

Skyworld

Ariella silently floated through the clouds going forward and down. She had tried it many times before, and it still felt equally amazing floating around in the clouds. This time though more because of the anticipation of what was to come than the experience of floating. As she slowly descended through the clouds a platform emerged in her field of view. On the edges of the platform were 3 big screens. Ariella landed on the center of the platform and walked to one of the screens. On the screen in big letters it said: "Welcome to the Universal Wide Web."

"Connect me with Noah," she said to the big screen. The screen blurred, and after a little while a familiar face appeared.

"Good morning," Noah said, yawning slightly as if to emphasize.

"We can call it morning if you like. Here it is afternoon, as it is on Earth. All a matter of conventions as you know."

"How is it like never to experience a sunrise?" Noah asked.

"Silly boy, you know we do have a sunrise, once every 117 days approximately. And it lasts a very long time. You really should come and visit me, and learn how it is to fly through real air. You need to see the beauty of Venus for yourself."

"Yeah, I'd really like that. But it will be up to my parents when, as they are the ones paying the ticket. And I doubt they will let me go on my own."

They talked for a while, then Ariella disconnected and turned off her headset and she was instantly back to the real world in her own room. It was a typical room for a girl her age, perhaps with the exception of the posters of dragons, and of men and women in shiny armour wielding medieval weapons. Like most other rooms on Venus it had a big panorama window to the outside, a window that could not be opened since the air outside was toxic to humans. But the view was great displaying open sky and beneath it layers of clouds. The people of Venus had built their structures this way to remind themselves daily that they were living in the open sky, and they preferred the natural light even though it could easily be synthesized using modern technology. However, as a night lasted 58 Earth days on Venus they had to rely on artificial daylight in those periods, and the windows had built-in dimming technology for simulation of Earth-like day and night cycles. Being a child and having grown up on Venus Ariella took all of this for granted.

On Mars, Noah enjoyed a much different view. There were no windows in his room, but the living/dining room had a large panorama window which, like all other windows on Mars, was slightly tilted towards the ground to protect against meteor impacts from space. Mars was still a low pressure world and would remain so for centuries to come. Upon inspection, Noah found the cold, red desert to be the same it had always been, and did not waste much time enjoying the view. Instead he turned towards his parents and asked:

“When are we going to Venus?”

“Now, now,” said his father, “travelling to Venus is a journey of a lifetime. We need to save up first, because it is not cheap, and we need time off work too. Your mother and I need to discuss this before we can tell you anything about if, or when, we are going. And in the meantime I need you to be patient. There are other things we want too, other places we could be visiting, so don’t put your hopes up too high.”

“I only want to go to Venus,” the boy mumbled and went into his room to do his homework.

It was only a week later Noahs parents called him into the living room to tell him the good news:

“We are going to Venus next year,” his mother said. Noah could not hide the joy and anticipation in his eyes.

“We have saved up some money, and are getting a loan for the rest, so we do not have to wait for years to come. It may mean that we have to save on other things, but we know how much you want this, and we both feel it would be a great experience for all three of us. You will miss a year in school, so you will have to be schooled in virtual space during the trip. Your teachers say it will not be a problem.”

The following year Noah had mainly one thing on his mind: The trip to Venus. He had told Ariella immediately of course, and arrangements had been made between their parents so that Ariellas family would serve as guides for part of the trip, and would introduce them to life on Venus. This also meant that Ariella and Noah would be spending much time together, this time not in virtual reality, but in the real world.

In a clearing in the enchanted forest stood Axel the barbarian gripping firmly on his battleaxe, and Joan the cleric with a hand on the hilt of her mace. Behind them were Noah the firemage with his wand drawn and Ariella the ranger with an arrow on the string of her bow.

“There is something wrong,” she said. “The woods are too quiet. No birdsong.”

The next moment all hell broke loose. A dragon swooped down from above and landed in front of them. As it got ready to breathe fire, a blue flame shot forward from Noahs wand, encircling the party, and when the fire came it was partly absorbed by the blue flames. The barbarian and the cleric rushed towards the dragon, Noah waved his wand and Ariella tried to aim for the dragons eye with her bow. It was a fierce and hard battle, but at the end the heroes stood victorious, even though not without wounds and burns all over. Luckily they had a cleric to heal their wounds. Noah then heard a faint knocking on a door. He quickly took off his headset and stepped off the virtual reality platform to go and let his mother in.

“Did you pack?” she asked.

“I did that two days ago,” Noah answered.

“Well get ready, we leave in two hours.”

The first part of the journey was familiar to Noah. He had been to space before and had viewed Mars from space as had most kids his age. What made this possible was the giant maglev tube on mount Olympus which made space launches not only affordable, but a cheap everyday experience. This time though they were not just going to float around and then return to Mars. The goal was the giant interplanetary spaceship *Inferno*, fusion powered and fast, for convenient and speedy travel between planets. Speedy in this case meant a three months trip to reach Venus, and three months to get back, approximately. The cleaner technology of solar sailing had not yet found its way into the heart of Martian culture. Fusion power had been what they had had to rely on from the begin, and it was in fusion power they put their trust. Noah could follow it on the monitor in front of him as the small launch vehicle approached *Inferno*.

