

Northern Constellation

Canada's Mission to Titan

By August Wohlgemuth



Introduction

Northern Constellation: Canada's Mission to Titan by August Wohlgemuth, unfolds in the year 2080 and showcases the Canadian Space Agency's remarkable rise in interplanetary exploration. This exciting and visionary narrative follows a team of specialists assembled for an audacious expedition to explore and colonize Saturn's largest moon, Titan. There is a growing consensus that Titan may be the best location for humans to establish a colony in our solar system.

Against the backdrop of groundbreaking space flight and robotics technology, the story delves into the challenges and triumphs of establishing a permanent outpost on this frigid celestial body. Apart from the technological obstacles inherent in such an ambitious mission, the crew must manage interpersonal and legal dilemmas which add realism to the story.

So fasten your seatbelts for launch and join August Wohlgemuth on this exciting journey to Titan!

Bruce Callow
Calgary, Alberta
April 2024

Chapter One

Assembling the Crew and Rules

The year is 2080 and the Canadian Space Agency /Agence Spatiale Canadienne (CSA, ASC) is assembling the crew to travel to Saturn's moon Titan. Since the year 2050 the CSA had surpassed NASA's budget and technology and had become the dominant player in interplanetary space missions. Canada achieved this by attracting NASA's best astronauts, scientists and engineers to the CSA after NASA canceled its planned crewed mission to Mars. Canadian legal and monetary systems are used in the mission.

We are pleased to introduce you to our Canadian crew:

August, a 29 year old hydrologist. He is an expert on the lakes of Titan. He continues to study the methane cycle on earth. August enjoys playing remote control boats on the lake at his home.

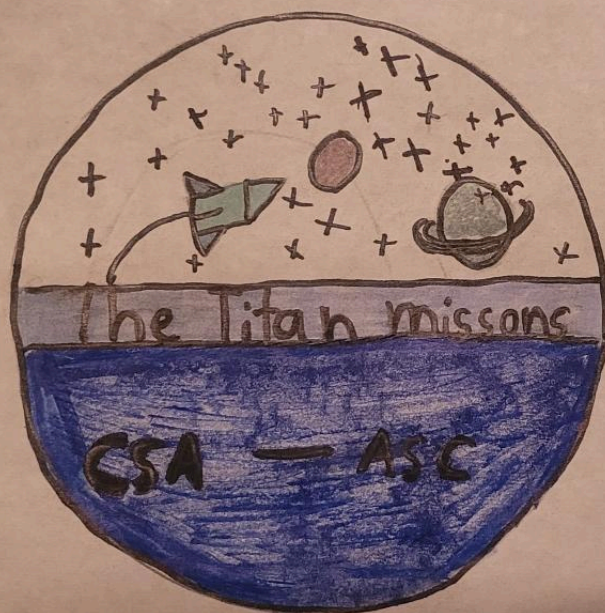
Jack is 38 years old and is a material engineer. He is in charge of the construction of the colony and all material supplies. Jack builds the space suits for the astronauts and also is in charge of the design of the suits. He enjoys making clothes.

Bonnie is a senior Top Chef. She is in charge of preparing the food and maintaining the food supply. She enjoys cooking spaghetti, chicken noodle soup, T-bone steaks, hamburgers, hot dogs, honey ham and potatoes etc.

Violet is a 30 year old veterinarian. She helps cats and dogs. She is a cat lady and loves to play with cats.

David is a Judge and he handles a lot of robbery cases and more serious bad crime cases and his hobby is to build big models.

The mission Patch



Rules that the astronauts will follow on the mission

1. Static electricity is forbidden, especially by the methane lakes to avoid explosions.
2. Do not swim in the Titan lakes as it will crack your space suit.
3. Do not commit crimes. The punishments include not eating Earth burgers for two weeks. Prisoners have to eat broccoli and carrots daily in prison or you go hungry.
4. In the Titan legal system court judges can be from Titan but for major offenses the judge must be Canadian as the colony is operated under Canadian law.
5. Residents must go to the gym at least twice a week. (Tuesdays and Thursdays).
6. Each person in the colony has to bring a pet. Cats make up 50% of the pet population, dogs 1%, rabbits 1%, birds 22%, fish 22%.
7. Meat will be available by using cellular material. (beef and pork, lambchops, chicken, salmon etc).
8. All residents are issued space suits which can be taken off when inside the base.

