The Space Race: Its Sociocultural Effects on Americans and Russians

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ABSTRAKT

Tato bakalářská práce popisuje původ vesmírných závodů a zabývá se vybranými událostmi vesmírných závodů, které autor vybral z mnoha jako nejdůležitější. Mezi diskutovanými událostmi jsou např. první umělé družice, první lidé ve vesmíru, apod. Práce se zaměřuje na sociokulturní dopady vesmírných závodů na Američany a Rusy v té době, porovnává je a také poskytuje některá historická fakta, které obeznámí čtenáře s daným tématem. Cílem je nejen popsat události obecně, ale určit, jak byly ovlivněny zmíněné národy. Hlavním cílem je zjistit, která země byla více ovlivněna vesmírnými závody.

Klíčová slova:

Vesmír, Apollo, Sputnik, Explorer 1, USA, Sovětský svaz, Spojené Státy Americké, Studená Válka, vesmírné závody, vesmírný program, vliv médií, sociokulturní vliv

ABSTRACT

The bachelor thesis describes the origins and deals with selected events of the Space Race, which the author has chosen from many others as the most influential. Among events discussed are for example launching of the first artificial satellites, first men in space, etc. The thesis focuses on the sociocultural effects of the Space Race on Americans and Russians during that time, compares them and also provides some historical facts to acquaint readers with the topic. Its aim is not only to describe the events in general but to see what effects had the Space Race on the two nations mentioned. Its main goal is to find out which of the countries was more influenced by the Space Race.

Keywords:

Space, Apollo, Sputnik, Explorer 1, the U.S., the Soviet Union, the United States of America, the Cold War, Space Race, the space program, the influence of media, sociocultural effects

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I hereby declare that the print version of my Bachelor's/Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

CONTENTS

INTRODUCTION

“The Soviet Union has become the seacoast of the universe.”

Sergei Korolev

“Don't tell me that man doesn't belong out there. Man belongs wherever he wants to go - and he'll do plenty well when he gets there.”

Werner von Braun, 1958

The topic of the student’s Bachelor thesis is Space Race and its sociocultural effects on Americans and Russian. He wanted to write about this thanks to his love for sci-fi movies, games and TV shows. The student has been interested in space since his childhood. It is just amazing how mankind developed in such short time. In only short twelve years people witnessed the first artificial object in space, the first man in orbit, and the first manned landing on the Moon. These events were watched by millions all around the world and were one of the greatest achievements of mankind.

This work is divided into a description of Space Race origins and six main events of the Space Race, followed by its impact on society during and after it. The first part of the thesis is a description of the beginning of the Space Race in Germany, the Soviet Union, and the United States of America. Although it is not the main part, it is very important for the reader to know the origins for further understanding. The main part compares sociocultural influence between the U.S. and the Soviet Union. The student was trying to find as many sources as possible about the topic, but due to lack of knowledge of Russian language he was forced to work with limited sources.

The main idea of this thesis is to compare which of the nations above was more influenced by the Space Race with respect to sociocultural effects, which means the comparison of social and cultural factors of Space Race on the nations and their citizens.

1 THE ORIGINS OF THE SPACE RACE

This section contains a brief description of beginnings of the space age. It is focused on Germany, Soviet, and American missile program before the actual Space Race.

1.1 Germany during WWII

It can be said that the Space Race has its origins in Germany. During the 1930s after Hitler denounced Versailles Treaty and started armament, the rocket program was given much bigger funds. Peenemünde was chosen as a base for the missile development.[1]

It was in Peenemünde where A-4 missile had been developed. This missile was the beginning of the space program. It was an invention that did not have a rival, the most powerful ballistic missile of that time.[2] "The world's first liquid-propelled ballistic missile and the true ancestor of all space launch vehicles, was born out of the marriage of heavy funding and creative brilliance."[3] Werner von Braun, one of the leaders leading team that made A-4 missile was given one of the main roles at the world's first fully developed rocket facility. He joined the SS in 1940 as a lieutenant and later on was promoted to the rank of major. To continue his work, he had no other option, but to join. He, being a major in the SS had some impact to his career in the U.S. later on.[4] The A-4, Vengeance Weapon 2 or commonly called V2 was fourteen meter tall and fully loaded had a weight of fourteen tons. This ballistic missile was fueled by liquid and was designed to carry nearly twelve hundred kilograms of explosive while reaching the distance of more than 300 kilometers and approaching the destination with speed over 4000 kilometers per hour. [5]

The A-4 had its first tests in October, 1942 carrying a *Woman in the Moon* logo.[6] Later on, Krafft Ehricke described it, citing: "It looked like a fiery sword going into the sky… It is very hard to describe what you hear when you stand on the threshold of a whole new era; of a whole new age…. It's like those people must have felt–Columbus or Magellan–that

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[1] John Cornwell, *Hitlerovi vědci: věda, válka a ďáblův spolek,* trans. Zuzana Marečková (Praha: BB art, 2005), 150.

[2] William E. Burrows, *This New Ocean: The Story of the First Space Age* (New York: Modern Library, 1999), chap. 3, Vengeance Weapon Number 2, PDF.

[3] Burrows, *This New Ocean,* chap. 3, Vengeance Weapon Number 2.

[4] Burrows, *This New Ocean,* chap 3, Vengeance Weapon Number 2.

[5] Burrows, *This New Ocean,* chap. 3, Vengeance Weapon Number 2.

[6] Michael J. Neufeld, *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era* (Washington, DC: Smithsonian Books, 2013), chap. 5, The A-4 Reaches the Launch Pad, Kindle.

for the first time saw entire new worlds and knew that the world would never be the same after this…. We knew that the space age had begun."[7]

The engine of the first V2 was on for almost a minute before it went off. It took nearly four minutes, but it went to space and beat all-world velocity and altitude records and after that ended up in the Baltic Sea nearly 200 kilometers from the test site. Walter Dornberger, leader of V2 rocket program was remembered by Ehricke saying: "This is the first day of the space age." And later in the evening, that day at the officers' club said that "the spaceship is born," and also mentioned that this will be the weapon that will change the war. Yes, on one hand, he was right. It was the beginning of the space age and also the first human-made object that reached the space, but on the other hand, if he said that it could bring Germany to winning the war, he was wrong.[8]

The first A-4s, with a more common name given by the Propaganda Ministry – V2, were launched at Paris and London on September 7 and 8, 1944.[9]

The Soviet army was approaching Peenemünde in January 1945. Knowing the war was over and that the knowledge of missile program was more valuable than gold, von Braun and his colleagues decided to get to some area that would be more likely taken by the U.S.[10] One of the engineers later said: "We despite the French; we are mortally afraid of the Soviets; we do not believe the British can afford us, so that leaves the Americans."[11]

In March 1945 Hitler ordered to destroy all the research Germany possessed. Scientists from Peenemünde decided to ignore the order, for which they could be shot, and hid fourteen tons of documents, blueprints, reports and valuable notes inside a mine. In a meantime, American Army was approaching Nordhausen and about five hundred scientists of the rocket program were moved south to a city in the Alps. They even had to leave their families behind.[12]

On April 11, 1945, American militia entered Nordhausen and outside of the city, near mine entrance they found many dead bodies in striped pajamas and in the mine itself something very important, parts for over one hundred V-2s.[13]

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[7] Burrows, *This New Ocean,* chap. 3, "A Fiery Sword Going into the Sky."
[8] Burrows, *This New Ocean,* chap. 3, "A Fiery Sword Going into the Sky."
[9] Neufeld, *The Rocket and the Reich*, chap. 8, The Rocket Program is Reorganized—Again.
[10] Burrows, *This New Ocean,* chap. 4.
[11] Burrows, *This New Ocean,* chap. 4.
[12] Burrows, *This New Ocean,* chap. 4.
[13] Burrows, *This New Ocean,* chap. 4.

Americans also managed to trick one of the officials from Peenemünde to reveal the hideout of all documents hidden in the mine. He was told that von Braun and his colleagues already provided this information. All documents were safely transferred to the U.S.[14] Couple days after Hitler's suicide, on May 2 Magnus von Braun, brother of Werner von Braun and chemical engineer, surrendered to U.S soldiers. He took a bicycle and saw American soldier down the road. He approached with caution and told them that Werner von Braun and other who had invented missiles V-2 wanted to be taken to the American custody. They managed to convince their captors that they had valuable knowledge and on July 20, 1945, a mission with a code name "Overcast" brought about 350 German scientists to the United States of America.[15]

1.2 Soviet Missile Program

In May 1945, after the end of World War II, the Soviet Union was completely devastated. There was no other country in the world that has been in such condition, in ruins by war. There were about 27 million people of the Soviet Union dead thanks to the war by the end of 1945. Many cities were destroyed, no housing for people, the industry had to be limited. And those who survived and thought that everything bad ended with the surrender of Germany were wrong. Right after the war came to an end, Stalin and Beriya ruthlessly sent more and more Soviet citizens to the Gulags.[16]

Based on these facts, it would be expected that ideas as continuing in rocket program will not take its place in engineers' minds, but Soviets were different. Their determination and patriotism are something else. Not to mention that it was part of propaganda as well. Most of the young engineers, who had worked for Hitler or Stalin, knew that they must continue with their work to prevent the Soviet Union from being damaged by attacks ever again. On one hand they were in pursuit of scientific discoveries, but on the other hand, they were keeping domination of leaders of the Soviet Union, who were safe and sound in Kremlin, in their offices, and citizens in oppression. The love of the country and land itself