The spaceship was shaped like a rocket with a wheel surrounding the center section. The wheel was where the passenger areas were, and it rotated for artificial gravity. There was a big cap on the wheel shielding it from tiny space debris that was too small to be detected and avoided. The wheel was divided into sectors that each could turn to partly face the direction of travel as the gravity shifted. That was how they did it on all interplanetary spacecrafts. The launch vehicle drifted inwards towards the rocket part of *Inferno* and attached itself to an airlock just below the big wheel.

Space in the living compartments was rationalized as on a ship. The one room living quarters of the small family could be divided in two by the push of a button to give some privacy at night. Beds were imbedded in the walls same as tables and chairs. Noah had brought his headset and was happy to discover that there was a computer to plug it into. He'd be entertained for the journey.

The three months passed away slowly. Even though they had both comfort and entertainment, the fact that they were confined to a spaceship with nowhere to go was limiting their life and choices. There was a public room called the *view room*, with screens showing the position of the spaceship relative to the planets, and distant satellite images of Mars and Venus that gave them comfort in the fact that they made progress every day, and gave a glimpse of civilization. But for Noah it was the daily contact with his friends via the computer that made the difference. And one day the wait was over they were nearing the destination. The *Inferno* parked in orbit around Venus and the passengers had to once more board another vessel.

The vessel was long with some kind of turbines running through from bottom to top, and as they came free of the *Inferno*, a big balloon shaped structure unfolded on top, turning the whole thing into a giant airship. Rocket engines on the side were ignited, throwing them on a trajectory downwards through the upper atmosphere of Venus.

As the airship reached the atmosphere the turbines started to spin. The air was slowed by the turbines and then enveloped the balloon, reducing the friction heat on its surface. The whole thing was showed and explained on screens in front of the passengers as they descended. The turbines turned faster and faster. Smaller turbines that worked as air pumps were set in motion by the electricity derived from the bigger turbines, and air was pumped out of holes in the bottom hull to create a protective layer against the friction. As the speed took off, the clouds below them came nearer, and without warning the airship plunged through the clouds. This caused the airship to further slow down until it finally almost came to a stop, and it started to float though the air. It then started too climb, and in one short moment broke through the clouds and into the sunshine, all the while something shimmering appeared on the horizon. It was the famous cloud cities of Venus.

Noah could not wait to get down and into the shining city, and to finally meet Ariella, but it would take a while yet. All passengers had to go through an extensive disinfection program, to avoid bringing other planet organisms into the Venusian biosphere. It was partly to protect the citizens of Venus, but more importantly it was to protect the sensitive virgin ecosystem of Venus that scientists tried to create, and that would one day transform the planet. Even the disinfection program came to an end though, and Noah and his parents could freely walk through the gate to the reception area.

They immediately noticed Ariella holding up a sign that said "Welcome Noah" and rushed towards Ariella and her family. They had had multiple meetings through the computer screen, but it was still strange to now stand there face to face. Even Noah and Ariella found it a bit awkward. But Ariellas father broke the silence and asked: "So how was the trip?" and within moments a lively conversation was going on.

The city Ariella lived in was called Ayres. The base of the city was a giant circular platform, and below it, to keep it floating, were some enormous hollow chambers vacuumed of air to provide lift.

The architecture of Venusian cities was unique. Buildings were constructs on different levels, not like skyscrapers but rather like something organic and futuristic. Amongst the buildings were small transparent domes containing the city parks, and everything was connected with transportation tubes. All non transparent surfaces were coloured and metallic, creating a shiny beauty of its own. Colours were sometimes blended into patterns to further improve on the aesthetics. It was clear that the Venusian architecture was determined not to be dull.

Their hotel was located near the spaceport. It was among the eldest buildings of the city as it was actually the temporary living quarters of the first settlers coming to Venus. It had since been rebuilt into a hotel, but the outer structure remained the same. The center of the hotel was a small garden, and the rooms were distributed around and overlooking the

garden. They quickly checked in to the hotel, and then they went with Ariella and her parents for an introductory visit.

Ariella lived in a house in the upper layers of the city. The small cars on tracks took them to a nearby park from which they could walk to the house through a tube. The plants in the park were a strange mixture imported from all parts of the Earth, giving a rather exotic impression. Hardwood amongst palms, orchids amongst meadow flowers.

Noah and his parents spent the first week familiarizing themselves with the new surroundings. This was important as too many new impressions at once could cause mental shock with travelers. Most days they were invited for dinner at Ariellas, and in that week the two families got to know each other very well. Noah and Ariella discovered that even though they knew each other from the virtual world, getting together in the real world was another thing entirely. But it was far from unpleasant.

The second week they took a guided tour. Ariella accompanied them even though she had already been to the place they were to visit with her school once. They boarded an airship in the city, not the kind that had transported them down from space, but a local transportation airship designed for transportation of passengers between cities. They were seated at a table by one of the many windows, and the personnel came and served them lunch. At first there was nothing to see but the endless sky, but then something emerged in the horizon. As they approached, they could see it was a transparent dome with something like a forest inside. The airship flew towards the edge of the dome and into a tunnel where it landed. The air seal closed behind it, and the big fans exchanged the air inside the tunnel to something safe and breathable.

