

# ***Destination Azahar***

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CONTENT: noseX ScFi

UNIVERSE: The Swarm Cycle

## ***Chapter 8 - Colony Down***

Kozlowski and most of his crew were getting bored once all of the pods except their five habitats had been moved from the ship to the small settlement on the planet or to the core structure of the space station that was being fabricated in orbit. Raw materials were pouring into the space station's replicator units from the planet below. It was more than a bit strange to watch the items being built "grow" out of the side openings of the industrial replicators.

To pass the time, the crew deployed their telescopes by releasing the self-stabilizing platforms that used triangulated theodolite beams to hold the platforms in a fixed position relative to each other, but independent of the motion and vibration of the people and mechanical equipment on the ship. The group of astronomers became engrossed in observations from a vantage point that no human astronomer had ever experienced. They were officially looking for possible planet-killing asteroids and comets, but were, in fact, distracted by their own curiosities and pet projects.

In a productive vein, the astronomers were taking sightings of the stars currently inhabited by humans and the stars closer to Sol whose positions had been accurately measured for decades. They could use these calibration measurements to calculate the distances between the stars they would be charting when they were finally allowed to start the mission they had been planning for more than a year.

Tuan suggested that the first machine-shop replicator in operation on the planet be programmed to produce high-altitude hydrogen balloons that carried a small-scale replicator aloft to convert carbon dioxide into ozone and graphite. The fusion battery that powered the airborne replicators would account for most of the weight.

Each balloon could only produce about 68kg of ozone and 26kg of graphite per day. Meaning it would take one about 5,000 years to create an ozone shield around Azahar. The reality was that the ozone would be converted to diatomic oxygen by the ultraviolet rays almost as fast as it was produced. But if one of the small airborne replicators could be launched every two days, then the task of creating an ozone layer could be accomplished in a bit under twenty years if the UV-B rays were not zapping the ozone molecules by the billions every day. However, with enough oxygen in the upper atmosphere, the planet's violent electrical storms would be creating ozone from the oxygen as fast as the ozone was broken down by the radiation.

Celeste told Nguyen that he was pissing into the wind, but he figured that every little bit helped. It would be a while before they had the capacity to install one of the big terraforming atmosphere processors. Every little bit they cut the UV-B would mean that much more productivity they could get from algae and vegetation.

Constance scoffed at the waste of resources. She was certain that the free-floating balloons would be more of a navigation hazard than they were worth and the project was shelved.

The projections for creating a breathable atmosphere were looking grim. McKinsey appealed to Kozlowski. "Captain, we can only build things so fast with the equipment that was brought on *Copernicus*. I'm sure we can have a dome, anchorages, and some other infrastructure in place before an *Aurora*-class transport can arrive, but some things that would really speed up terraforming are bacteria and vegetation that can tolerate the current atmosphere. Stromatolites might be encouraged to grow in the shallow bays where their cyanobacteria would have some protection from the intense ultraviolet radiation bombarding this planet."

Kozlowski agreed to include the request for biological specimens that converted carbon dioxide into oxygen in his supraluminal report to Fleet Headquarters at Dothan. But, experience told him that the transporter's AI wouldn't allow such contaminants aboard their ship.

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With the colony core, habitat pods, and an industrial replicator in operation on the surface, and three replicators in service on the orbiting station, there was little reason for *Copernicus* to hang around. The operational equipment far exceeded the base minimum that was originally established. The spare pod was reattached to balance the ship and configured as a banquet hall for the last gathering before the crew made their final preparations to return to Haru for the pods that they had left there. One of the three shuttles was even parked in a small bay configured in the spare pod, more as a toy for the aspiring pilots than for any foreseen necessity.

"We don't want you to go," Roni told Frank as Kim nodded with tearful eyes. Frank Kozlowski was a year younger than the two girls, but they had been working, playing, and studying together for four months. That was almost a lifetime to twelve- and thirteen-year-old kids.

Captain Kozlowski sighed, "I hadn't thought about this part. It's not likely that any of us will ever see one another again. I don't suppose you'd allow Kim and Roni to come with us?"

Constance hesitated, but Tuan was quick to say, "Not a chance. I may never see my son again and couldn't stand being separated from Kim as she matures into adulthood."

Constance was shaking her head even before she caught the look of panic manifesting on Aswani's entire body. "You may have to find a family or two at Dothan who's willing to tag along."

Kozlowski shot down that idea when he explained, "With the six radio-telescope pods reattached we'll only have one spare pod, and we may need it as an expansion of the gym. We may even swing by Earth during our calibration check flyby for some plants and turn part of this pod into a hydroponics garden. I never realized how much I'd miss green things."

As the final preparations were being made for the trip to Haru the following morning, they received new orders. The first part ordered Captain Kozlowski to bring *Copernicus* to Haru and again rendezvous with *Asimov*. They were then ordered to return to Azahar with a small botanical research team.