[14] Burrows, *This New Ocean,* chap. 4, Special Mission V-2
[15] Burrows, *This New Ocean,* chap. 4, Overcast and Paperclip
[16] Asif A. Siddiqi*, Challenge to Apollo,* (Washington, DC: National Aeronautics and Space Administration, Office of Communications, NASA History Program Office, 2000), p. 23, accessed October 28, 2017, https://history.nasa.gov/SP-4408pt1.pdf.

combined with fear brought young aeronautical engineers of the 1930s and 1940s all together and let them started again in 1945.[17]

After the war ended, in spring of 1945, began an investigation of all the German advanced military technology by all of the main allied powers. Intelligence services were busting their chops to get to Nordhausen and Peenemünde rocketry centers. Stalin diverted militia to get to Peenemünde before Berlin, however, the place was deserted, and there was no resistance. After that forces of Soviet Union has taken Nordhausen A-4 (missile) plant. It was expected that they find something from the research, but there was almost nothing as well. They found out, after a while, that the A-4 program has been surrendered to American militia without using force by major German engineers working on that. A big part of research that Americans could not take back was destroyed. One of the most significant war bounties was gone and Soviet leaders were shocked by speed and efficiency with which were parts of the research taken from them without even noticing it. Stalin supposedly said:[18]

> This is absolutely intolerable. We defeated the Nazi armies: we occupied Berlin and Peenemünde, but the Americans got the rocket engineers. What could be more revolting and more inexcusable? How and why was this allowed to happen?[19]

Soviet engineers got to Nordhausen and right after that they started to put in order the mayhem at the factory. The factory was built in a mountain, into which could enter trains. Soviets have found missiles A-4 in different stages there and German technicians who worked with them told them, that there were about thirty-five missiles completed every day. At most of the plants in Germany Soviets were assisted by German engineers. A group of the brightest was in the hands of Americans. Soviets knew that, but they did not hesitate to use knowledge of those who had stayed there.[20]

There were two objectives in early 1946. The first was start producing A-4 missiles again and the second one to launch them from Germany. These objectives were originated in order to catch up with the Allied forces and their A-4 launches at Cuxhaven in October 1945. The Soviet Union might have the strongest infantry in the world, but it suddenly changed after the attack and destruction of Hiroshima and Nagasaki with nuclear weapons. The United States has shown to the world that they are superior in destructive force. That

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[17] Siddiqi, *Challenge to Apollo*, 24.
[18] Siddiqi, *Challenge to Apollo*, 24.
[19] Siddiqi, *Challenge to Apollo*, 24.
[20] Siddiqi, *Challenge to Apollo*, 27, 29.

was not acceptable for Stalin, so he created a special committee for development of nuclear weapon and got particularly interested in A-4 missiles as a vehicle for nuclear weapons.[21]

In May 1946, with a help of commission, was introduced the role of defense industrialist, one of the major members in the Soviet space program. Defense industrialists at that time had a huge impact on molding the rocketry and space sector for next forty years. There has been prepared the most crucial decree in the Soviet rocketry and space programs. "This decree, the Council of Ministers decree no. 1017-419ss, titled 'Questions of Reactive Armaments,' was formally signed into law by Stalin on May 13, 1946."[22] The main goal of the decree was to create a correlative system how to take care of the problem about ballistic and cruise missiles.[23]

There was created a special Scientific Research Institute No. 88, commonly known as NII-88. Its purpose was to control the development of ballistic missile research. The factory that they operated in was in suburbs of Moscow.[24] There were at minimum two main organizations aside from the central six that had a very important role in the creation of the space program. One of them was NI-I, place for training of many engineers. This institute came through reorganization in November 1946. The main purpose of reorganized NI-I was to examine and reconstruct antipodal bomber Sänger-Bredt to an intercontinental rocket plane and the secondary purpose was basic study and research of ballistics, rocket engines, and aerodynamics.[25]

They continued with manufacturing A-4 missiles and they constructed two versions prepared for launching. The series T was constructed using mostly German and few Soviet parts at plant NII-88. The first launch was in October 1947. The launch of T series missile was successful with only one failure, a guidance system.[26]

After the failure of the project VR-210, which did not bring any positive data, they put together a team of engineers to design and develop a high-altitude rocket, which would be able to carry two passengers to the height of 190 thousand meters, VR-190. For the first time in Soviet history, there was created a project of launch into space including humans.

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[21] Siddiqi*, Challenge to Apollo*, 34-36.
[22] Siddiqi*, Challenge to Apollo*, 37.
[23] Siddiqi*, Challenge to Apollo*, 38.
[24] Boris Chertok, *Rockets and People Volume II: Creating a Rocket Industry*, ed. Asif Siddiqi (Washington, DC: National Aeronautics and Space Administration, Office of External Relations, NASA History Division, 2006), p. 16, accessed April 8, 2018, https://www.nasa.gov/pdf/635963main_RocketsPeopleVolume2-ebook.pdf.
[25] Siddiqi*, Challenge to Apollo*, 47, 48.
[26] Chertok and Siddiqi*, ed., Rockets and People Volume II*, 34-37.

They were supposed to reach the altitude of the stratosphere. This plan even got a positive feedback from Stalin and the Ministry of the Aviation Industry, but the project was never funded because of difficulties in organizing. The whole project was halted, but interestingly all designs main aspects were used and adapted for spacecraft piloted by a human in the 1960s.[27]

The group that worked on VR-190 had been moved to another institute, NII-4, which was military institute focused only on defense. The work of that group had been changed to different areas and they had to investigate engineering of the VR-190 and work on that in their free time. Later on the project continued in the hands of different people and got approved with one change; human passengers had to be replaced by dogs, but in the end, the project was again canceled.[28]

There was no space for space exploration in late Stalin era, politics and military interests were focused on defense. Convincing satellite launch vehicle was rejected by Academy of Artillery Sciences. This group had been officially involved in military rocket research, but never dropped from pursuing the ultimate goal of space exploration and their research established later on the structure of space exploration.[29]

1.3 American Missile Program

The first group of German scientist chosen by von Braun and including him arrived at the facility for testing rockets The White Sands Proving Grounds in New Mexico in October 1945. The V-2 components arrived there before Germans, by the end of May 1945.[30]

There was a dispute between American Army, Navy and the airmen. All of these wanted to take von Braun, his colleagues and V-2 research under their command. The Army had a belief that guided missiles were long-range artillery, which meant, at least as far as the Army concerned, that missiles were Army weapon. On the other hand, the Navy had a different opinion. As they called in in 1946, the role of the missiles and any satellite that might be shot to "outer space" was to control the seas. It could track and target any target at sea and naval vessels could shoot them down. The airmen, predecessor of the U.S.

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[27] Siddiqi, *Challenge to Apollo,* 63, 64.
[28] Siddiqi, *Challenge to Apollo,* 66.
[29] Siddiqi, *Challenge to Apollo,* 67, 68.
[30] Burrows, *This New Ocean,* chap. 4, Rockets for America

Air Force, insisted that guided missiles were only unmanned aircraft; therefore they should be under their command.[31]

Germans, who were housed at Fort Bliss, helped Americans with assembling weapons they were making before. During that time, Americans were interrogating Germans closely. Von Braun had to tell all details about the V-2 and about details affecting missiles' accuracy and the total of sixty-seven launches of V-2s were performed between April 16, 1946, and September 19, 1952, in the White Sands.[32]

Five months after the German scientists came to the U.S., company named Glenn L. Martin won a contract to build ten, and later fourteen, high-altitude missiles for research purposes. The missiles were named Viking and all of them were different. On May 7, 1954, Viking 11 broke altitude record, in which were taken photographs.[33]

In 1950, most of the scientists who were involved in making V-2s, including von Braun, were moved from Fort Bliss to the Army's Ordnance Guided Missile Center close to Huntsville, Alabama. In this facility was developed improvement of V-2 with a name Redstone.[34]

In 1946, private company Consolidated Vultee got a contract from the Army Air Force to build long-range ballistic missile named MX-744. The project was canceled approximately after a year until it was reintroduced several years later as a project Atlas, which became the first intercontinental ballistic missile.[35] Another private company, Douglas Aircraft, was developing a 1,725-mile medium-range ballistic missile and named it Thor.[36] "The aerospace community's penchant for naming its products after gods and goddesses, which would culminate in the Apollo spacecraft that went to the Moon, was a clear reflection of what it thought of itself and its contribution to society. No weapon system or space program would be named after Metis, the god of wisdom."[37]

In the early 1950s, chances that the U.S would have coherent space policy were not very high. The only thing that would bring the United States out of its numbness was a

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[31] Burrows, *This New Ocean,* chap. 4. The Machismo Factor

[32] Burrows, *This New Ocean,* chap. 4, White Sands

[33] Burrows, *This New Ocean,* chap. 4, A New Perspective on Earth

[34] Steven J. Dick, ed., *Remembering the Space Age: Proceedings of the 50th Anniversary Conference* (Washington, DC: National Aeronautics and Space Administration, Office of External Relations, History Division, 2008), p. 90, accessed October 20, 2017, https://history.nasa.gov/Remembering_Space_Age_A.pdf

[35] Mark Berhow, *US Strategic and Defensive Missile Systems 1950–2004* (Oxford: Osprey Publishing), p. 37, accessed April 28, 2018, https://books.google.cz/books?id=KzO1CwAAQBAJ.

