

Survive! First Alien Contact

By Charles P. Graham

Five months ago.

Twelve light-years from Earth, Lieutenant Commander Valory Jeanne was alone in the astrophysics lab when the United Earth Space Force (UESF) ship, *Copernicus*, started to lose atmosphere. She shut the airtight compartment hatch and put on her emergency breathing apparatus as required per the emergency procedures manual just as an explosion rocked the ship. She lost her balance and struck her head on a computer console and was rendered unconscious. The unexpected meteor storm struck while the ship orbited a newly discovered planet in the Tau Ceti star system and was destroyed. Valory never heard the abandon ship alarms.

When Valory awoke, the lab was dark, quiet, and getting colder. Her head hurt, and her ribs and left arm were sore from lying in an unnatural position. The only illumination emanated from an emergency lantern on the bulkhead that cast ominous shadows throughout the compartment. She pulled herself to a sitting position using the computer console as a backrest. Gingerly she rubbed her ribs and arm and checked for broken bones. Although painful, she found only bruises. She attempted to stand and grasped the console for support when the room began to spin. The lean, forty-two-year-old PhD astrophysicist paused for a moment while the dizziness abated. She attempted to use the ship's intercom to call for help and realized that all the circuits were dead. In frustration and fear, she shouted, "Help! Can anyone hear me?" After regaining her balance, she approached the hatch and saw that the pressure meter above the entrance to the adjacent compartment read zero. She said to herself, "Great! Now, what do I do?"

The adjacent compartment was without air, so she couldn't open the hatch without losing atmosphere from her compartment. Valory considered her options that were few. She first attempted to find a way out of the astrophysics lab to the rest of the ship. The Extra Vehicular Activity training back at the Earth space station before the *Copernicus* departed was instrumental. She had used that training when she replaced the gravimetric sensor array with the upgraded version developed by Dr. Sullivan, the head of the astrophysics lab on the *Copernicus*.

She donned a spacesuit from one of the storage lockers in the lab. The EVA experience prepared her to use the lab's airlock to go outside the ship where she eventually found a hull breach from one of the explosions large enough for her to reenter. The large breach minimized the chance of snagging and ripping her spacesuit and allowed her entrance to the airless portion of the ship. Valory made her way to the Emergency Departure Compartment to discover that five of the capsules had successfully launched, but that the others were damaged beyond her ability to repair. Her next thought was to use the shuttle to escape. Not being a pilot, she anticipated that she could use the onboard computers and autopilot to land in a safe area, hopefully near the other escape pods on the planet below, Tau Ceti g.

On her way to the shuttle bay, Valory discovered that one of the power cores on the ship was still producing power, but only to the battery backup system. All the regular power connections had been severed by meteors that punctured the spacecraft or were burned through by surges in the system before the circuit breakers were able to engage. In some cases, the power surge was so

intense that arcing across the circuit breakers fused them before they could trip and caused massive damage and fires in equipment. With no atmosphere or power in the bulk of the ship, the flames extinguished, and the environmental controls were offline. Artificial gravity was spotty, dependent upon where the graviton power junctions and plates weren't destroyed.

However, when she arrived at the shuttle bay, she discovered prior damage from a thruster failure while entering the bay the week before, and it had only been partially repaired. In addition to the non-completed repairs, she found several baseball-sized, ragged hull punctures that would present a problem from heat build-up during reentry. There were also many heat ablative tiles cracked or missing on the wings and fuselage. She suspected the damage was due to meteor fragments ricocheting inside the hanger. Unfortunately, the destruction required more than she could fix to make the shuttle flight worthy.

Needing a place to eat, sleep, stay warm, and that had sanitary facilities was an immediate problem. The spacesuit could provide most of what Valory required, but only temporarily. She could charge the spacesuit batteries and exchange oxygen tanks while wearing the suit, but that was a cumbersome and time-consuming task. Refilling the suit's liquid food and water containers, and emptying the sanitary holding bags required her to open her suit, which could only be done in the astrophysics lab where there was an atmosphere though the process had to be completed quickly because of the extreme cold. The food and water containers would take several hours to thaw once inside the suit, so planning ahead was essential. She knew her situation was dismal, and the longer she put off figuring out how to stay alive the direr her circumstance would become. She realized that even if there were heat in the astrophysics lab, with the environmental controls off-line, rising carbon dioxide levels would eventually make the air toxic and unbreathable. Thus, the shuttle became her focus for living quarters.

