The Space Race

Alexis Diaz

Assumption at 0: The Space Race

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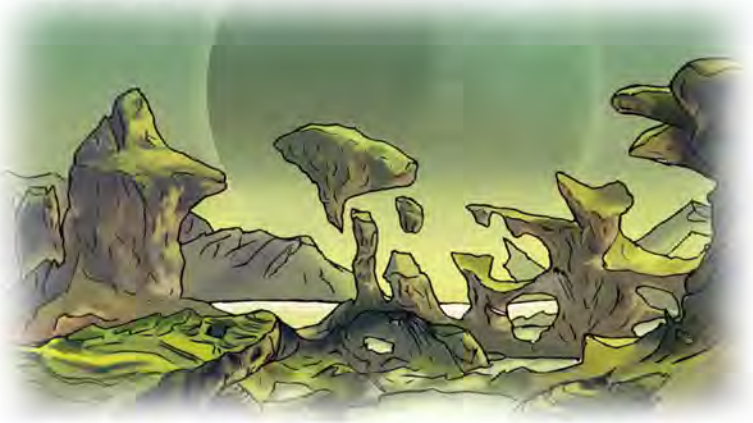
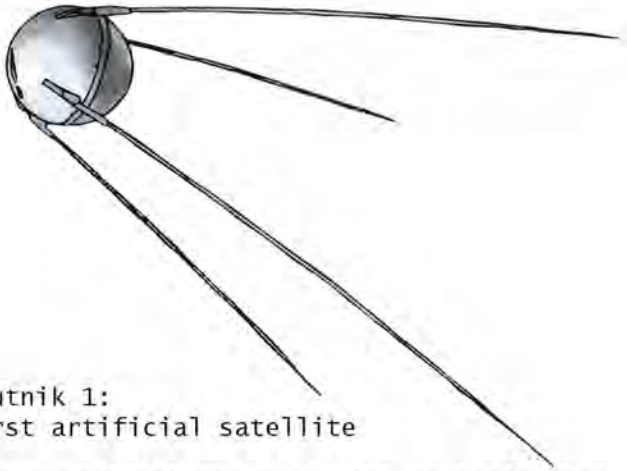
I don't remember when it was that I first began to gain an interest in space, but I was always amazed by the fact that there are millions of planets out there just like ours. In elementary I would always read books about the solar system and always thought about how those imagined how those planets would look like if I were to go there I often think about whether or not there is life outside of Earth. I believe there is, the universe is enormous and thinking that we're the only ones is a bit depressing in my opinion. There are is infinite number of different possibilities of to what life may be like out there. When I think about this I constantly tend to imagine how a different world would look. Its hard for me to put in words how much the this blows my mind because its such a hard concept to grasp. But the way I look at it is that there is so much for us to learn out there, stuff that we can't experience here on Earth.



For example, a geologist might spend his or her whole life studying Earth because that's what their passion is. But imagine how they would react when looking at another planet's geological structure completely different than Earth's, I can only assume that they would be left in awe when exposed to something like this.

But if life does actually exists in some other part of the cosmos, it makes things even more complicated. There could be a place out there where there is no war, where everyone works together just for the sake of surviving. A place with completely different cultures than ours, different values and ethics. The list can go on forever.

I can't find a way to explain how thrilling space exploration is for me. To some people it might be scary, thinking of the unknown and all of the other mysteries out there. But I guess that's what I find interesting, it makes you realize how unique we truly are. In scifi movies, for example in Avatar, you see someone's picture of what a different world might look like. Some people think that this would never happen, that we would never visit other celestial bodies. But this may in fact become a reality one day.