[36] Burrows, *This New Ocean,* chap. 4, Military Missiles

[37] Burrows, *This New Ocean,* chap. 4, Military Missiles

foreign competition based on some rocket stubborn believers. American Rocket society analyzed some of the suggestions about committing the nation to going to space. Some of the members claimed, that in their opinion, there were almost no chances of accomplishing that. They said that the only thing that would get the United States into the move was a major success of the Soviets. Richard Porter, who was in the lead of General Electric's part of Hermes, which was a spacecraft, repeated after members of American Rocket Society, that a nation which will be the first to send satellites to the orbit would have a huge military advantage.[38] He also said that "the greatest utility with respect to civilization might be if the Russian were to build it instead of ourselves."[39] At the same time engineer Kurt Stehling mentioned that a highway across Alaska was unimaginable to build, but after the Japanese small force had landed on one of the Aleutian Islands in the World War II, it took not even eighteen months to build it in case of an invasion.[40]

In a 1951 movie called *Destination Moon,* character general Thayer warned business leaders about sending men to space and to the Moon. He said: "We are not the only ones planning to go there. The race is on! And we'd better win it because there is absolutely no way to stop an attack from outer space! The first country that can use the Moon for the launching of missiles will control the Earth! That, gentleman, is the most important military fact of this century."[41] This, however, wasn't a solution because launching rockets from the Moon would not be effective, it would take a lot of time and make them defenseless and easy targets to shoot down from the Earth.[42]

There was no evidence that the American president, at that time Harry Truman, and also his competitor in the East, Stalin were interested in sending people or machines to outer space or to the Moon. Harry Truman also said in response to the International Geophysical Year (IGY) precursory plan to bring American satellite into orbit that it is "hooey".[43]

Von Braun had nothing to do with the fact that space policy was not actually the main concern during Truman's presidency and at the beginning of Eisenhower's. In Germany, he was a technical director of ballistic missile program and is a main concern was to

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[38] Burrows, *This New Ocean,* chap. 4, The Enemy Imperative
[39] Burrows, *This New Ocean,* chap. 4, The Enemy Imperative
[40] Burrows, *This New Ocean,* chap. 4, The Enemy Imperative
[41] "Destination Moon Irving Pichel, 1950," *YouTube* video, 1:31:02, January 29, 2018, accessed April 20, 2018, https://youtu.be/fsXVfddSF_A?t=1100.
[42] Burrows, *This New Ocean,* chap. 4, The Enemy Imperative
[43] Burrows, *This New Ocean,* chap. 4, The Enemy Imperative

develop ballistic missiles and he had to keep Moon and Mars just to himself, but now it was the exact opposite. Von Braun was the technical director of the U.S Army Ordnance Guided Missile Development Group, who lived in a democratic country, in which citizens were more concerned about space than the government, at least he thought so. Under these circumstances, it was better to not hold on to the old rule, but instead get publicity and be interested in citizens who were supportive.[44]

In October 1952, von Braun came to the Hayden Planetarium's second symposium with a model of a rocket, which was intended to return its crew back to Earth. He also showed his papers about "The Early Steps in the Realization of a Space Station," which was also very detailed. He was arguing with a director of Viking program, Milton Rosen, about usefulness of his idea. Von Braun claimed that space station "will be the most fantastic laboratory every devised" and Rosen was holding to the theory that funding such big project could lower the country's defense. Both theories had their supporters and both benefitted from publicity.[45]

By that time, a group of rocket visionaries led by von Braun was trying to convince the media to support its cause. They managed to do it and it was one of the first multimedia campaigns. "Connie" Ryan had an idea to promote it on the pages of American magazine *Collier's*. It came out in eight issues called "Man Will Conquer Space *Soon*". First came out in March 1952 and the last in April 1954. Von Braun took a chance also in a television. Its growing audience and developed graphic allowed von Braun to promote space program in Disney's weekly series *Disneyland*.

In October 1955, von Braun lectured at the Armed Forces Staff College about the "Challenge of Outer Space". His lecture was full of details what space rocketry means.[46] To further make the point, von Braun told the Army, Navy, and Air Force officers that satellites, which he claimed were impervious to attack from the ground, could also guide ballistic missiles to their targets with unerring accuracy. He was so attuned to his audience that at one point he mistakenly referred to a civilian space "ship" as a "missile" and then quickly corrected himself. And, von Braun warned the officers, as he had warned the readers of *Collier's*, the Russians were "well aware of the capability of rockets" and he,

[44] Burrows, *This New Ocean,* chap. 4, Pop Culture Takes to Space
[45] Burrows, *This New Ocean,* chap. 4, Pop Culture Takes to Space
[46] Burrows, *This New Ocean,* chap. 4, Pop Culture Takes to Space

therefore, hoped that the United States would conquer space while it still was able to do so. The space race had begun.[47]

[47] Burrows, *This New Ocean,* chap. 4, Pop Culture Takes to Space

2 SPACE RACE

It is generally known that the Space Race between the U.S. and the Soviet Union began with the launching of *Sputnik 1*. However, it is not that clear when the Space Race ended. Many sources claim that it ended with conquering of the Moon. Other sources claim that it ended with the first cooperation between these two nations and some also that it still continues or that it has ended after the dissolution of the Soviet Union.

This thesis focuses on the part of the Space Race ending with landing on the Moon. This section is focused on the six main events of the Space Race, which the author considers as the most influential and important.

2.1 Sputnik 1

In September 1956, America already possessed the technology to send the first satellite to the orbit; however, American's government did not care. They said no to the chance of being the first nation to send a satellite into space.[48]

When Sergei Korolev, the Chief Designer, got the message about tests made by von Braun, he immediately started to act because there was no time. His R-7 rocket, at the time the biggest rocket in the world, was designed to carry a warhead. However, Korolev and his team also designed a satellite that would fit into the R-7 instead of the warhead. It was called Object D. Its main purpose was to carry cameras, devices to read radiation in space, planet's magnetic field, and many others. But it did not go well, there was little time and the construction of Object D was far behind the schedule. Sergei Korolev knew that if the huge satellite Object D could not be made in the nearest future, the plan must change.[49]

Korolev got an approval for launching smaller and simpler satellite before the Object D. This satellite was called *Prostreishiy Sputnik*, "Simple Satellite."[50] On October 4, 1957, Anatoly Korneev pressed the liftoff button. It was 22:38 Moscow Time when the R-7 rocket carrying a first human-made object, a satellite, went into space.[51] The rocket was going up "and then, all of a sudden — hoots and shouts: 'It is falling, falling!' And we saw

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[48] James L. Schefter, *The Race: The complete True Story of How America Beat Russia to the Moon* (New York: Anchor Books, 2000), p. 18.

[49] Schefter, *The Race*, 18.

[50] Schefter, *The Race*, 20.

[51] "First Sputnik orbits the Earth," Sputnik-1, last modified October 4, 2017, accessed April 4, 2018, http://www.russianspaceweb.com/sputnik_mission.html.

it rising over the horizon in the beginning and then it moved onto a horizon,"[52] wrote Georgy Grechko in *Space: The First Step*. Then they realized the rocket was not actually failing, but on a changed the trajectory. They had to wait for about an hour to receive *Sputnik*'s signal.[53] Korolev and others quickly drove to the assembly building at Site 2 and were hoping for hearing a response from the satellite. After a while, they received a signal, which confirmed that the engine disconnected. When they counted all the necessities, they concluded that the engine managed to disconnect within the time period needed to bring the satellite into orbit. Man operating the radio heard the simple signal from *Sputnik* orbiting the Earth, "beep, beep, beep."[54] It can be said that the Space Age has begun with signal of *Sputnik 1* transmitting from space. Everyone working on *Sputnik 1* was celebrating the success.[55] Sooner than the satellite could make it once around the Earth, TASS news agency wrote an article about the successful launch.[56]

It was on October 5, 1957, when TASS report in the *Pravda* newspaper came out and claimed that this event, launching a first artificial satellite into orbit, will have an immense contribution on world's science and culture. It also claimed that the Soviet Union expects to send more satellites, which will be bigger and carrying devices for scientific research, into space during the International Geophysical Year (IGY) and that the artificial satellites are the beginning leading us to interplanetary travel.[57]

Based on the interviewed Boris Chertok, who was working with Korolev, the article from TASS informing about *Sputnik* was in the right corner of title page, while the main article on the title page warned about preparation for winter. It seems like the news about first artificial satellite *Sputnik* probably was not that important. Politburo, which was the principal committee of the communist party, was remaining silent about the success, although in the meantime the beep-beep sound was caught all around the world by amateurs and the U.S media became full of *Sputnik*.[58] The interesting fact is that the

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[52] Alexander Zakharov, O. Zakutnyaya, and V. Kornilenko, *Space: The First Step* (Moscow: Space Research Institute of Russian Academy of Sciences, 2007), 25.

[53] Zakharov, Zakutnyaya, and Kornilenko, *Space*, 25.

[54] Von Hardesty, Gene Eisman, and Sergei Khrushchev, *Epic Rivalry: The inside Story of the Soviet and American Space Race* (Washington, D.C.: National Geographic, 2007), 74.

[55] RussianSpaceWeb.com, "First Sputnik orbits the Earth."

[56] RussianSpaceWeb.com, "First Sputnik orbits the Earth."

[57] "The aftermath of the Sputnik launch," Sputnik-1, last modified October 4, 2017, accessed April 4, 2018, http://www.russianspaceweb.com/Sputnik_aftermath.html#tass.

[58] Nikolaus von Twickel, "Space Race Started with a Cosmic Blunder," *The Moscow Times*, October 1, 2007. accessed April 05, 2018, http://old.themoscowtimes.com/sitemap/free/2007/10/article/space-race-started-with-a-cosmic-blunder/193970.html.