It took several days for Valory to make enough repairs to the shuttle to maintain atmospheric pressure inside and turn on the heat. The shuttle was designed to be used by a crew of four and accommodate up to sixteen passengers, sustaining them for voyages up to thirty days' duration, so it was relatively comfortable in a Spartan sort of way. With the onboard anti-matter drives, power would last for many years. Wastewater could be recycled providing her with virtually an unlimited supply of water. There was enough food to sustain her for twelve months, which could be supplemented with food packets from the ship. She was grateful when she could finally remove her spacesuit to shower and get a hot meal with solid food.

After restoring pressure to the shuttle, Valory had found that all its systems were working properly except the flight controls that were damaged beyond her ability to repair. Power, artificial gravity, heat, sanitation facilities, computers, and air and water regeneration modules all worked within acceptable parameters. However, during her investigation of the onboard systems, she discovered that the inertial dampeners only functioned when the shuttle was in flight. She also noted that the onboard computers had not been updated with the latest information about the planet since all systems were off during the repair. The communication console seemed to work well according to the display. However, when she tried to contact the escape capsules that had departed for the surface, she wasn't sure if the signal was getting through the hull of the *Copernicus*, or if no one had made it alive to the surface to respond to her hails. As far as she knew, she was the lone survivor.

During several EVA excursions, Valory had taken her time, and with great care, examined the outside of the *Copernicus* to discover that all main compartments had been compromised. There were a few smaller areas of the ship that hadn't sustained damage, but she wouldn't be able to open the hatches to those compartments without explosive decompression occurring and the possibility of being killed or seriously injured in the process. During the first hours of her exploration, she had found two crewmembers that were still alive and trapped in one of the smaller compartments. Communicating with them by touching her helmet to the hatch, air on the other side carried sound through the hatch and into her helmet. The sound was muffled, but understandable. The two crewmembers had no food or water, and the temperature was dropping rapidly. Valory was powerless to help them. After a day and a half, no sound came from that compartment. She mourned the loss.

Within another week, Valory had completed mapping all the damaged areas on the outside of the ship and discovered an undamaged airlock in the after section that still had backup power. The intact airlock allowed her access to the airless part of the spaceship without the danger of tearing her spacesuit on a snag or sharp piece of metal. By the third week of being stranded on the doomed ship, she had the inside mapped. The blood and gore from the crew killed in the maelstrom had frozen and sublimated, so all that was left were stiff and desiccated bodies and body parts that she collected and put in an out-of-the-way room. Freeze-dried blood marked where her shipmates had died, leaving a grisly reminder of the once thriving life aboard the *Copernicus*. Moving the corpses and body parts was a gruesome task, and it wasn't until she had finished that abhorrent job that she allowed herself to grieve over the loss of her friends and shipmates.

Valory documented her progress the old fashion way—with pencil and paper. She found them in a box of supplies that was labeled, "Marking Tools." She was amazed that in her day and age such old-fashioned ways of taking notes were still used. After all, she did learn to write by hand, but until now rarely used that skill. Dictation to a tablet computer and using touch screen icons was the preferred way, and learning to type with a keyboard was still a required skill. With the temperature hovering around minus seventy degrees Celsius everywhere except in the shuttle, the pencil was the only writing instrument that worked well, but it took her a while to learn how not to break the brittle pencil point with her heavily gloved hand. When she returned to the shuttle, she transferred her notes to the shuttle's computer and printed a copy to take back to the lab for reference when needed.

Determined to make the best of a bad situation, she worked diligently to restore partial power and heat to the astrophysics lab. To her advantage, she was a fully qualified *Copernicus* crewmember and knew the inner workings of the ship like the back of her hand.

She thought of the qualified astronaut emblem that was stitched on her uniform. "I'm so glad I have a photographic memory that allows me to recall the schematics of the ship," she said aloud.