Sputnik 1:
First artificial satellite

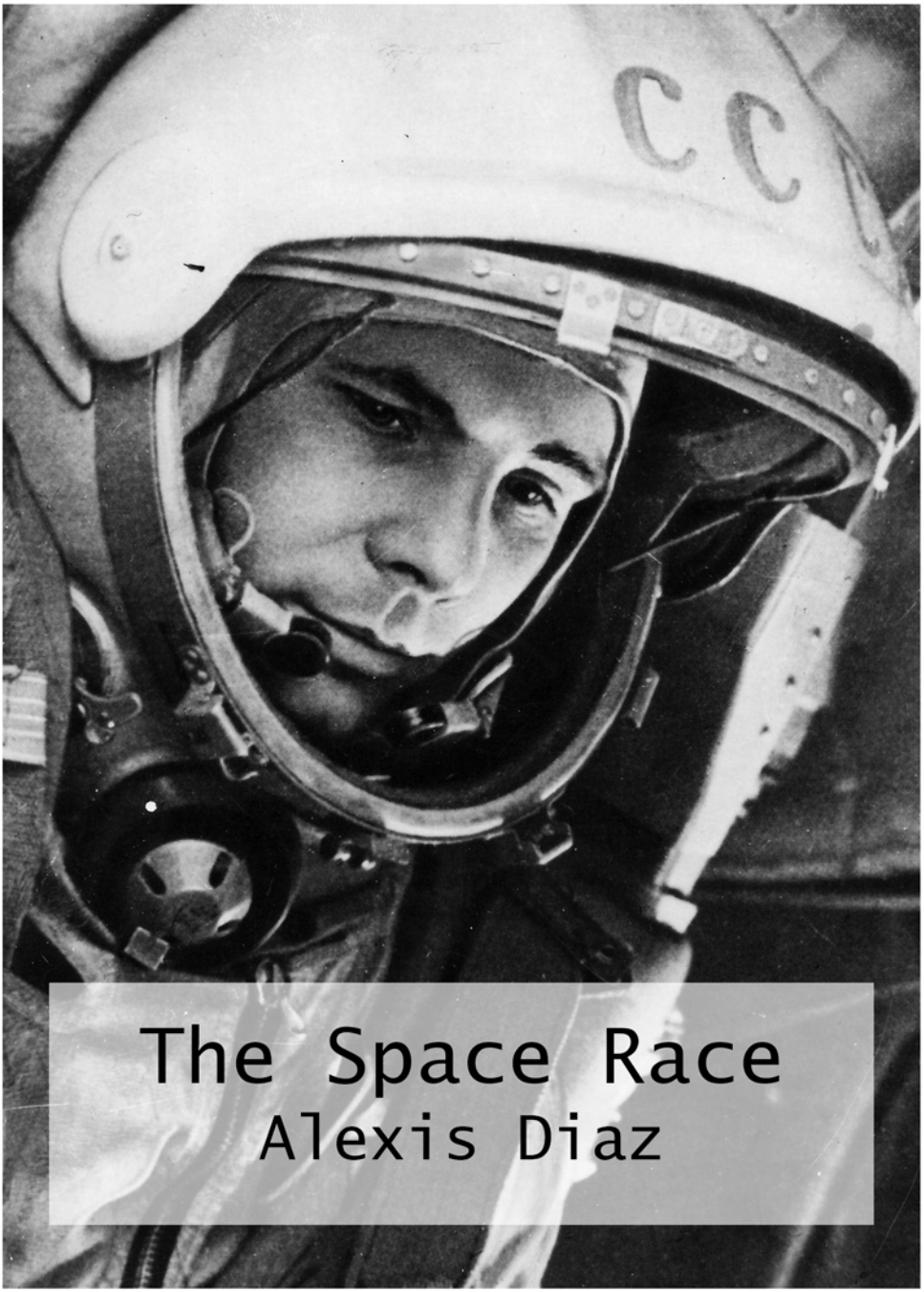
Its amazing to see the great technological advancements we have done over the past one hundred years. To think about how we went from the first powered airplane flight to landing on the moon in the span of just 66 years is incredible.

Even though there was heavy rivalry between both sides, they managed to accomplish so much. During that race we demonstrated what we are capable of achieving what seemed to be only science fiction during those times. Although there were tensions between the U.S and the Soviet Union to see who had the superior spaceflight technology, it seems to me that they just wanted to show the world who was the superior figure. Even though they were racing for power, they both had a great success when it came to the things they did. The Soviets managed to be the first to send an artificial satellite to space and a man into orbit, but the U.S won the race by being the first to send humans to the moon.

Apollo 11: The spaceflight that landed the first man on the moon.

Now, there are many countries working together but recently we haven't seen a lot of funding for these type of projects, which is very sad. Seeing the outcomes of the space race I believe that we can do the unimaginable. The space race was where it all began, it was the first big push for space exploration.

The logo of the International Space Station.



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The Space Race was one of the most important events in history. As the two biggest powers, the USSR and the U.S, race to get out of the grasps of earth's gravity. What these two countries accomplished during that period of time showed how far we can go with hard work and dedication. Although the outcomes of the Space Race managed to bring the world together through such beautiful events, this race started with two men Wernher von Braun and Sergei Korolev, and their weapons of mass destruction. It began as a race between the Soviets and the U.S to gain supremacy of space as a means of being the greater power but dates back to the end of WWII right before the defeat of the Third Reich.