Kremlin did not take this huge chance to create propaganda out of *Sputnik* event. "We did not expect this reaction at all,"[59] Boris Chertok told reporters. "Neither we, nor our media first grasped the historical significance of our feat."[60]

Very interesting is that in the United States the news about *Sputnik* had the opposite reaction, it was enormous. Wesley T. Huntress, Jr. wrote in the book *Space: The First Step* that the idea, which *Sputnik* brought to the U.S affected the Americans more than it ever could affect the Soviets.[61] "*Sputnik* changed the whole direction of American education, science and technology development, military policy and international politics."[62] There is a record of an American woman interviewing for the television after the launch of *Sputnik* in the BBC's documentary/drama mini-series Space Race. She said: "It gets the American people alarmed that a foreign country, especially an enemy country can do this, and […] we fear this."[63]

However, the public opinion was greatly underestimated. The *Sputnik* event caused fear similar to the Pearl Harbor. Dwight D. Eisenhower, at the time president of the U.S. and his subordinates, claimed that *Sputnik* was only "a silly bauble" and "a neat scientific trick."[64] Eisenhower was unimpressed by the "Soviet circus stunt in space" and did not want to pursue the Soviets only to show the U.S is better.[65] It is known, that *Sputnik* left a huge scar in American proudness, but also it led them to act. It took some time, but the U.S., at last, put more effort into the space program. After a while the government created a completely new agency with interest in space exploration, NASA.[66] Universities and colleges were full of young people studying engineering and craving to face the Russian challenge claimed Robert S. Dudney from *Air Force Magazine* and also Wesley T. Huntress, Jr. in the book *Space: The First Step*.[67][68]

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[59] Von Twickel, "Space Race Started with a Cosmic Blunder."
[60] Von Twickel, "Space Race Started with a Cosmic Blunder."
[61] Zakharov, Zakutnyaya, and Kornilenko, *Space*, 30.
[62] Zakharov, Zakutnyaya, and Kornilenko, *Space*, 30.
[63] "Space Race 2 of 4 Race For Satellites," *YouTube* video, 49:58, October 16, 2011, accessed April 5, 2018, https://youtu.be/H6Kc-Zi4tU0?t=2407.
[64] Robert S. Dudney, "When Sputnik Shocked the World," *AIR FORCE Magazine*, October, 2007, 42, http://www.airforcemag.com/MagazineArchive/Magazine%20Documents/2007/October%202007/1007sputnik.pdf.
[65] Walter A. McDougall, 1985, "Sputnik, the Space Race, and the Cold War," *Bulletin Of The Atomic Scientists 41*, no. 5 (May): 20-25, accessed October 25, 2017. Academic Search Complete, EBSCOhost.
[66] Zakharov, Zakutnyaya, and Kornilenko, *Space*, 30.
[67] Dudney, "When Sputnik Shocked the World," 43.
[68] Zakharov, Zakutnyaya, and Kornilenko, *Space*, 30.

Only a few days after *Sputnik* was launched, Gallup, an American research-based consulting company, asked the public how long it is going to take mankind to get to the Moon. 52 percent of asked people answered the question and the average number added up was 12 years. This answer turned out to be perfect match for the event to come.[69]

2.2 Sputnik 2

After the launch of the first satellite Russian leadership decided to proceed with *Sputnik 2*. It was suggested that the launch should take place at the day of 40th Anniversary of the Bolshevik Revolution on November 7, 1957, only a month after the launch of *Sputnik 1*. The leader of the Soviet Union, Nikita Khrushchev, asked Korolev over the phone if it would be possible to prepare the launch for the holiday. Couple days later Korolev answered to that question, that the rocket would be launched and added that a dog will be send into space according to Khrushchev's son memoirs.[70]

Before the return call to Khrushchev was made, Korolev convoked a council made of main people in the rocket industry. He made a proposal to them about sending a dog into space hoping they would not accept the unreal deadline for the launch. Surprisingly they embraced it. Based on couple Russian sources, an official decision about sending *Sputnik 2* at the Anniversary day was made by the Soviet Union government "on October 10 or 12, 1957."[71]

Not even four weeks after the *Sputnik 1* was launched, on October 31, 1957, Korolev and his team sent the official announcement to the Central Committee about the flight preparation. It said that the preparation is almost complete and promised that the launch would take its place on November 3 or 4.[72]

It was the second spacecraft sent into space and the first one carrying a living organism. It was about ten times heavier than *Sputnik 1* with its weight about half a ton. This spacecraft carried a female dog. She was named Kudryavka, Little Curly, but later

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[69] Steven J. Dick, ed. *Historical Studies in the Societal Impact of Spaceflight* (Washington, DC: National Aeronautics and Space Administration, Office of Communications, NASA History Program Office, 2015), 4, Accessed October 28, 2017. https://www.nasa.gov/sites/default/files/atoms/files/historical-studies-societal-impact-spaceflight-ebook_tagged.pdf

[70] "Decision to fly a dog on the second artificial satellite," Sputnik-1, last modified October 4, 2017, accessed April 6, 2018, http://www.russianspaceweb.com/sputnik2_decision.html.

[71] RussianSpaceWeb.com, "Decision to fly a dog on the second artificial satellite."

[72] "Preparing Sputnik-2 for flight," Sputnik-1, last modified October 4, 2017, accessed April 6, 2018, http://www.russianspaceweb.com/sputnik2_preflight.html

they changed her name to Laika, in translation Barker.[73] Yevgeniy Shabarov said: "after placing Laika in the container and before closing the hatch, we kissed her nose and wished her bon voyage, knowing that she would not survive the flight."[74]

On November 3, 1957, the Soviet Union launched *Sputnik 2* equipped with temperature control system, devices transmitting radio frequency and others. The most precious cargo was Laika. In her cabin was also a camera for observing her. Failure in separation caused a breakdown of the thermal control system, which decreased Laika's life span in the space dramatically.[75]

The first astronaut in the history of the world, Laika, was probably one of the most discussed topics at the time in the Soviet Union and also in the U.S. Immediately after the news arrived into the newspaper stands people started to question it. Based on Russian magazine *Russian Seven* the Soviet media were remaining quiet about the fact Laika is never getting back to the Earth alive, while people were awaiting her, looking forward to her landing back to the Earth. The Soviet press was actually talking about her well-being for couple days, although she was already dead. After a week, there was a report about lost communication with the satellite and later on even about Laika's "planned sleep."[76] Anatoly Zak wrote that several decades later some Russian sources were claiming that Laika was alive circling the Earth for four days and then died on overheating, other sources were claiming that Laika died on overheating after just couple hours in the space.[77]

Nevertheless after 45 years, after the collapse of the Soviet Union, the true story of Laika was revealed to the public and it says that Laika's cause of death was a combination of stress and high temperature after about six hours in space, claims Giles Sparrow in the book *Spaceflight*.[78] It could be said that in the 1950s public opinion in the Soviet Union did not have a big impact, however people started to care after *Sputnik 2*. Thanks to the Laika Soviet citizens started to show their opinion, it upset them because the story of Laika

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[73] "Sputnik 2," NASA Space Science Data Coordinated Archive, Accessed April 6, 2018, https://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1957-002A.

[74] RussianSpaceWeb.com, "Preparing Sputnik-2 for flight."

[75], Jessica MacNeil, "Sputnik 2 Launches Carrying Laika, November 3, 1957," *EDN*, November 03, 2017, accessed April 06, 2018, https://www.edn.com/electronics-blogs/edn-moments/4440743/Sputnik-2-launches-carrying-Laika--November-3--1957.

[76] "Космонавт Лайка: неизвестные факты," *Русская Семерка,* October 24, 2016, accessed April 07, 2018, http://russian7.ru/post/neizvestnaja-istorija-lajki-pervoj-sobaki-kosmonavta/.

[77] "Sputnik-2 in orbit," Sputnik-1, last modified October 4, 2017, accessed April 6, 2018, http://www.russianspaceweb.com/sputnik2_mission.html

[78] Giles Sparrow, *Spaceflight: The Complete Story from Sputnik to Shuttle and Beyond* (London: Dorling Kindersley, 2007), 47.

touched their hearts. According to the magazine *Russian Seven,* people were even sending letters to the Soviet leadership with the proposal that Laika should become a hero of the Soviet Union.[79] In Britain a Soviet official said, to calm down dog lovers, that the Russians love dogs and that it was not an act of animal torture, but an act that will benefit humanity.[80]

However, in the United States, some of the media told the story differently. They were making fun of it. For example like it is written in the *Time Magazine* "the Chicago American noted: 'The Russian sputpup isn't the first dog in the sky. That honor belongs to the dog star. But we're getting too Sirius. '"[81] But for the United States, it was not only about Laika and animal cruelty. It was also about the Soviet dominance in Space Race.

Sputnik 2 was another great success for the Soviet Union because it was much bigger and carried a living organism. It was a success that proved *Sputnik 1* was real. They were able to get into space again and with an even bigger rocket.[82] The event of *Sputnik 1*did not bring so much fear into hearts of Americans, because they were calmed down by the President and the media. However, *Sputnik 2* had a different impact. According to the NASA History Series *First Among Equals,* there was a big difference between American space program and the Soviet Union's. *Sputnik 2* had half a ton and life support and none of the American rockets could carry half a ton of cargo neither had a life support, which was not even under development in the U.S. at the time.[83] It can be said that by then the Soviet Union was in the lead of potential manned space flight and also what they could bring into space.

2.3 Explorer 1

It was a month after the Soviet Union launched *Sputnik 2*, on December 6, 1957, when the U.S. tried to launch their first satellite Vanguard. This event was could bring America back to the competition of space exploration. It was watched all over America and also at Cape Canaveral, where the launch took its place. But it was a disaster. The rocket went up only

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[79] *Русская Семерка*, "Космонавт Лайка: неизвестные факты."