Kozlowski forwarded the second part of the orders to McKinsey and Nguyen who were on the space station. He gave them a chance to review them before opening a conference connection.

"Constance," Kozlowski informally addressed the engineer, "If there's a record for strange and inappropriate orders bordering upon the bizarre, then *Copernicus* is a serious contender. They want us to construct an intricate underground complex. *Copernicus* is configured for deep space missions. It was weird enough for them to order us to get equipment to the surface of a planet, and now they're ordering us to work underground!"

Ensign Nguyen was just as incredulous. "This makes no sense, Captain. These tunnels are incredibly deep and complicated. It would be a whole lot easier to build domes over surface structures than to excavate something so huge, but I can get some nanites turned loose on it in a few days."

Changing the subject a bit Kozlowski commented, "I know I was pushing to drop you guys and bug out, but our kids really get along, and I don't like the idea leaving you guys hanging out here unprotected."

"We'll all be fine," McKinsey assured his captain. "Celeste and Judith have become competent shuttle pilots. You have no guns, and we're considering Ensign Wallaby's suggestion to build armament for the station before concentrating on habitat pod production. We can always hide out in these new tunnels if any bad guys show up." McKinsey's laughter was contagious.

Kozlowski accepted McKinsey's assessment of both situations, but still asked, "Is there anything that you need before we head out?"

"We're starting to get a backlog of raw materials," McKinsey noted. "A factory-grade replicator would really get things moving."

Kozlowski was laughing when he said, "I don't have one of those in my pocket, Constance, and I really don't have that kind of cargo capacity, but I'll see what I can do," Kozlowski promised before breaking the connection. He then called Ensign Johnson in CIC. "Julia, secure the telescopes and lay in a course for Haru, best speed."

"Aye, Captain," Johnson replied. Less than 30 minutes later she contacted the bridge, "Captain, course to Haru laid in and ready, sir."

After verifying the status of the telescopes Kozlowski turned to the helmsman and said, "Execute."

"Aye sir, best speed to Haru," the helmsman responded as she brought the powerful thrusters to life and turned the ship away from Azahar on a course that would bring *Copernicus* clear of its gravity well in the minimum amount of time.

McKinsey and Nguyen watched the screen in the CIC they had created in the enlarged hangar pod. A small artificial gravity unit had been installed in the 'bottom' of the pod. It supplied just enough acceleration to keep people and pencils from floating off.

McKinsey remarked, "I'm really surprised by how quiet it feels, and they're not even out of sight yet."

Nguyen looked around. "It's just the two of us. We never allow the kids to come up to the station. It's always this quiet here."

"I wasn't being literal," McKinsey snapped. "It just feels quieter with *Copernicus* heading out. It'll soon be just the 21 of us in this entire planetary system."

It wasn't really like McKinsey to be so irritable; controlling and manipulative, yes, but not grumpy. Nguyen rightly figured that McKinsey was not as confident as she pretended and was a bit more frightened than expected. "We'll be fine," Nguyen tried to assure McKinsey. "We have the last two manufacturing pods under construction and industrial pod three is already working on laser point-defense platforms. The first one can be installed on the CIC pod tomorrow."

McKinsey glared at Nguyen; then caught herself. "Sorry Tuan, I guess I'm a bit more jumpy that I want to admit. How about we head down to the planet? The alternate command information center has been completed. So, we can do everything from there that we can from up here."

As they stepped out of the transporter stream Tuan remarked, "The industrial replicator here on the surface is busy turning out fifty megawatt power cells and additional mining replicators to be deployed to the tunnel excavation sites on the central plain. When Celeste and Judy use the pod lighter to deliver them to the sites tomorrow, the raw material flow will triple and we're already stockpiling material. Nanites aren't the most

efficient of excavators, though. We really need boring machines to get the tunnel excavations moving more quickly."

Tuan stopped Constance before they got any closer to the sounds of voices in the corridor. "We need to begin improving the accommodations down here as much for the kids as for ourselves, even if it means waiting a bit longer before calling for a colony transport. How about we put one of your small domes above the transporter chamber and equip it with playground equipment, and maybe even a swimming pool?"

Constance scowled for a moment. She didn't like the idea of letting the schedule slip even though she was sure Dothan wouldn't be sending them a ship for at least two months. "No, we need to.... Oh, what the heck? Yeah, let's do something for ourselves. The kids have been cooped up ever since we left Earth five months ago. They deserve a little sunshine, and so do we."

In a surprise move, Constance leaned down and kissed Tuan on the cheek. "Thanks for pulling me out of my typical schedule-driven dogma. I have a little gift in mind for you if it doesn't shock your sense of propriety."

Tuan couldn't decide what he felt more by the mood swings Constance had displayed in the last hour: shock or intrigue? Her remark finally penetrated to a functional processor prompting him to ask, "What kind of gift?"

Constance gave him a conspiratorial smile with just a hint of mischief, "You'll see when the time comes."