Wernher von Braun

Sergei Korolev

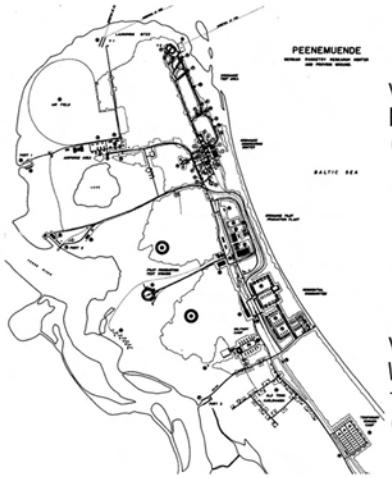
During WWII, the purpose of these rockets was for Nazi Germany to gain the ability of striking their enemies from a safe and far away distance. With this advanced technology Adolf Hitler planned to win the war and put Germany back into power. Leading the missile project was a young engineer by the name of Wernher von Braun, who along with his team managed to create Hitler's "wonder weapons". According to Deborah Cadbury, author of, in July 1943 during a presentation of von Braun's missile, the A-4, Hitler stated that "Europe and the rest of the world will be too small to contain a war with such weapons. Humanity will not be able to endure it"(Cadbury 5).

Von Braun's V-2 missile also known as the Vengeance Weapon-2.

It was obvious that Hitler was very impressed with von Braun's work. Von Braun's A-4 could change the course of where the war was headed, with that in mind Hitler knew what his next move would be.

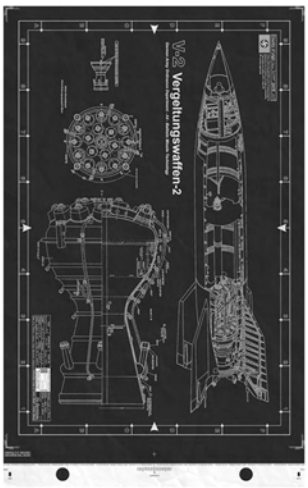
Cover for the A-4(V-2) technical data manual.

His next demand was that the A-4–soon renamed the V-2 or 'Vengeance Weapon 2'–should carry a warhead not of one tons, but ten tons, and be mass-produced with output of rockets raised to two thousand a month. He wanted annihilation, and gambled his dwindling resources on experimental rocket science(Cadbury 5).



V-2 rocket blueprint (Right)

Vengeance Weapon 2 firing range (Left)

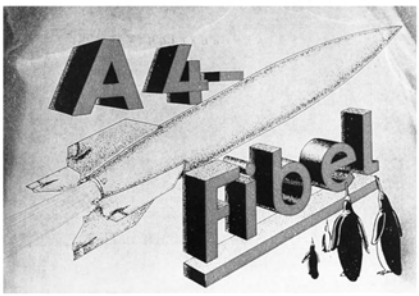


Hitler did everything he possibly could in order to step up production on the V-2 rocket. Once mass produced, these rockets were quickly sent to strike London.
On September 8, 1944, the V-2 bombardment of London began...traveling at four times the speed of sound, the V-2s soon created terror as they plunged silently on to their targets: the explosion was always heard first, followed by the dreaded sound of its approach. For long-suffering Londoners who had survived the blitz and countless bombing raids, the massive explosion without the accompanying warning sound of the bomber had just the unnerving effect that Hitler had hoped for(Cadbury 13).

Hitler thought his V-2s would lead him to victory over the war, but as time went by this was looking less certain. The Soviets were advancing closer by the minute clearing everything in their path. For Hitler this was the end, but for von Braun his life as an engineer was just getting started.

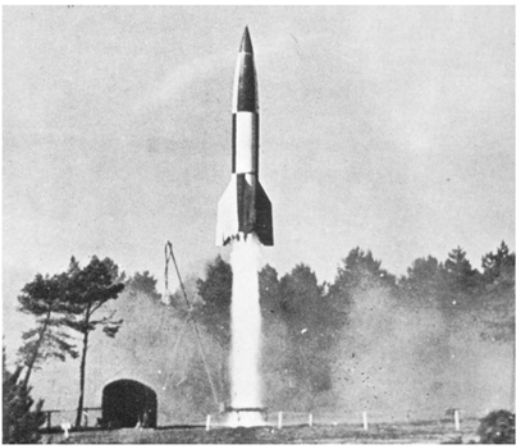
Von Braun's goal was never to create weapons capable of wiping out entire cities. He never planned on going in this direction. What he was looking for was a way to escape Earth's gravity and reach outer space. On an excerpt from the V-2 manual, von Braun clearly states his fascination with space travel:

> On this planet where you live
> In an age of guided missiles
> A sky ship in the universe
> A long dream of mankind
> May someday fascinate our century
> But first you must master a new weapon...
> (Extract from the V-2 manual, 1944)



V-2(A-4) rocket manual cover

He dreamed of space exploration, not destruction, and took any opportunity to continue his work with rockets.