[80] "Animals: The She-Hound of Heaven," *Time*, November 18, 1957, accessed April 07, 2018, http://content.time.com/time/subscriber/article/0,33009,868018,00.html.

[81] "The Press: Dog Story," *Time*, November 18, 1957, accessed April 07, 2018, http://content.time.com/time/subscriber/article/0,33009,868045-2,00.html.

[82] Christopher C. Kraft, *Flight: My Life in Mission Control* (New York: Plume, 2002), 63.

[83] John E. Naugle, *First Among Equals: The Selection of NASA Space Science Experiments* (Washington, DC: National Aeronautics and Space Administration, Office of Management, Scientific and Technical Information Program, 1991), 13.

for one and a half meter, fell down and exploded. The Soviets were in a lead of space race and the U.S was far behind them. "Not since Pearl Harbor, sixteen years before, had American pride and prestige suffered such a blow."[84]

It is said in the BBC's documentary/drama mini-series Space Race that von Braun and his team hid parts of the rocket Jupiter-C, a successful project and with a potential to bring a satellite into space, and risked court-martial, in case the Vanguard project fails.[85]

The unsuccessful try of the Vanguard forced the government to appeal to the Army and von Braun's program in order to restore the reputation of their technological supremacy. They had 90 days to develop the satellite and perform the launch before the Navy would get another chance. They had an advantage thanks to the hidden parts of the rocket. It took them 84 days to prepare everything needed.[86]

It was also launched from Cape Canaveral Air Force Station in Florida on January 31, 1958. The launch was successful and nearly two hours later they received a call from California tracking station that the satellite was transmitting from the orbit. The satellite was given the name *Explorer 1*. It was transmitting data for four months before its batteries were emptied.[87]

Explorer 1 event was not probably a big deal for Russian public. They might have been saying that they already won the space race. According to UPC-CPSU, *Explorer 1* was already only the second satellite carrying science equipment and did not influence the Soviet citizen much.[88]Moreover, *New York Times* reported on February 3, 1958, that most of the major Soviet newspaper announced the launch of the first U.S. satellite in the space, but only briefly and on inside pages. Many of them only copied or paraphrased American or other foreign sources for critical comparison with Soviet earlier satellites.[89] In addition, the Soviet newspaper *Pravda* called *Explorer 1* significantly subordinate to their *Sputniks.*[90]

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[84] Naugle, *First Among Equals*, 14.

[85] "Space Race 2 of 4 Race For Satellites," *YouTube* video, 49:58, October 16, 2011, accessed April 5, 2018, https://youtu.be/H6Kc-Zi4tU0?t=1743.

[86] Preston Dyches, "Explorer 1: The Beginning of American Space Science," *NASA*, January 23, 2018, accessed April 07, 2018, https://www.nasa.gov/feature/explorer-1-the-beginning-of-american-space-science.

[87] Dyches, "Explorer 1: The Beginning of American Space Science."

[88] "'Улыбка Гагарина'. Статья в газете 'Правда'," *СКП-КПСС*, September 26, 2017, accessed April 07, 2018, http://skpkpss.ru/ulybka-gagarina-statya-v-gazete-pravda/.

[89] "Satellite Story Printed in Soviet," *The New York Times*, February 03, 1958, accessed April 7, 2018, https://timesmachine.nytimes.com/timesmachine/1958/02/03/82208409.pdf.

[90]"Pravda is Critical," *The New York Times*, February 26, 1958, accessed April 7, 2018, https://timesmachine.nytimes.com/timesmachine/1958/02/26/83396611.pdf

On the other hand, Americans were still afraid of Russian technology. Therefore the launch was given into the hands of the Army, although president wished to keep the space research non-military. Citizens of the U.S. were afraid of not knowing what the Soviet satellites were able to do.[91]

American people were celebrating the tremendous achievement. It was the Americans' first big success in the space industry. On February 1, 1958, the next morning after the launch *New York Times* reported in their newspaper that hundreds of people were watching the launch. People were crying in joy, saying "There it is!"[92]

Nevertheless, even the American press did not think that the U.S. somehow caught up with the Soviets. They were also proposing that it would have been better to think about projects in the long run instead of focusing on emotions of the Americans, claimed magazine *The Engineer*.[93]

2.4 Vostok 1

In January 1961, there were six to be cosmonauts selected for the first launch of a manned spacecraft out of many, but only one would be chosen for the mission. All of them had to go through complicated tests after these tests were done the committee recommended three out of the six, Gagarin, Titov and Nelyubov.[94] Cosmonauts had to be filmed near the rocket saying their farewell speech claimed the BBC's documentary/drama mini-series Space Race.[95]

Yuriy Alekseevich Gagarin was from the beginning seen as a favorite. Everything was in his favor, his background and also a very good impression on Korolev during the first time the cosmonauts met him. The Communist Party was also gratified because the first person in the space would be a Soviet with a hundred percent Russian and working-class background.[96] On April 8, 1961, the State Commission officially decided that Gagarin

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[91] Derek Webber, *No Bucks, No Buck Rogers: Creating the Business of Commercial Space* (Boca Raton, FL: Universal Publishers, 2017), 20.

[92] Milton Bracker, "JUPITER-C IS USED," *The New York Times*, February 1, 1958, accessed April 7, 2018, https://timesmachine.nytimes.com/timesmachine/1958/02/01/83392619.pdf.

[93] John Excell, "January 1958: Explorer 1 – America's First Satellite," December 5, 2017, accessed April 7, 2018, https://www.theengineer.co.uk/explorer-1-united-states-satellite.

[94] Siddiqi*, Challenge to Apollo,* 261.

[95] "Space Race 3 of 4 Race For Survival," *YouTube* video, 50:08, October 16, 2011, accessed April 8, 2018, https://youtu.be/8B94ftc9UVA?t=2018.

[96] Siddiqi*, Challenge to Apollo,* 261-262.

would the pilot and Titov his backup in case Gagarin would have health issues before the flight.[97]

It was on April 12, 1961, when Korolev and the other were watching the launch from a close bunker. Gagarin was sitting in his cabin that was carried by modified rocket R-7 when it started to lift off. He was trying to communicate with the crew through the radio. The telemetry suddenly stopped working during the take-off and the operator switched from "five… five… five…," which meant that all is good, to "three… three… three…." Everyone listening to this was terrified that something went wrong with the rocket, but when the signal renewed they heard again "five…five… five."[98]

Couple minutes after the launch, Gagarin said on the radio that he saw formatting clouds, mountains and islands through the window near his feet. By watching the Earth below, he realized that the cabin is now in space. He pushed off himself from the seat as far as his safety belt allowed and enjoyed the state of weightlessness. While the cabin was slowly spinning, the first human in space was observing the black sky, changing Earth surface and had to cover his eyes because of the excessive bright from sunlight.[99]

Gagarin orbited the Earth once before going back to the surface. He had some problem on the way back. The retrorocket engine did not separate from the cabin. It was connected only via few cables. If the engine remained connected, he might have died. After that, at an altitude of seven kilometers, the cabin's parachute opened, followed by Gagarin's ejection from the cabin. He separated from the seat and opened his personal parachute. The landing was relatively soft and soon a rescue team arrived and transported him to the base.[100]

The success of the Soviets was undoubtedly one of the greatest achievements in the world's history, although Boris Chertok wrote in the book *Rockets and People Volume III*, that the Soviets were keeping it in secrecy most of the information about their space projects. The announcement of Gagarin's flight was a mass surprise to everybody.[101] Nevertheless, the U.S. intelligence caught a radio signal from the Vostok's cabin about

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[97] "Final preparations for the launch of Gagarin's Vostok," Gagarin, last modified October 4, 2017, accessed April 8, 2018, http://www.russianspaceweb.com/vostok1_preflight.html.

[98] Burrows, *This New Ocean,* chap. 9.

[99] "Vostok lifts off!," Gagarin, last modified October 4, 2017, accessed April 8, 2018, http://www.russianspaceweb.com/vostok1_launch.html.

[100] Siddiqi*, Challenge to Apollo,* 278-281.

[101] Boris Chertok, *Rockets and People Volume III: Hot Days of the Cold War*, ed. Asif Siddiqi (Washington, DC: National Aeronautics and Space Administration, Office of External Relations, NASA History Division, 2009), p.55, Accessed April 8, 2018, https://www.nasa.gov/pdf/636007main_RocketsPeopleVolume3-ebook.pdf.

twenty minutes after the lift-off.[102] That means they knew it before the actual announcement. When the Soviet government announced the event, it was a shocking surprise to the whole world and also celebrated everywhere. The citizens of Moscow gathered on the Red Square with signs such as: "Everyone into space!" The whole country burst into celebration.[103]

The Soviet Union finally grabbed the chance and created propaganda. To begin with, they created special school programs, space movies, fireworks and even Soviet hymns were played in the metro according to James Brooke for *Voice of America.*[104] The Soviet government arranged a press conference addressed to the world and their country. Soviet scientist A.N. Nesmeyanov introduced this conference with words:

> Everything is symbolic in this achievement. The fact that the first cosmonaut is a Soviet citizen, the fact that the first cosmic spaceship carrying Major Gagarin was named 'Vostok,' which means East or Dawn, and also the fact that the flight was completed in the morning, these are all symbolic. So this morning became the morning of a new era. From now on the day of April 12, 1961, will be connected with the achievement which was accomplished by Yuri Alekseyevitch [sic] Gagarin. The entire flight around the Earth was completed in 108 minutes, and these minutes shook the world.[105]

In the second place, the Soviets addressed the achievement as a "socialist" success, which was supposed to show their dominance over the West's. Nonetheless, world leaders acknowledged the Soviet achievement and even president Kennedy congratulated them with words "an outstanding technical achievement.[106] It can be said that achievement such as being for the first time in space was celebrated everywhere, including the United States, and people might have been afraid of what is going to happen next, but it was one of the greatest successes of humankind and deserved to be celebrated.

