is an orphan.”⁴⁵ Castro was more firmly in place than ever.⁴⁶

By end of 1961, Cuba officially embraced communism, created the Cuban Communist Party, and edged closer to the Soviet Union, including accepting the deployment of nuclear arms in Cuba’s territory to prevent future US attacks. The scene was set for the Cuban Missile Crisis that took place in October 1962, and the “stage was set for further confrontation between America and the Soviet Union.”⁴⁷

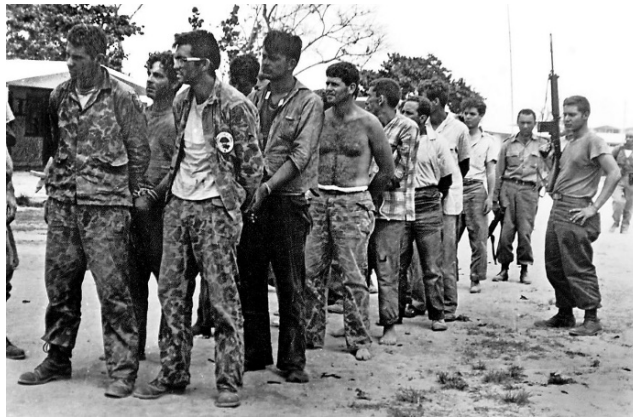


Figure 7-8: This April 1961 file photo shows a group of Cuban counter-revolutionaries, members of Assault Brigade 2506, after their capture in the Bay of Pigs, Cuba. Credits: Miguel Vinas/AFP/Getty Images.

V.3. “It Is a National Effort”

Following the Bay of Pigs fiasco, and after the American people was celebrating the success of Alan Shepard’s first (suborbital) spaceflight, Kennedy sought to upstage the Soviet Union’s successes in space. On April 20, 1960, Kennedy ordered Vice President Lyndon Johnson to assess America’s standing in the race for Space.⁴⁸

John Logsdon describes Kennedy’s state of mind in two ways: The Gagarin flight was a failure to the United States; and “it was just a question of Kennedy’s responding to public opinion about Gagarin. I think he [Kennedy] had his own very personal reaction. He always had a very strong need to be first. He was a very competitive person. He was looking for an opportunity to show leadership and take some kind of bold action.”⁴⁹

Shepard’s flight was enough to boost President Kennedy’s confidence regarding the US space program.

It was in this context of international tension, defeat and Kennedy's spirit of competitiveness that, on May 25, Kennedy addressed a Joint Session of Congress to deliver a Special Message to Congress on Urgent National Needs. In his speech, he recognized the recent defeat of the United States at both a political level and in space:

“Finally, if we are to win the battle that is now going on around the world between freedom and tyranny, the dramatic achievements in space which occurred in recent weeks should have made clear to us all, as did the Sputnik in 1957, the impact of this adventure on the minds of men everywhere, who are attempting to make a determination of which road they should take. Since early in my term, our efforts in space have been under review. With the advice of the Vice President, who is Chairman of the National Space Council, we have examined where we are strong and where we are not, where we may succeed and where we may not. Now it is time to take longer strides—time for a great new American enterprise—time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on earth. (...) Recognizing the head start obtained by the Soviets with their large rocket engines, which gives them many months of lead time, and recognizing the likelihood that they will exploit this lead for some time to come in still more impressive successes, we nevertheless are required to make new efforts on our own. For while we cannot guarantee that we shall one day be first, we can guarantee that any failure to make this effort will make us last. We take an additional risk by making it in full view of the world, but as shown by the feat of astronaut Shepard, this very risk enhances our stature when we are successful. But this is not merely a race. Space is open to us now; and our eagerness to share its meaning is not governed by the efforts of others. We go into space because whatever mankind must undertake, free men must fully share.”⁵⁰



Figure 7-9: President Kennedy speaking to Congress and the nation at the joint session of Congress on May 25, 1961. Credit: NASA.