V-2(A-4) rocket at launch

The army wanted a rocket that could travel 160 miles bearing a one-ton warhead, which would land within half a mile of the target. For von Braun, it was the perfect opportunity: it would be the largest and most powerful rocket ever created. "We were only interested in one thing–the exploration of space," he claimed later. "Our main concern was how to get the most out of the Golden Calf"(Cadbury 10)

Ruins after a V-2 rocket airstrike in East London 27 March, 1945

The Soviets lifting their flag after a triumph over the Third Reich

He used the resources given to him by the Germans to fund his own research. However, as the Soviets advanced through Europe, there was concerns in von Braun's team as to what would happen to them. No matter what Von Braun looked for ways to continue his work. As the Soviets began to get closer, the team at the testing facility were forced to fight against the Soviets. Anyone who could carry a gun was trained in hope that they could stop the Soviets from advancing. Von Braun could either stay and possibly get shot by the Soviets or death by firing squad for disobeying SS orders. Still, von Braun had a plan.

Wernher von Braun and his team

National Aeronautics and Space Administration logo

Von Braun had already raised the possibility of surrendering to the Americans with senior members of his team. Some months earlier, when it had become clear that Hitler would not win this war, they had discussed it discreetly...they had all agreed: only the Americans could fund a space program. Huge sums of money would be needed to pierce the stratosphere with a rocket and travel to the Moon, then the planets; but it could be done. Speaking quietly, von Braun reminded them of their own plan to get to America, impossible though it seemed at the time...the pact was made...their secret goal was America(Cadbury 14).

Wernher von Braun with his brother Magnus von Braun

America was their best bet for continuing their work, eventually von Braun and his team managed to escape the SS and surrender to the Americans where they would later be brought to the U.S to continue their research on rocket science. With the Americans having von Braun leading their rocket research, the Soviets were left with no one that could compete against Wernher von Braun's bright mind. However, there was a man bright enough to challenge von Braun. A man by the name of Sergei Korolev.

Sergei Korolev in his early years

Sergei Korolev was a young engineer, who like von Braun, had a great passion for space travel. His interest in flight began as a kid when he saw a man fly a plane at a local fair. From that point on he was devoted to find ways to escape Earth's atmosphere. Later on, Korolev along with some of his colleagues created the Group for the Investigation of Reactive Motion also known as GIRD. During this time however, Korolev was arrested for allegedly participating in anti-Soviet activities and was sent to a work in a gulag camp.

During his imprisonment Korolev repeatedly stated "*I have never carried out any destructive activities. I have never been a member of any anti-Soviet destructive organization, nor have I ever heard or known about such...I have always been loyal in every way to the general line of the party, to Soviet rule, and the Soviet Motherland*"(Cadbury 80). Eventually Korolev was released from the work camp but was then sent to the Central Design Bureau 29 in Moscow. Here Korolev, along with other scientists, specialized in rockets and designed liquid-fueled boosters for dive bombers.

Russian rockets used during WWII

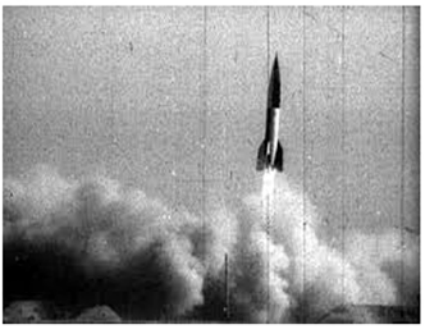
After working here for some time Korolev was finally given parole. During WWII missiles became one of the Russians top priority and just like von Braun, Korolev was making weapons of mass destruction.

Soon after the Third Reich was defeated the Soviets, like the Americans, planned to take the German's V-2 missile technology, but the Americans managed to take von Braun before the Soviets could get to him.

Wernher von Braun with president John F. Kennedy

Korolev was then put in charge to create a rocket that would make the V-2 obsolete and created the R-1 a Soviet version of the V-2. Korolev would not stop there. "*Plans were soon underway to create detailed designs for the R-1 and even to develop prototypes later in the year. Korolev was anxious to get the go-ahead to build a Soviet rocket of twice the range, now formally designated the R-2. He intended this to be a leap forward in design...*"(Cadbury 104).