Chapter Two

Building Robots

The CSA built many robots to be transported to Titan to construct the colony and prepare the food supply for the astronauts who will travel there later on. It took a year to build them. One of the robots is called Hamlet. Hamlet is a large crane, a robot cat, which is capable of lifting heavy things. The material pallet bases connect to his tail to host the materials up onto a flatbed back. The cat design enables smooth movements and claws dig into the ground to stabilize movements.



There is another robot which is a robot dog called Peanut. Peanut is designed like a dog and her back is a wide flat back, flatbed. The flatbed is used for transporting the materials. The crew has ordered 200 Peanuts and 100 Hamlets to be sent to Titan.



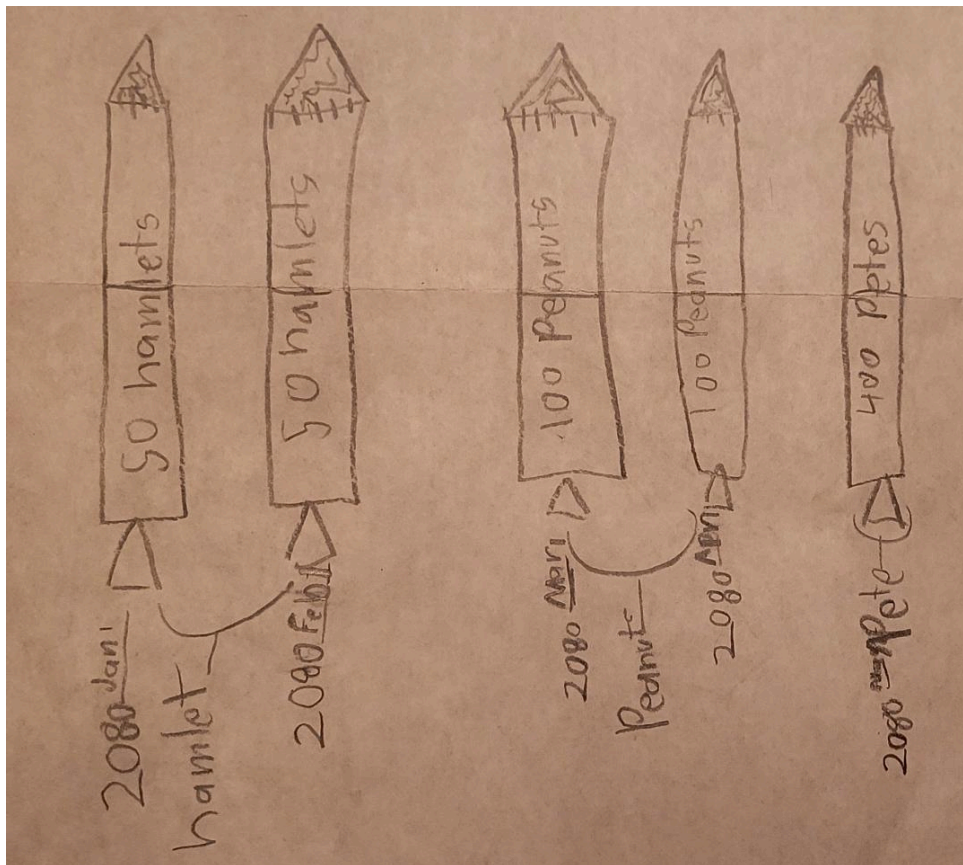
Pete is the third type of robot, a mouse. A robot that works alongside Hamlet. Pete's tail is a grappling hook and anchors onto the pallet to stabilize and prevent the pallets from swinging about while being connected to Hamlet's crane tail. The crew has ordered 400 Petes to be used on Titan.