However, there were many Americans who thought that the U.S should completely focus on the space achievements. Even the chairman of the House Space Committee,

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[102] Siddiqi*, Challenge to Apollo,* 278.

[103] Chertok and Siddiqi*, ed., Rockets and People Volume III*, 55.

[104]James Brook, "Yuri Gagarin: When the Soviets Beat the Americans," *Voice of America*, April 13, 2011, accessed April 08, 2018, https://blogs.voanews.com/russia-watch/2011/04/13/yuri-gagarin-when-the-soviets-beat-the-americans/.

[105] "Yuri Gagarin's First Speech About His Flight Into Space," *The Atlantic*. April 12, 2011, accessed April 08, 2018, https://www.theatlantic.com/technology/archive/2011/04/yuri-gagarins-first-speech-about-his-flight-into-space/237134/.

[106] "Man in Space," *The New York Times*, April 16, 1961, accessed April 8, 2018, https://timesmachine.nytimes.com/timesmachine/1961/04/16/101457226.pdf.

Overton Brooks said "we're going to demand that the program be speeded up or find out why it isn't," which got a fair support on Congress.[107]

In addition, the statement in chapter Sputnik 1, which described that 48 percent of Americans did not even answer or were not able to answer to the Gallup's research about reaching the Moon decreased to 33 percent of people without an opinion after the Soviet achievement of bringing the first human into space.[108] In other words, this shows the difference of the amount of information and awareness that people had at the beginning of space exploration and after the first man in space.

2.5 Mercury-Redstone 3

By the end of January 1961, NASA performed a launch of Mercury-Redstone 2 (MR-2) carrying a chimpanzee named Ham in the cabin. The flight had however technical difficulties and because of them flew faster and to the higher altitude than was planned.[109] These issues caused that the probability of the launch and survival of the crew in the range between 88 and 98 percent and because of that NASA decided, at the end of February 1961, to postpone the flight of Mercury-Redstone 3 (MR-3), the first U.S. manned flight.[110]

It was on February 22, 1961, when the Space Task Group said that Shepard, John H. Glenn, and Virgil I. Grissom were chosen to train for the mission MR-3. Later on, about a month to the public announcement, the exact flight order of the men was selected by Robert R. Gilruth, who had also chosen Shepard as the first fly astronaut in early January.[111]

MR-3, officially named *Freedom 7*, was launched on May 5, 1961. It was the first American manned suborbital flight with Alan Shepard on board.[112] About 15 minutes before the launch bad weather caused its postponing. It was supposed to get better in about an hour, but it took almost six hours.[113] Shepard had to sit in the cabin for the whole time

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[107] *The New York Times*, "Man in Space."
[108] Dick, ed., *Historical Studies in the Societal Impact of Spaceflight*, 4.
[109] James M. Grimwood, *Project Mercury: a Chronology* (Washington, DC: National Aeronautics and Space Administration, Office Scientific and Technical Information, 1963), p. 121, accessed April 09, 2018, https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19630011968.pdf.
[110] Loyd S. Swenson, James M. Grimwood and Charles C. Alexander, *This New Ocean: A History of Project Mercury* (Washington, DC: National Aeronautics and Space Administration, Office of Technology Utilization, 1966), p. 342, accessed April 9, 2018, https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19670005605.pdf.
[111] Swenson, Grimwood and Alexander, *This New* Ocean, 342.
[112] Grimwood, *Project Mercury*, 137.
[113] Swenson, Grimwood and Alexander, *This New* Ocean, 351.

and was forced to pee into the suit according to the BBC's documentary/drama mini-series Space Race.[114]

The flight was without any major difficulties and took about fifteen minutes. Shepard experienced the state of weightlessness for about five minutes. After he descended the rescue team was there in about two minutes and the whole recovery operation was without any incident because they could see his whole way down. Shepard was without any injuries and in perfect condition and the spacecraft was undamaged as well. Mercury-Redstone mission was a success and a great achievement for the United States.[115]

Despite some Americans did not believe that Gagarin went into space, most of them were concerned about the Soviet lead in the space race. It may be well argued that after Shepard's flight even the nonbelievers of Gagarin's success felt comfort knowing that the flight of MR-3 and even the rescue operation had been public, when in fact the launch and flight of Vostok carrying Gagarin were kept in secret until it had happened and succeeded.[116] President Kennedy may have a good point saying that they were taking a risk with the public launching of MR-3 because in case it failed, it would have damaged the country's pride and frighten people. However, he also mentioned that, quoting: "The essence of free communication must be that our failures, as well as our successes, will be broadcast around the world. And therefore we take double pride in our successes,"[117] according to W.H. Lawrence in *The New York Times* newspaper on May 9, 1961.

The achievement of the United States was announced in the Soviet Union by Moscow radio in the evening of May 5, 1961, described as admirable followed with words that the U.S may match the performance of the Soviet at the appropriate time.[118] However, in the magazine *The Engineer* the flight of MR-3 was described as "a jump into space."[119]

On the other hand, Americans felt differently. They celebrated the flight as a great success. Except for the space experts who "did not see in it any great advantage gained in

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[114] "Space Race 3 of 4 Race For Survival," *YouTube* video, 50:08, October 16, 2011, accessed April 8, 2018, https://youtu.be/8B94ftc9UVA?t=2793.

[115] Grimwood, *Project Mercury*, 137.

[116] Swenson, Grimwood and Alexander, *This New* Ocean, 342.

[117] W. H. Lawrence, "Kennedy Says Reds Pose Tests of Nerve," *The New York Times*, May 9, 1961, accessed April 10, 2018, https://timesmachine.nytimes.com/timesmachine/1961/05/09/118037634.pdf.

[118] Ira Henry Freeman, "Success of Shot Pleases Experts," *The New York Times*, May 6, 1961, accessed April 10, 2018, https://timesmachine.nytimes.com/timesmachine/1961/05/06/101461414.pdf.

[119] "The American Scene: An American in Space," *The Engineer*, May 19, 1961, accessed April 10, 2018, *https*://s3-eu-central-1.amazonaws.com/centaur-wp/theengineer/prod/content/uploads/2017/12/04164454/Alan-Shepard.pdf.

the propaganda contest with the Soviet Union."[120] Nonetheless, the MR-3 event helped American citizens to feel a bit more relieved that the U.S. is catching up with the Soviets in concern of the space. Between 1958 and 1961 Gallup asked American citizens about the field of long-range missiles and rockets. They asked which country – The U.S or the Soviet Union – is ahead in the field based on their opinion. 40 percent of asked people said that the Soviet Union is ahead in October 1958 and the view about it increased to 47 percent in February 1960. In February next year, the belief that the Soviet Union is ahead dropped to 30 percent and right after Shepard's flight to 20 percent.[121]

2.6 Apollo 11

After the Soviets had beaten America in every milestone in space president Kennedy, Vice President Lyndon Johnson and advising scientist had prepared a plan with the impression of the seriousness of the Soviet successes. The goal was to send men to the Moon before the Soviet Union.[122] In a speech to Congress on May 25, 1961, Kennedy said: "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."[123] He also warned the Congress of the estimated costs, which would reach $9 billion dollars over the years of preparation and Congress embraced the call. Kennedy's view led NASA manned flight throughout years during Mercury, Gemini, and Apollo missions.[124]

Ever since the Apollo 8 was sent around the Moon, the crew chosen for the flight of *Apollo 11* – Commander Neil Armstrong, Lunar Module Pilot Buzz Aldrin, and Command Module Pilot Michael Collins – underwent the most demanding training of their careers while at the same time were overwhelmed by media. On the day of the launch, they were able to withstand almost everything thanks to the training instructors who put them through many disaster simulations and could trust each other with their lives.[125]

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[120] Lawrence, "Kennedy Says Reds Pose Tests of Nerve."
[121] Dick, ed., *Historical Studies in the Societal Impact of Spaceflight*, 13.
[122] Richard Stenger, "Man on the Moon: Kennedy Speech Ignited the Dream," *CNN*, May 25, 2001, accessed April 10, 2018, http://edition.cnn.com/2001/TECH/space/05/25/kennedy.moon/.
[123] John F. Kennedy, "John F. Kennedy Speech" (speech, Washington, DC, May 25, 1961), Archive, accessed April 10, 2018, https://archive.org/details/jfks19610525.
[124] Stenger, "Man on the Moon: Kennedy Speech Ignited the Dream."
[125] Sparrow, *Spaceflight*, 136.