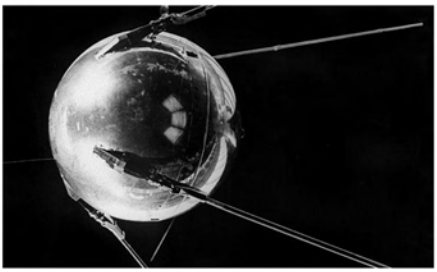
A russian V-2 (R-1) rocket at launch



Korolev was desperate to surpass von Braun's rocket technology. His hard work and dedication was what allowed the Soviets to keep up with the U.S.

Statue of Sergei Korolev in Moscow

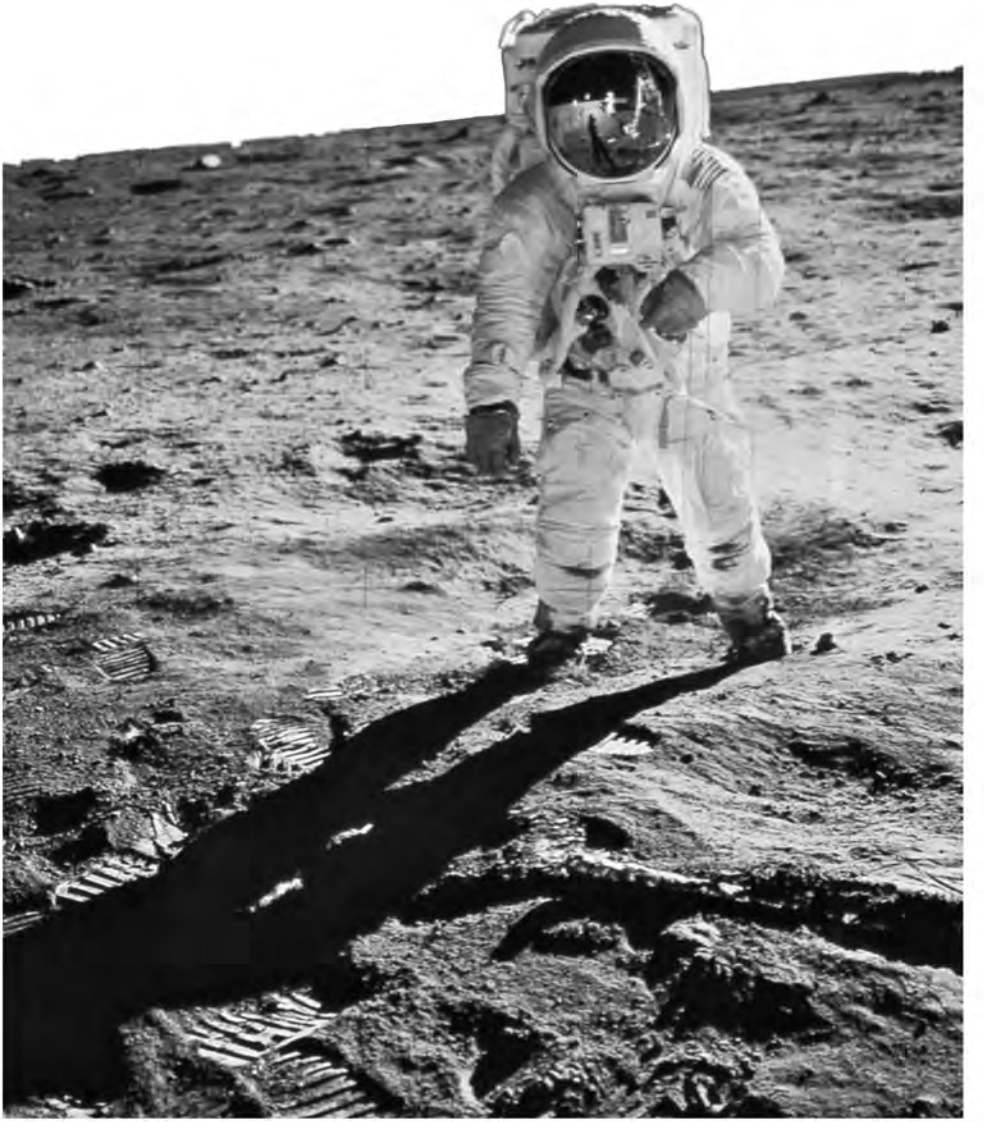
Sputnik 1 the first artificial satellite in space



The Soviets managed to reach the outskirts of this world before the U.S, with Sputnik 1, and later manage to send the first man into orbit, Yuri Gagarin. The U.S then managed to send men safely to the moon. What first started out as a war, ended up being race for space exploration where many of mankinds greatest accomplishments took place.