Chapter Three

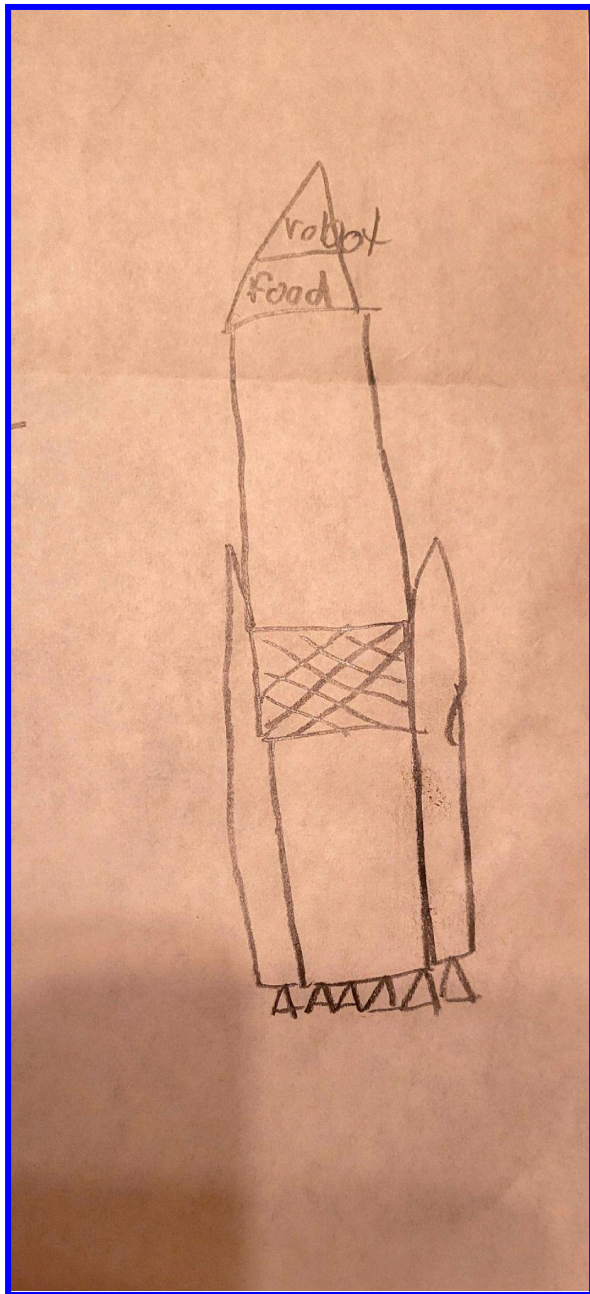
Launching Titans

It was now time to send the robots to Titan to build the colony. The CSA has built special rockets to go to Titan using the technology based on the Variable Specific Impulse Magnetoplasma Rocket (VASIMR).



There will be five Titan rockets, transporting the robots over a period of 5 months to Titan. Each rocket capsule has storage compartments for the robots and the CSA tracks each of the rocket's pathways to Titan. The first rocket will be launched January 1st, 2080, containing 50 Hamlet robots. The second rocket

launching on February 1st, 2080 will hold the remaining 50 Hamlet robots. The third rocket will be launched on March 1st, 2080 and will carry 100 Peanut robots. The fourth rocket will transport the remaining 100 Peanuts and will be launched April 1st, 2080. The Last rocket to Titan carrying the 400 Pete robots will be launched on May 1st, 2080.



Five minutes after launch, the two boosters separate from the 1st stage. The 1st and 2nd stages separate when they pass the moon where it links with VASIMR. The second stage initiates and leads us to the rest of the mission to Titan. The capsule then is separated from the second stage in the orbit of Titan.

Upon arrival and landing of the capsule on Titan the top of the capsule opens down like a ramp on both sides and the robots are activated and walk out.

The last rocket, number 5, carrying the Petes, also carries the food. The upper section of the capsule holds all the robots, whereas the bottom of the capsules are the compartments that hold all the food. The food is stored on pallets. When the capsule door opens and the ramps fold out, a Hamlet robot then comes up the ramp and connects onto the pallet one at a time. A Hamlet robot then swings his tail over towards Peanut and places the pallet on top of Peanuts flatbed back. Peanut takes the pallets over to the building sites and offloads the food supplies.

The robots are sent to Titan to prepare the food supply and to initiate the building of the colony. All the robots are programmed to lay and build the foundation of the colony and to build the walls while following a certain blueprint. The astronauts are then in control of finishing the colony buildings and they will design and build the remaining external and internal structures of the colony.

Chapter Four

CSA Search Woes and the Titan Shuttle Challenge

All of the mission preparation was completed successfully and the robot ships were launched without any accidents. One of the launches was delayed by one day because of wind but it was only a one day delay.

The crew has initiated their advanced training which typically lasts a year. The Canadian Space Agency was having difficulties finding a pilot for the Titan Shuttle. David, as we already know of his role of being a judge, was being humble and didn't fully disclose his impressive flight skills.

During the intense training in flight simulators all of the astronauts were failing except for David. David showed hidden talents and flew with ease. Even at the highest level of difficulty where David had to fly through a tornado with debris flying everywhere, David still flew confidently. All of the mission crewmembers and the CSA trainers and president of the CSA were stunned and amazed. David had flown perfectly while everyone else had crashed their planes.

During a coffee break, the president of the Canadian Space Agency approached David and inquired more about his flight background. David then opened up and shared, *"I am currently the top F-21 fighter pilot with the Royal Canadian Navy."*

The president was thrilled to hear this and he then assigned David and entrusted him to be the lead of CSA flight training and to be in charge of the rest of the astronauts.