Apollo 11, carried by rocket Saturn V, launched on July 16, 1962, from Kennedy Space Station. While the preparation of the flight, crowds were all around cheering and waiting for the launch. Meanwhile, the crew was boarding the spacecraft and Aldrin felt like on top of the cradling tree. The noise from the engine below brought to his mind sound of a cargo train.[126] "There was only one man-made noise that was louder than the Saturn 5's first stage: a nuclear explosion."[127] A million people watched the rocket lift off from nearby beaches and roads and about six hundred million people watched it on the TV around the world.[128] The rocket reached the altitude of seventy-two kilometers above the Earth in less than three minutes and the route for the Moon began.[129]

Almost three hours after the launch *Apollo 11* reached the translunar orbit and the first TV transmission from the rocket to Earth followed during the sail through space. Following day, on July 17, there was only one correction of course needed out of scheduled four thanks to the very good lift off. On July 18, Aldrin and Armstrong put on space suits and went through the command module called *Columbia* to the lunar module called *Eagle* in order to transmit TV signal for the second time. On July 19, *Apollo 11* was on the other side of the Moon where was out of signal to contact Earth. They had to maneuver back and the third TV transmission was made.[130]

When the time to bring *Eagle* to the surface of the Moon came, Armstrong had to improvise, because of the area where it was supposed to land was full of boulders, he piloted the ship to the place more suitable for landing. He successfully landed *Eagle* only with thirty seconds of fuel left. After that, he reported on the radio: "Houston, Tranquility Base here. The Eagle has landed."[131] When the preparations were complete, Armstrong went down the ladder of the *Eagle* and to the surface claiming: "That's one small step for a man; one giant leap for mankind."[132] Aldrin joined him after a while and they were collecting samples and exploring the surface for two and a half hours. During that time

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[126] Burrows, *This New Ocean*, chap. 11, The Great Escape.
[127] Burrows, *This New Ocean*, chap. 11, The Great Escape.
[128] Sparrow, *Spaceflight*, 136.
[129] Burrows, *This New Ocean*, chap. 11, The Great Escape.
[130] Sarah Loff, "Apollo 11 Mission Overview," *NASA*, April 17, 2015, last modified December 21, 2017, accessed April 10, 2018, https://www.nasa.gov/mission_pages/apollo/missions/apollo11.html.
[131] "July 20, 1969: One Giant Leap For Mankind," *NASA*, February 19, 2015, last modified August 7, 2017, accessed April 10, 2018, https://www.nasa.gov/mission_pages/apollo/apollo11.html.
[132] Neil Armstrong, *NASA,* recorded July 21, 1969, accessed April 10, 2018, https://www.nasa.gov/wav/62284main_onesmall2.wav.

they placed an American flag with other mementos such as memorial tablet and a patch in memory of fallen Apollo 1 crew.[133]

While boarding back to *Eagle*, they loaded twenty-two kilograms of samples taken around the spacecraft. Later, when they were boarded, they had a mean and slept for couple hours.[134] I took twelve hours before *Eagle* lifted off the Moon surface and four more hours to get back to *Columbia* where Collins welcomed them. All of them were aboard and back inside the command module and set the course back to Earth. *Columbia* got back to Earth on July 24, 1969. It landed in the North Pacific Ocean, about 1500 kilometers southwest of Hawaii.[135] There was a United States Navy aircraft carrier *USS Hornet* about 24 kilometers from the landing place, on which was awaiting cosmonauts President Nixon. However, the cosmonauts had to be in quarantine for nearly three weeks. They got released on August 10, 1969. This day was celebrated in the whole United States of America.[136]

American citizens were afraid when the Soviets sent beeping *Sputnik* into space, but just after couple years, it all changed with the Americans conquering the Moon. Whole families watched the mission on their TVs and celebrated. Even those who could not afford a television paid for a motel so they could watch making of history.[137] Before the actual launch, in June 1969, there was a survey about the expenses of the space program with a simple question, if it was worth all the money. Most of the people asked said that it was not. The percentage ratio was 35.4 percent, who said it was worth, to 56.4 percent, who said it was not, out of nearly sixteen hundred people.[138]

Moreover, there were conflicts eliciting disarray about the Moon landing. People were protesting about the sums put into the space program. They wanted to put the money to improve the living standards of poor in the country rather than putting the money of taxpayers into the space program. For example, in New York City, after the *Apollo 11* crew

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[133] *NASA*, "July 20, 1969: One Giant Leap For Mankind."
[134] Sparrow, *Spaceflight*, 140-141.
[135] Burrows, *This New Ocean*, chap. 11, The Great Escape.
[136] Sparrow, *Spaceflight*, 141.
[137] Paul Harris, "Man on the Moon: Moment of Greatness that Defined the American Century," *The Guardian*, August 25, 2012, accessed April 10, 2018, https://www.theguardian.com/science/2012/aug/25/man-moon-american-century.
[138] Dick, ed., *Historical Studies in the Societal Impact of Spaceflight*, 16.

returned to Earth, a representative of Harlem's black community said a similar thing to a TV reporter:[139]

> The cash they wasted, as far as I'm concerned, in getting to the moon [sic], could have been used to feed poor black people in Harlem, and all over this country. So, you know, never mind the moon [sic]; let's get some of that cash in Harlem.[140]

On the other hand, there were people supporting the cause of space exploration. For instance, Tim Barnwell, Asheville photographer and member of Astronomy Club of Asheville, said that the impact of *Apollo11* affected his contemporaries in choosing their career and also helped to juxtapose social and political unrest at the end of 1960s.[141] Furthermore, Arthur C. Clarke, who wrote a script for the sci-fi movie *2001: a Space Odyssey*, wrote in his comments about long-term benefits of the landing on the Moon.[142] Quoting:

> I think in the long run the money that's been put into the space program is one of the best investments this country has ever made . . .This is a downpayment on the future of mankind. It's as simple as that.[143]

However, in the Soviet Union, the live broadcast of the man walking on the Moon was not allowed. It was after the huge interest of people when the Kremlin permitted about twelve minutes of live broadcast containing the end of the mission, the splashdown of *Apollo 11* in the Pacific and a flash of the three astronauts on *USS Hornet*.[144] Nevertheless, the newspapers in the Soviet Union were not much concerned about the achievement. Yes, it was published in all newspaper and there was even a small article about the mission of *Apollo 11* on the first page of *Pravda*, but to consider, most of the Americans, at that time, would speak about the first American in space, not the actual first man in space, Gagarin, and it was the same in Russia. People were not that much interested and already had to deal with many problems in everyday life. They did not care too much about the first man on

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[139] Andre Chaikin, "Live from the Moon: The Societal Impact of Apollo," in *Societal Impact of Spaceflight*, eds. Steven J. Dick, Roger D. Launius, (Washington, DC: National Aeronautics and Space Administration, Office of External Relations, NASA History Division, 2007), 55-56, accessed April 12, 2018, https://history.nasa.gov/sp4801-chapter4.pdf.

[140] Chaikin, "Live from the Moon," 56.

[141] Barbara Blake, "Legacies of Apollo 11 Live on 45 Years Later," *USA Today*. July 18, 2014, accessed April 12, 2018, https://www.usatoday.com/story/news/2014/07/18/legacies-of-apollo-11-live-on-45-years-later/12873515/.

[142] Chaikin, "Live from the Moon," 56.

[143] Chaikin, "Live from the Moon," 56.

[144] Barnard L. Collier, "The Landing Makes a Big Splash Around the World, Especially in Russia," *The New York Times*, July 25, 1969, accessed April 12, 2018, https://timesmachine.nytimes.com/timesmachine/1969/07/25/78356514.html?pageNumber=31.

the Moon, said Sergei Khrushchev, son of the former premier of the Soviet Union Nikita Khrushchev.[145]

It was believed that landing on the Moon done by Americans would push the Soviets into the cooperation with the U.S in concern of space. But the truth was, that the Soviets did not admit that they "lost" the space race and also again declined the cooperation agreement and rather alleged "that there never had [sic] been a 'space race' to the Moon,"[146] and just sent their congratulations to the United States about achieving the same technological success that the Soviet Union already contrived.[147] After many years, in December 1989, according to John Noble Wilford's article in *The New York Times,* the Soviets finally admitted that there had been a "space race" to the Moon during the 1960s and that they were not able to overcome booster rocket failures which led to the abandoning the program in the early 1970s and focusing on orbiting space stations.[148]

[145] Saswato R. Das, "The Moon Landing through Soviet Eyes: A Q&A with Sergei Khrushchev, Son of Former Premier Nikita Khrushchev," *Scientific American*, July 16, 2009, accessed April 14, 2018, https://www.scientificamerican.com/article/apollo-moon-khrushchev/.

[146] *U.S.-Soviet Cooperation in Space* (Washington, DC: U.S. Congress, Office of Technology Assessment, OTA-TM-STI-27, July 1985), 23, accessed April 12, 2018, https://www.princeton.edu/~ota/disk2/1985/8533/853305.PDF.

[147] *U.S.-Soviet Cooperation in Space,* 23.

[148] John Noble Wilford, "Russians Finally Admit They Lost Race to Moon," *The New York Times*, December 18, 1969, accessed April 12, 2018, https://www.nytimes.com/1989/12/18/us/russians-finally-admit-they-lost-race-to-moon.html

3 AFTERMATH AND SOCIOCULTURAL IMPACT IN GENERAL

After the success of the U.S. the Soviets tried to perform manned lunar landings as well, but after couple unsuccessful tries between years 1969 and 1976 they canceled the project and started to focus on orbital space stations.[149] There were six more landing attempts done by the U.S after the mission of *Apollo* and five of them successful. People did not care that much about the space program anymore and for instance, one of the Tennessee citizens supposedly said: "it's old hat, it's not like the first time."[150] It could have been predicted that every other attempt and success will not be seen as a triumph. It is good to mention that it was not the only factor, which caused the decrease of lunar landing viewing. NASA and also the astronauts were emphasizing on TV and in newspapers the technical part all missions instead of focusing on the human experience.[151]

The cooperation between the U.S and the Soviet space program had begun after negotiations between American President Richard Nixon and the Soviet leader Leonid Brezhnev in May 1972. They faced many problems such as different language and culture.[152] After finishing all the preparation and visits on both sides, on July 17, 1975, the *Apollo-Soyuz Test Project* was performed and *The Soyuz* and *Apollo* spacecraft connected each other in space to show how the engagement and docking systems operate together.[153] It is important to point out that both nations still did not believe each other and there was an atmosphere of secrecy attempts of spying from both sides.[154] One of the U.S crew members, Vance D. Brand, said that there was a strain onboard. The U.S. crew thought that the Soviets were pugnacious people and supposedly the Soviets thought the same about them. However Brand also said that it was like that only for a short time. He continued with: "We very quickly broke through that, because when you deal with people that are in the same line of work as you are, and you're around them for a short time, why, you

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[149] David S. F. Portree, *Mir Hardware* Heritage (Houston, Texas: Information Services Division, Lyndon B. Johnson Space Center, 1995), p. 5-6, accessed April 21, 2018, https://www.hq.nasa.gov/pao/History/SP-4225/documentation/mhh/mirheritage.pdf

[150] Chaikin, "Live from the Moon," 58.