Just like sailors in the submarine service on Earth earn their dolphins, astronauts on spaceships had to learn the details of every onboard system. Every major piece of equipment and how to operate it in case of emergency; every hull penetration; major wiring runs and junction boxes; hydraulics and plumbing systems; and how to execute the emergency procedures in all

compartments had to be memorized to win the coveted Yuri Gagarin Astronaut Badge that could be proudly worn on their uniforms.

Valory was able to modify the available backup battery power from the compartment emergency lighting system to power the computers. The remaining problem was that the computers would not function below zero Celsius. She had to get the compartment warm. Her predicament was that the temperature outside the ship would fluctuate from minus 160 degrees Celsius when in shadow to 200 degrees Celsius on the sun side. The unbroken insulation of the lab and its atmosphere kept the temperature inside to minus seventy degrees Celsius plus or minus twenty degrees and preserved the frozen moisture that had collected on all surfaces looking like fuzzy white frosting.

I'm so tired of being cold! The constant cold reminded her of the minus thirty-five-degree Celsius temperature that froze and broke the water lines to the calving barn and flooded the stalls back home. That forced her to deliver three calves outside where the wind-chill was minus seventy, and the snow was almost a meter deep. *How well I remember that night!* The plumber had told her that he couldn't get his diesel truck started and wouldn't be able to make it over until sometime late in the morning or early afternoon. She knew that he kept his truck in a heated garage and didn't want to take the call in the middle of the night that would force him to deal with the snow and cold weather. *Heck, I didn't want to be outside to deliver calves that night either!* Other than some frostbite on the calves' ears, they all survived. *Why my parents wanted a cattle ranch in northern Minnesota is still a mystery to me. Well, at least here there's no wind,* she thought, consoling herself.

She thought of her elderly parents that needed her support more than ever since her mother's illness and father's injuries prevented them from working the ranch. She knew that if she hadn't enlisted in the United Earth Space Force before they became physically challenged, she would be home taking care of the ranch and them. *I guess being cold isn't so bad. I'm just glad to be alive.*

I can't fail now. I have to be strong for them.

How Valory managed to survive the destruction of the ship was a miracle in itself. She was fortunate there was an airlock in the lab to service the hull sensors, access to a spacesuit, and EVA tools that were stored in lockers in the astrophysics lab. Without a means of access to the rest of the disabled ship, she would have died a miserable death from the cold, and her parents would be stuck trying to scrape by with government handouts. *After my UESF tour of duty is finished, I'll be able to go back home and run the place for them. I need to focus on that as a long term goal.*

Valory had been diligently working on a solution to get the lab's equipment running. *If I can only get some heat here in the lab, I might be able to turn on the computers and get some of the sensors operating. Then I can figure out what my present status is in this wreck of a ship.* She finished documenting her progress and tucked the notepad into a pocket on the leg of her spacesuit. *I'm tired, I'm cold, and I'm hungry. I think it's time to rejuvenate and refresh.*

Valory spent most of her time in the astrophysics lab. She allowed one hour of travel time from the lab to the shuttle, even though the actual time took only thirty minutes. With a thirteen-hour supply of air in the EVA suit, she could put in a ten-hour workday that began when she donned the suit, take an hour to travel between the shuttle and lab for each trip, and still have an

additional sixty minutes of reserve air. There were extra O₂ tanks in the lab, but they were difficult to exchange while wearing the suit and were kept there for emergency use only.

Valory exited the airlock from the lab to the exterior of the ship. She took her time to navigate aft to the other airlock and paused a few moments to gaze at the magnificent view of the planet below. *It's so beautiful and peaceful looking from here. The different shades of blue in the water and the greens and browns of the land remind me so much of Earth.* For a moment, she looked up at the sharp black and white contrast of space with the stars shining brightly, and formed a wistful smile, knowing that home was out there—twelve light-years away. *Home, how I miss it. Well, I can't be dawdling out here. Wishing I were there won't make it better for me here.* She pushed away the melancholy thoughts and continued her way aft. *Do I have enough air left to check the storage room for food?* She confirmed that she had just over an hour left. *I'd like to get more variety in my diet, and I think I know just what I want.* Once inside the ship, Valory made her way to the cargo space where the emergency rations were kept. Cherry picking some of the tastier provisions, she helped herself to several of the swollen packages that had burst through their storage boxes. She made her way to the hanger bay, entered the shuttle, and sealed the airlock behind her. Once inside the pressurized cabin, the packages returned to their normal vacuum-sealed appearance.