After a full year of training, the Titan Shuttle was ready to be launched. Working with the CSA's top meteorologists to determine the ideal weather and wind conditions, the rocket was scheduled to launch on June 1st, 2081, with the backup date of July 1st, 2081 in case of a scrub.

On June 1st, 2081, the weather conditions were just right for the launch at the Prairie Star Rocket Launch Center located at the former Suffield Military base in Alberta. The crew got assembled and boarded the rocket. The whole launch process went smoothly. After 7 months, the crew landed on Titan. In celebration of their arrival on Titan, Bonnie prepared a big feast for the astronaut crew. The crew completed the construction of the buildings and settled into a regular routine.



Chapter Five

Finding Water!

After the arrival of the crew, hours had passed and everyone was planning their routines. August decided to explore within a 5 km radius of the base and took a shovel and started to dig. To his amazement, he was shocked when he found an underground spring of water with an unlimited supply. A groundbreaking scientific discovery of finding water on Titan! August quickly got to work and secured water pipes, and built a pump system to collect the water. There was an unlimited supply for human consumption and other uses and for the rest of the missions. When he made the original hole pressurized water spurted out like a geyser and knocked him over.

“That’s super powerful,” he commented as he got back on his feet.

August developed a piping system to collect the methane to be used as the natural gas for the colony to heat, cook, etc.

Jack asked the CSA to send platinum plates up to the colony on Titan so they can build a submarine along with Titans airships. The submarine and airships would also be powered by methane.

The submarine was built to go at least 5000 kilometers in depth and designed to go explore the lakes. The astronauts discovered the biggest lake on Titan on the north pole with the depth of an ocean and they named it the Sea of Methane.