[151] Chaikin, "Live from the Moon," 58.

[152] Olga Krasnyak, "The Apollo-Soyuz Test Project: Ideal Science Diplomacy," *USC Center on Public Diplomacy*, August 15, 2017, accessed April 22, 2018, https://uscpublicdiplomacy.org/blog/apollo-soyuz-test-project-ideal-science-diplomacy.

[153] Elizabeth Howell, "Apollo-Soyuz Test Project: Russians, Americans Meet in Space," *Space.com*, April 25, 2013, accessed April 22, 2018, https://www.space.com/20833-apollo-soyuz.html.

[154] Krasnyak, "The Apollo-Soyuz Test Project."

discover that, well, they're human beings."[155] A famous "handshake in space" between the U.S. crew commander Thomas P. Stafford and the Soviet commander Alexey Leonov was one of the main symbols of easing the strained relations between these two nations. But the major thing was that the handshake was performed more than 200 kilometers above the Earth. Commanders exchanged flags and the U.S.-Soviet cooperation had begun and it can be said that the space race had come to an end with this act.[156] Furthermore, after the dissolution of the Soviet Union in 1991, the American President Clinton demanded that the Russians should join the ongoing space station effort and after the Russians joined, the name of space station was changed to International Space Station.[157]

There have been many references to space race and space exploration in pop culture since the beginning of Space Race and even before it. Many comics, movies and TV shows, such as *Astro Boy, Plan 9 from Outer Space* and *The Jetsons*, had been made during that period concerning space. Even songs about space, for example, David Bowie wrote a song named "Space Oddity" in 1969, which was created in regards to the space exploration and many were convinced that the landing on the Moon was the inspiration for it, however later on, in 2003, Bowie claimed in an interview for the magazine *Performing Songwriter* that the inspiration was from 1968 sci-fi film "2001: A Space Odyssey."[158] Furthermore, also furniture and climbing frames for children were inspired by space. Climbing frames looked like rockets, planets, etc. in the United States, and it was not different in the Soviet Union and the rest of Europe.[159][160] The architecture was influenced by space as well, many cultural critics said that it was probably the biggest. They also said that the west of the U.S. was influenced especially: "the look of cities and highways with

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[155] Howell, "Apollo-Soyuz Test Project."

[156] Monica Grady, "A Handshake in Space Changed US-Russia Relations: How Long Will It Last?" *The Conversation*, July 17, 2015, accessed April 22, 2018, https://theconversation.com/a-handshake-in-space-changed-us-russia-relations-how-long-will-it-last-44846.

[157] John E. Catchpole, *International Space Station: Building for the Future* (Berlin: Springer, 2008), p. 2.

[158] Kelly Dickerson, "Here's What David Bowie's Song 'Space Oddity' Is Really About," *Business Insider*, January 11, 2016, accessed April 23, 2018, http://www.businessinsider.com/david-bowie-song-space-oddity-meaning-2016-1.

[159] "Playgrounds Take a Space-Age Spin," *LIFE Magazine,* March 15, 1963, 97.

[160] Georgi Stankov, "My Dream Playground Workshop: Involving Children in Participatory Design," *ACADEMIA*, accessed April 22, 2018, https://www.academia.edu/3440722/My_Dream_Playground_Workshop_Involving_Children_in_Participatory_Design.

upswept winglike roofs, domes, satellite shapes and starbursts that became the dominant visual language of motels, diners, and gasoline stations."[161]

It is important to mention technology as well. The technology of both countries was affected by space race and space exploration in general. It has its impacts until nowadays. The improvement of technology since then has increased dramatically thanks to the competition of these nations during the Cold war. Everyone who is watching satellite TV nowadays can be grateful to the unmanned satellites that had been sent to orbit Earth. Another example is freeze-dried food, which NASA developed for the Apollo missions. The created food was almost the same but weighed only twenty percent of the original weight. The creation of NASA is now used in the food industry. There are many other inventions of that time used nowadays such as smoke detectors, water purifier, memory foam, etc.[162]

[161] Randy Kennedy, "When the Space Age Blasted Off, Pop Culture Followed," *The New York Times*, September 25, 2007, accessed April 22, 2018, https://www.nytimes.com/2007/09/25/science/space/25pop.html.

[162] Kerry Kolbe, "10 Tech Developments to Thank the Space Race For," *The Telegraph*, February 09, 2017, accessed April 22, 2018, https://www.telegraph.co.uk/films/hidden-figures/technology-from-the-space-race/.

CONCLUSION

This bachelor thesis introduced selected historical events connected with the space race and focused on the chosen events and their sociocultural effects on Americans and Russians. The thesis demonstrated the comparison of social and cultural factors between the U.S. and the Soviet Union. Due to lack of sources, the student was not able to write as much as he intended to. There had been used historical books connected to events of the Space Race, newspapers from that time and also many websites, even roughly translated Russian ones.

The first event described *Sputnik 1* as the start of the space race. The Soviet Union did not know how immersive is this event going to be, the Kremlin nor the media took it seriously. They simply missed the chance to create a huge propaganda out of it. The Soviet Union newspapers only put small articles about the event on the title pages. However, it was different in the U.S. The media were full of *Sputnik 1* and its beeping sound. The event had a much bigger impact on American citizens than on Soviets.

The fact that the Soviet government kept in secret that the dog *Laika* will not survive the journey to space made Soviet citizens become reasoning decisions of their government and the whole Soviet space program. Nevertheless, in the U.S., the Launch of *Sputnik 2* was a huge concern. Some American media were making fun of *Laika*, however, Americans really started to feel the threat invoked by the Soviets.

Explorer 1, the first American satellite, was not a big deal in the Soviet Union. It was not their satellite nor was it first. Even Soviet newspapers announced it only briefly on inside pages. On the other hand, although Americans were still afraid of Russian technology, they celebrated the huge success and felt a bit relieved knowing the U.S. is catching up. Only the technical newspapers had a different opinion, they claimed it as focusing on emotions of the Americans.

The next event dealt with the first man in space. Like it was with previous events, the Soviet government kept the whole process in secret and released that the first man in space was Soviet only after they succeeded. The whole nation was celebrating and also the government finally took the chance and created propaganda. It was an enormous achievement and even the U.S. president congratulated Soviets. Nonetheless, Americans, in general, started to pay attention to space exploration. Even in Congress, there was an argument about putting more effort into the space race.

Americans were doing everything concerning space publicly and this had a much bigger impact on Americans feelings about MR-3 flight than it could ever have on Gagarin's flight. They were much more concerned about their success in putting a man into space than Soviets. Also, the nonbelievers, who thought that Gagarin never got into space, felt comfort knowing that everything was public rather than kept secret as it was with *Vostok* 1. Americans even felt that they started to be in the lead of space race. Even previous surveys which had shown that Americans believed the Soviet Union is in lead changed dramatically, more Americans believed that the U.S was getting in lead. However, it can be said that in the Soviet Union the American success was not taken seriously because there are almost no sources concerning that.

Even though the American enormous achievement of *Apollo 11* landing on the Moon was watched by millions all over the world, the public was divided. Many thought that it was not worth the money, saying that it should have been used differently, for example taking care of the poor. On the other hand, there were people, who were saying that it is a great technological success and that the technology will influence the world. Nevertheless, in the Soviet Union people were not allowed to watch the event. Only after huge interest, the Kremlin allowed watching the rescue operation of *Apollo 11*. Also, newspapers did not pay much attention to it as they were influenced by the government.

All chosen Space Race events and many others led to cooperation between the U.S. and the Soviet Union. Even though the nations still did not believe each other and spied on each other, the crews find out that they are not that much different and with the handshake performed in space the nations started truly to cooperate.

A lot of things were influenced by space during the Space Age. Movies about space were created, songs, comics and books, architecture and many other things. All of it had a huge impact on citizens of both nations. However, the United States was wealthier than the Soviet Union[163] and thanks to it and also thanks to the publicity of all events the impact on citizens in the U.S. was much greater than on the citizens of the Soviet Union.

In conclusion, the thesis showed that the American public and the nation itself were more influenced by the Space Race and the Space Age altogether. The Soviets highlighted only their successes in their country, though the Americans were writing also about the Soviet successes. The Americans were doing everything publicly, which also helped the

[163] Mark Harrison, "The Soviet Economy, 1917-1991: Its Life and Afterlife," *VOX*, November 7, 2017, accessed May 1,2018, https://voxeu.org/article/soviet-economy-1917-1991-its-life-and-afterlife

student to gather more information about the American space program. It can be said that it was like this because the Soviets were trying to hide their mistakes, and the process itself, and thus there was not enough information to collect about the Soviets. It is also good to mention that without the competition between the U.S. and the Soviet Union the whole world would look a bit different than it looks now, since many technological inventions might have not been invented, which would have surely impact on social and cultural factors as well.

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