A woman with a circlet of coloured light on her head entered the airship. She was going to be their guide. She led all passengers out of the airship and through a set of doors at the end of the tunnel. They were inside the dome. The guide started explaining:

What we see here is the Great Botanical Garden of Venus. As you probably all know we have great plans about terraforming Venus. A few centuries ago there was a big climate crisis on Earth, where the burning of fossil fuels caused increased carbon dioxide in the atmosphere. Carbon dioxide is a greenhouse gas, meaning it traps heat inside the atmosphere, increasing the temperature on the planet surface. On Venus this greenhouse effect has taken to the extreme. Most of the atmosphere on Venus is composed of carbon dioxide, and we need plants to convert this to oxygen. We have to reverse the greenhouse effect. Then where does all the carbon go? We can use the wood from the trees directly of course, as building materials and furniture, but we are also converting the carbon in the wood and plant oils to carbon composites, carbon nanotubes and other very sturdy materials that we plan to use for dome structures in order to construct more living space.

Apart from the conversion of carbon dioxide to oxygen, the plants also play another role. They are going to form the basis for the future eco system of Venus. Of course we have farms elsewhere to produce the plants we need for food, but these are not enough to build a fully functioning eco system. We have carefully selected plants on the basis of research and computer models of eco systems. This dome is more than anything else a test system of those models. Other similar domes will later be built in order to increase the mass and diversity of eco systems on Venus.

The guide continued to show people around and explain about the different plants on the way. The whole tour took a few hours after which they were free to explore for themselves and get some food in the cafeteria. Noah noticed there was a lot of bees and hummingbirds in the air. Especially the hummingbirds fascinated him.

It was the third week, and the time had come for the big thing, or so it was from the perspective of Ariella and Noah. It had taken some time to convince Noah's mother it was a good idea, and in the end she was still not truly convinced, but at least Noah had been allowed to go ahead with it. They were going to go skydiving.

First they travelled by airship to another smaller dome. Then they entered a building where they were given suits as well as careful instructions. Ariella was a certified instructor, so they did not need other personnel with them. She would guide Noah throughout the glide.

The suits were airtight gliding suits with a light oxygen tank on the back. The suit needed to protect them from the toxic air as well as the acid that would otherwise burn their skin. They stepped out in a big hall, and the floor opened up in the middle of the hall. They were staring down into empty sky with the clouds deep below them. Noah got a little dizzy, but he shook it off. Ariella took his hand and said "on three" through the wireless connection. They jumped into free air.

The first thing Noah felt was a sense of freedom as he glided through the air. Ariella did all sorts of acrobatics and he tried to mimic her. Then as they slowly and gradually got closer to the clouds below him a web came into sight. He knew it was the web they had to hit to avoid falling to a sure death below. As he suddenly became very aware of what he had gotten himself into he panicked. And did the one thing he should not do: He folded into a fetal position.

As Ariella saw what happened she let out a "Oh no!", but her instincts and training quickly took over and she set after Noah while crying into her microphone: "Noah you need to stretch out". But he was in panic and could not slip out of it. The flying robots holding each corner of the web shifted their position in order to catch him as he dropped, but they were too late. He missed the web and then there was nothing between him and the toxic clouds below. Death seemed inevitable even as he felt Ariella grabbing him in midair.

“Spread out you fool,” she cried into the microphone, and she started pulling his legs and arms to the best of her abilities. Finally Noah snapped out of it and stretched out again. Ariella and Noah immediately lost some speed, but still the clouds below them came closer and closer. To Noah the situation seemed hopeless.

Something raced passed them, and as the air started to get foggy around them Noah realized it was the flying robots with the web. He felt the heat on his skin through the thin fabric of the suit. He knew that the acid would soon eat its way through the fabric leaving him to choke to death in the toxic atmosphere. Then they hit something. It was the web. It gave away elastically and they came to a halt. And then they felt themselves being lifted upwards. The fog lifted, and the dome above came into view. They were safe, but the burning sensation on Noahs skin told him they were not without injuries.

Noahs parents were of course extremely happy to see that he was alive, and could not stop thanking Ariella for having saved his life, but it was the last time she would be allowed to take him skydiving. “From now on you can do it in virtual reality,” Noahs mother said.

Time passed as Noah and his parents enjoyed their vacation on Venus, and then one day Noah got a call to his room from Ariella.

“It is time”, she said.

The picture in Noahs VR headpiece shifted and he was in a bright room sitting in a circle of people. He saw Ariella in the circle as well as a woman he knew as Trisha, and he recognized most of the others too. Both Noah and Ariella knew they were lucky to have been invited to this. Trisha started to speak.

“I welcome you who follow the clouds and the sun. I welcome you who recognize the atmosphere that we breathe. I welcome you who follow the freedom of space. I welcome you who follow the way of the air”.