Neil Armstrong

Yuri Gagarin



Final Mission

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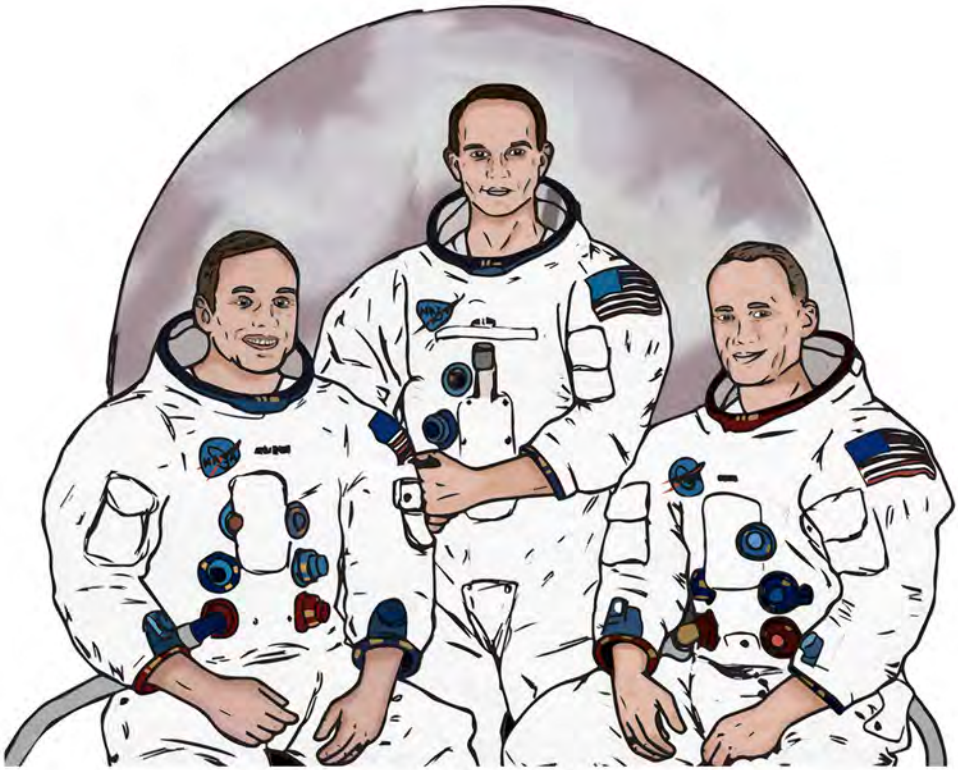


As the day came closer fear filled the astronauts bodies. They were to be the first men to walk on the moon a few days from now. It was July 13, 1969 three days before the launch of Apollo 11, the spacecraft that was to send men to the moon and lead the United States to victory in the Space Race. Astronauts Neil Armstrong, Edwin "Buzz" Aldrin, and Michael Collins were about to partake in one of the greatest accomplishments mankind has ever achieved. They were to set foot on another world into the unknown. With the successful launch of soviet cosmonaut Yuri Gagarin, the U.S was in deep humiliation. The U.S was desperate to find ways to surpass the great accomplishment the Soviets had achieved, with that in mind. President Kennedy announced that the U.S will put a man on the moon and return him by the end of the decade.

The day had arrived, July 16, 1969. The astronauts were geared up and ready to embark on the great journey that was waiting for them. As they walked to the Saturn V rocket that would carry the Apollo 11 Spacecraft many thoughts ran through their heads. They began to remember the days when they used to watch

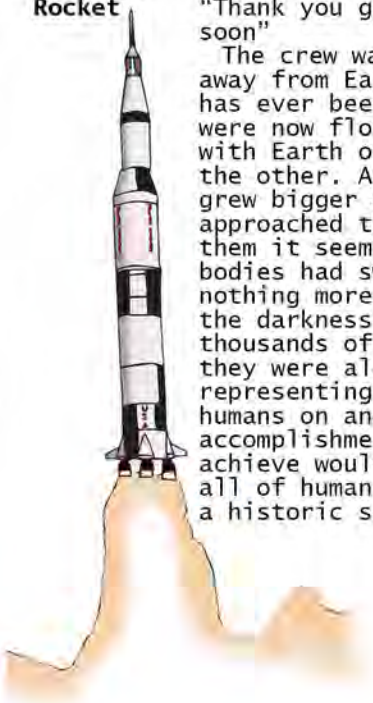
Michael Collins, Buzz Aldrin, and Neil Armstrong