Valory shook her head, and chuckled out loud, “The makers of these rations have no idea what vacuum packed *really* means.”

She removed her spacesuit and hung it in a storage locker. She savored a deep breath of what she thought was going to be clean, warm air, and gagged after getting a whiff of the inside of the suit when she squeezed it into the locker.

The enlisted auxiliary gang normally had the responsibility of refilling the suits' oxygen tanks, recharging the batteries and CO₂ scrubbers, cleaning and sanitizing the spacesuits after every use, and certifying that they were ready for the next space walk by placing a green tag on them. The only consolation was that she, being of the average height of 173 centimeters, had her pick of six different smelly suits from which to choose. Valory took a conservative shower, ate her meal, and retired to her rack vowing to service the suit as best she could when she awakened.

After resting for six hours and eating a quick meal, Valory serviced the last suit that she wore and donned a “fresher” spacesuit. On her way to the astrophysics lab, she paused to enjoy the vista below again. *I'm going to miss this view when I get rescued ... if I get rescued.* She had to suppress rising emotions as she made her way toward and entered the forward airlock. She immediately went back to work to finish rigging one of the environmental units that she had salvaged from a damaged escape capsule to a portable power supply. She hesitated to double check the connections before she pressed the power button with her thickly gloved hand. She didn't know if the extreme cold would prevent the unit from starting, and whether or not all that work was for naught. Diodes on the environmental unit began to glow.

“Yes!” she shouted and punched a victorious fist into the air and took a step to high-five a nearby column with her other hand. The unit started warming the air around her. Valory, with an ear-to-ear grin, studied the unit's display for several minutes before she decided it would be safe to let it run unattended.

She had already supplied the room with dry cleaning cloths. She hummed to herself as she removed as much frost as she could from computer screens and consoles, keyboards, and electrical sources before the melting started. It helped tremendously to minimize the amount of

water that clung to the equipment as it transitioned from ice crystals to a liquid. The rest evaporated as the room warmed.

Eight hours later, when the temperature had risen to six degrees Celsius, she removed her thick gloves and helmet and tasted the crisp but warming air. She crossed her fingers before she pressed the power button on the computer. The computer slowly came to life. Going through its long and complicated boot sequence, the familiar screen finally displayed when the process finished.

“Yes!” she shouted and jabbed the air with two fists raised in triumph. “Now I can get to work and figure my way out of this mess!”

It had been eight weeks since the destruction of the *Copernicus*. With the lab’s computers working, Valory was able to get the passive sensor array functional because that part of the ship was spared from the carnage of the meteor storm. All sensor data had been entered, and the results of her computations were finalized. She stared unbelievably at the computer screen. Her calculations proved that the ship’s orbit was in slow decay. She had an estimated eight to nine weeks before atmospheric entry.

She shouted, “No! No! No!” and repeatedly pounded on the small workstation desk with her fists in anger and frustration. She gripped her forehead in the palms of her hands, elbows on the desk. “Why now? After all that work! Why couldn’t I have just died with everyone else? At least my death would be over.”

She slumped in the chair, buried her head in folded arms on the small table, and wept. Exhaustion overcame her, and she fell asleep. She dreamed ...

Valory startled awake. She brushed her shoulder length blond hair from her face. Her tears, long dried, left a salty residue on her cheeks and on the surface where she had laid her head; her hazel-green eyes still bloodshot. Using the sleeve of her jumpsuit to wipe away the itchy salt from her face and on the workstation desk, she turned her attention to the computer and sensor array controls with renewed determination.

Her search took two weeks.

“Thank God for Dr. Sullivan. The improvements in the gravimetric sensors may save my bacon yet. If only I had more time. If not,” she shrugged, “at least I went down trying. Now to recalibrate and rewire this group of sensors to become a transmitter and pray that I don’t burn them out.