It was in this speech that Kennedy revealed his intentions, including his goal to restore the US image, confidence and prestige. Kennedy asked for the financial support of Congress:

“I believe that 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 the earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish. (...) We propose additional funds (...) for one purpose, which this nation will never overlook: the survival of the man who first makes this daring flight. But in a very real sense, it will not be one man going to the moon—if we make this judgment affirmatively, it will be an entire nation. For all of us must work to put him there.”⁵¹

Kennedy’s words were perceived in different moments in time as being a presidential directive. However, “this would be to misinterpret the authority of any President to give such orders. More accurately, it was a question: would Congress agree with his proposal, and if so, would it authorize the funds.”⁵² In fact, few people seemed concerned with the budgetary needs for such a proposal and even less with the timeframe proposed. Kennedy had, without a doubt, capitalized on the national mood, imagination and strong support to make America great again. “Like most political situations, at least in US experience, the decision to carry project Apollo was an effort to deal with an unsatisfactory situation (world perception of Soviet leadership in space and technology).”⁵³

VI. Conclusions

Kennedy’s speech was the tipping point for two space races: to put humans in space⁵⁴ and to achieve the technological development to satisfy the desire to put means in space that would allow military superiority.⁵⁵

The propaganda of the Soviet triumphs rested on the launch vehicles and on the *Sputnik* trial. It was therefore inconceivable for Khrushchev to see, in 1961, Kennedy sending Americans to the Moon and see his country delayed in the space race. Khrushchev therefore encouraged Sergei Korolev⁵⁶ and others who developed plans to go to the Moon and to Mars, since what was needed was a greater level of coordination that did not exist.⁵⁷

Korolev developed three separate programs to put the Soviets on the Moon in parallel with the American one. Vostok carried cosmonauts into space in the same way that Mercury and Gemini carried astronauts. The second, Luna, was identical to the three American programs of lunar exploration. The last, Program N, was intended to develop a launcher similar to Saturn, although officially un-

recognized, as in the American case, whose main purpose would be to take men to the Moon.⁵⁸

There is no doubt that the Apollo program was created under exceptional political circumstances, and such far-reaching decisions are not likely to be repeated in the near future. Kennedy's decision to put a man on the Moon was made within a very short time frame during a crisis management situation (e.g., Berlin, Cuba, Gagarin) and "with emphasis on short-term political payoff to save face for the Administration."⁵⁹

It is important to keep in mind that history would be completely different if in just a few days after Kennedy's speech, Khrushchev had accepted Kennedy's proposal to turn the Moon landing program into a joint effort. However, the Sputnik effect was still well imprinted in Khrushchev's mind. Khrushchev's pride led him to refuse Kennedy's proposal. Therefore, the United States, alone, put a man on the Moon in 1969 and history was made.

In the end, both the Cold War-fueled US and Soviet Moon programs resulted in the long-range development of the Apollo-derived Skylab program and the *Salyut* and *Mir* space stations in the Russia, culminating in today's *International Space Station*.

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- ²⁹ Richard Bissel was the Chief for Covert Operations of CIA on the second half of 1950s.
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- ⁵¹ *Idem, ibid.*, access 04.09.2017.
- ⁵² *Idem, ibid.*, p. 40.
- ⁵³ Launius, Roger D. (2012), “Why Go to the Moon? The Many Faces of Lunar Policy,” Elsevier, *Acta Astronautica*, n. 70, p. 167.
- ⁵⁴ Valentina Tereshkova had become the first woman in space, Yuri Gagarin had completed a return to Earth from orbit, and within months, Aleksei Leonov would perform the first spacewalk. The US objective implemented by Kennedy would be to put Americans on the Moon as a way for the United States to regain its prestige in the international arena.
- ⁵⁵ Burrows, *ibid.*, pp. 387.
- ⁵⁶ During World War II, Sergei Korolev sent to the gulags by the Soviets and spent years designing and testing liquid fuel for rocket boosters of military aircraft. After the war, he modified the German missile V-2, increasing its range to 685 km. In 1953, he began to develop the series of ballistic missiles that led to the first Soviet ICBM. After Stalin’s death, Korolev was responsible for the engineering systems of the Soviet launchers and ships (Vostok, Voskhod and Soyuz). Korolev was the genius behind Soviet manned spaceflight. <http://www.odessit.com/namegal/english/korolev.htm> , access 11.05.2011.
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