the moon and admire its mysterious beauty, now they were to be the first to set foot on the unknown world. Even though there was many risks involved in this mission, the brave astronauts knew their trip would be of a great benefit to not only the U.S, but the entire world. As they walked carefully up to the ship, they tried their hardest to not to shake. As they entered Apollo 11 their hearts began to beat the fastest its ever beaten. They began to get nervous as they saw the spacecraft hatch close behind them.Then there was silence. Suddenly the engines began to ignite. The sound was massive, like that of a thousand lions giving their magnificent roar. The fear they felt soon turned into excitement. As they heard the countdown coming from ground control they could hear the engines get louder and louder. “Lift off!”. The Saturn V rocket launched with Apollo 11 at 9:32 am. The men felt a strong force pulling them back as the rocket flew into the sky. Twelve minutes later they entered orbit.

Ground Control workers

The men were greeted with zero gravity as they orbited around Earth. "We're in orbit fella's, we can relax now" said Collins. They unbuckled themselves for a while to let their bodies relax before strapping back in. "Look at it..." said Armstrong, "its beautiful". The crew was hypnotized by the sight of Earth, they were unaware that such beauty existed. The orbit around Earth went by quickly the astronauts buckled in to get ready for their push into the trajectory toward the moon.
"Ground control this is Buzz checking in, everything is going as planned"
"Thank you Buzz, everything seems fine down here, good luck"
"Thank you ground control, see you soon"

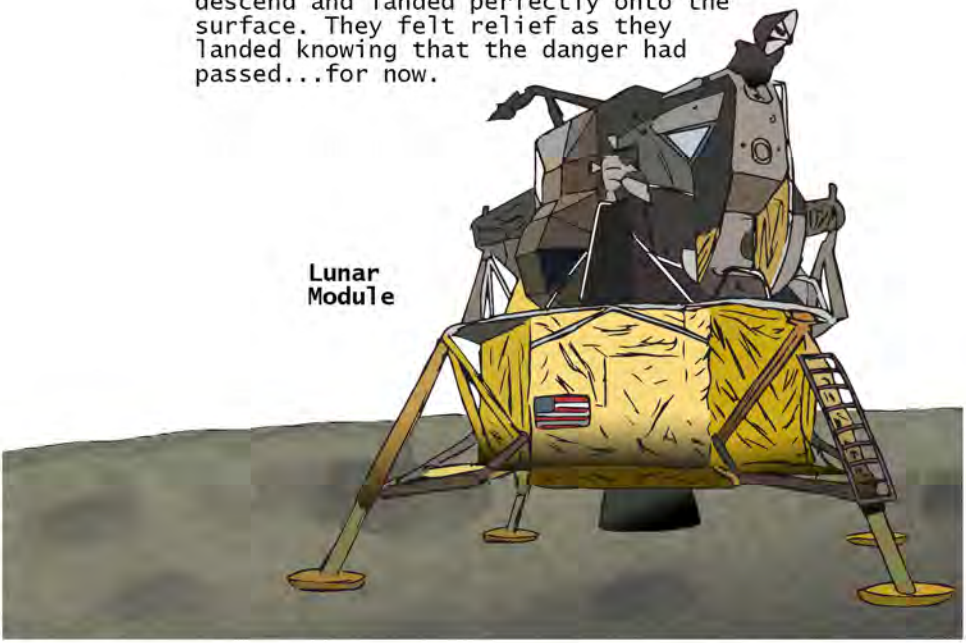
Saturn V Rocket



The crew was now hundreds of miles away from Earth, the farthest anyone has ever been away from humanity. They were now floating through a dark tunnel with Earth on one end, and the Moon on the other. As the day went by, the moon grew bigger and bigger as they approached the mysterious world. To them it seemed like if the celestial bodies had switched places. Earth was nothing more than a small blue ball in the darkness of space. They were thousands of miles away from humanity, they were alone. But they were representing mankind by being the first humans on another world the accomplishments that they were to achieve would always be remembered in all of human history. They were making a historic scientific breakthrough.

As they entered the moon's orbit they were able to see the enormous craters that covered the surface, a completely foreign land. Buzz and Neil began to head down to the lunar module to begin prepping for their descent. Michael was chosen to stay on the command module and monitor the mission and the module's orbit. As they finished their preparation for their next phase of the mission they began to take their place aboard the lunar module. They readied their suits and began to undock from the command module. They could through the tiny window in the module how they slowly began to drift away from the command module and drifted closer to the moon.