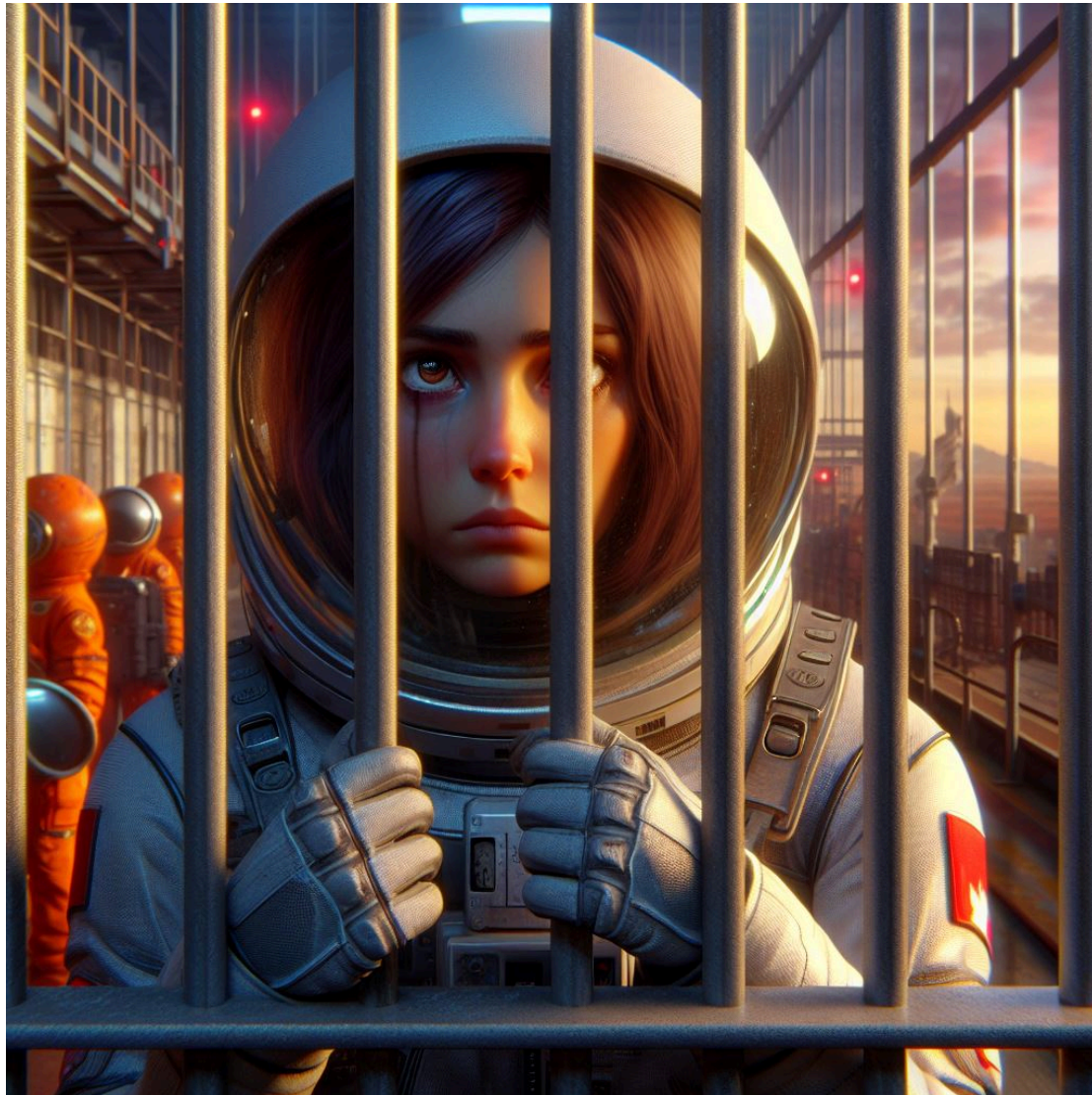
Chapter Six

Tools to Trials: Violet's Voyage Behind Bars

Jack wanted to make a landrover for the astronauts so they could explore Titan faster and use less oxygen tanks. So Jack contacted CSA to ask for more supplies and he made platinum land rovers for each astronaut. Having single passenger rovers allowed the astronauts to have more independence in their exploration and to cover more ground. Jack asked CSA for more building materials, plastics and lithium batteries along with tools and other routine building supplies.

Violet was jealous, because she felt left out. There was no focus on building the veterinarian clinic by Jack, that was promised to her before. So one day when she was very mad with Jack, Violet stole multiple tools from the warehouse to start building the veterinarian clinic herself. Jack was doing inventory of the tools and noticed that there were multiple tools missing. Jack started asking everyone who stole the tools. No one was answering so Jack then reviewed the video footage taken from the warehouse cameras and discovered that it was Violet who stole the tools. In court Violet explained she was getting left out and the building of the veterinary clinic was way behind schedule, so she had stolen the tools and supplies to build the Veterinary clinic. She now felt guilty about what she had done. David sentenced Violet to be jailed for two weeks in Titan's prison in the minimum security section.

Violet's time in prison was by the rules of the book. Her punishment included not eating Earth burgers for two weeks and to eat broccoli and carrots daily or go hungry. She was not allowed to work.



Chapter Seven

The Final Construction

Violet completed her two week imprisonment and ate a lot of carrots and broccoli during that time. The diet improved her vision which was proved in her latest eye test.

After Violet had served her time in jail, Jack started making plans to build the veterinary clinic for Violet. Jack requested copper plates from CSA to build the veterinary clinic and the recreation center. It was a quick build as it took only two weeks for the buildings to be constructed.

During building there was a problem with one of the batteries in the drill. While David was building and using his drill, one of his lithium batteries inside the drill leaked all over as it wasn't made properly. Battery acid got all over David. David was ok and didn't get any injuries. When the battery acid got all over his astronaut suit, he stopped using his drill immediately and ran inside the base and had help to quickly take off his suit. Since Bonnie was already in the base, as she was making supper instead of helping in the construction, she was able to assist David remove the space suit quickly and safely without causing the spread of the battery acid anywhere else.

The completed recreation center was something everyone enjoyed with it having a swimming pool, lots of treadmills, exercise bikes and a running track. They even were creative in the selection of construction materials and made their weights out of copper plates, wood planks and cement.

Chapter Eight

Returning Home

The return flight home to Earth for the original astronauts was planned after they had spent seven years living on Titan. Astronauts are rotated in and out of Titan every seven years.

The astronauts assembled their rocket, attaching the VASIMR engine to the capsule they had kept in storage from when they arrived on Titan. After their six month journey back they splashed down just off the coast of Vancouver Island. Then they flew to Edmonton, Alberta and stayed at the famous West Edmonton Mall Fantasyland Hotel to rest for a couple of nights while the family's of the astronauts stayed at the hotel with them. Medical doctors checked them at the hotel and confirmed their health was fine. Then the Titan astronauts traveled to Toronto, Ontario for a big celebration, and then to the Canadian Space Agency HQ in Longueuil Quebec to receive their new ranks and recognition.

This initial mission to Titan opened up the gateway for many more missions with seven year rotations and five new astronauts each mission including new robots and new assignments. The human colony on Titan had become a reality.

The End