Everything was going as planned, the calculations were normal and the crew were feeling fine. They slowly began to descend and landed perfectly onto the surface. They felt relief as they landed knowing that the danger had passed...for now.

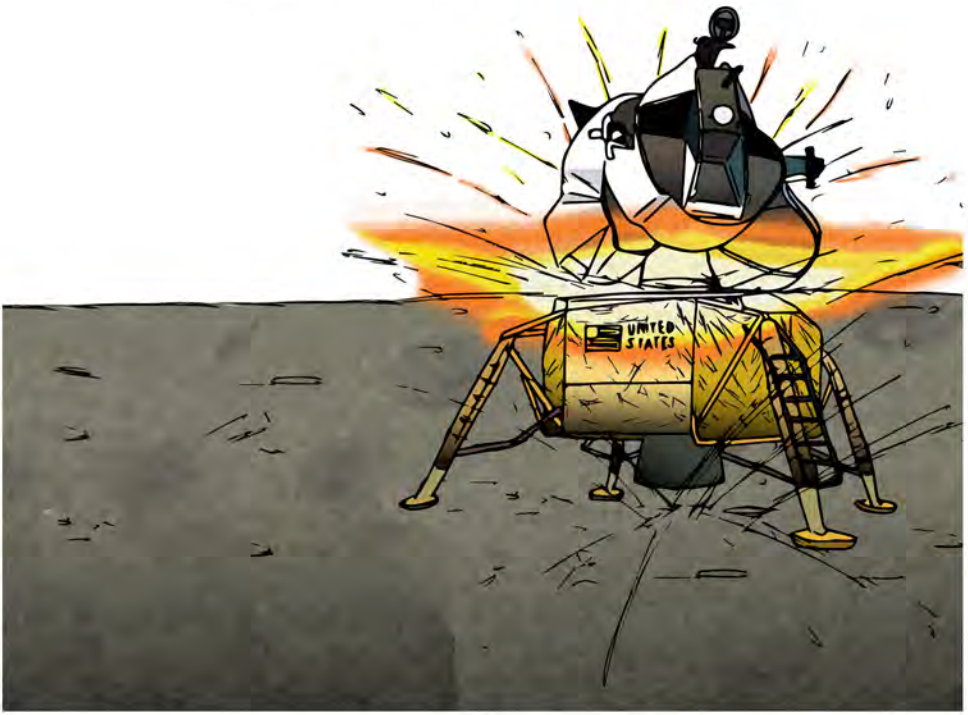


Lunar Module

They began to remove their suits and began taking photographs of the surface through the small window that they had. They were proud to have accomplished what others believed to be impossible. They took photographs of every angle they possibly could and recorded as much data as possible and sent it back to ground control. Once they finish with the necessary prep work they began to ready their suits in order to take thr first steps on the surface of the moon. They quickly got their gear ready and were eager to see this new world with their own eyes. Neil was the first to go then Buzz followed. Once on the surface they took more photographs of the surface and planted the American flag on the surface.

Buzz and Neil

They spent hours on the surface gazing and admiring all of its beauty while gathering data for research. After a exploring for some time they began to walk back to the module as it was time for them to go back home. They readied themselves and began the countdown. Unfortunatley someting terrible happened. When the engines were ignited their was an explosion and they were unable to take off. They contacted the comand module and informed Michael about what had happened before their communication was lost and were never heard of again. They were heroes destined to give their life for all of mankind.



Fate has ordained that the men who went to the moon to explore in peace will stay on the moon to rest in peace.These brave men, Neil Armstrong and Edwin Aldrin, know that there is no hope for their recovery. But they also know that there is hope for mankind in their sacrifice.These two men are laying down their lives in mankind's most noble goal: the search for truth and understanding.They will be mourned by their families and friends; they will be mourned by their nation; they will be mourned by the people of the world; they will be mourned by a Mother Earth that dared send two of her sons into the unknown.In their exploration, they stirred the people of the world to feel as one; in their sacrifice, they bind more tightly the brotherhood of man.In ancient days, men looked at stars and saw their heroes in the constellations. In modern times, we do much the same, but our heroes are epic men of flesh and blood. Others will follow, and surely find their way home. Man's search will not be denied. But these men were the first, and they will remain the foremost in our hearts. For every human being who looks up at the moon in the nights to come will know that there is some corner of another world that is forever mankind.

President Nixon giving his speech