

“HEY, MELISSA...,” said Robert. “Am I getting through? Can you see me?”

“Loud and clear, babe,” said Commander Lewis. “The video link is solid.”

“They say I have five minutes,” Robert said.

“Better than nothing,” Lewis said. Floating in her quarters, she gently touched the bulkhead to stop drifting. “It’s nice to see you in real-time for a change.”

“Yeah.” Robert smiled. “I can hardly notice the delay. I gotta say, I wish you were coming home.”

Lewis sighed. “Me, too, babe.”

“Don’t get me wrong,” Robert quickly added. “I understand why you’re doing all this. Still, from a selfish point of view, I miss my wife. Hey, are you floating?”

“Huh?” Lewis said. “Oh, yeah. The ship isn’t spinning right now. No centripetal gravity.”

“Why not?”

“Because we’re docking with the *Taiyang Shen* in a few days. We can’t spin while we dock with things.”

“I see,” said Robert. “So how are things up on the ship? Anyone giving you shit?”

“No.” Lewis shook her head. “They’re a good crew; I’m lucky to have them.”

“Oh hey!” Robert said. “I found a great addition to our collection!”

“Oh? What’d you get?”

“An original-production eight-track of *Abba’s Greatest Hits*. Still in the original packaging.”

Lewis widened her eyes. “Seriously? A 1976 or one of the reprints?”

“1976 all the way.”

“Wow! Good find!”

“I know, right!?”

...

WITH A final shudder, the jetliner came to a stop at the gate.

“Oh gods,” said Venkat, massaging his neck. “That was the longest flight I’ve ever been on.”

“Mm,” said Teddy, rubbing his eyes.

“At least we don’t have to go to Jiuquan till tomorrow,” Venkat moaned. “Fourteen and a half hours of flying is enough for one day.”

“Don’t get too comfortable,” Teddy said. “We still have to go through customs, and we’ll probably have to fill out a bunch of forms because we’re U.S. government officials.... It’s gonna be hours before we sleep.”

“Craaaap.”

Gathering their carry-on luggage, they trudged off the plane with the rest of the weary travelers.

Beijing Capital International Airport’s Terminal 3 echoed with the cacophony common to huge air terminals. Venkat and Teddy moved toward the long immigration line as the Chinese citizens from their flight split off to go to a simpler point-of-entry process.

As Venkat took his place in line, Teddy filed in behind him and scanned the terminal for a convenience store. Any form of caffeine would be welcome.

“Excuse me, gentlemen,” came a voice from beside them.

They turned to see a young Chinese man wearing jeans and a polo shirt. “My name is Su Bin Bao,” he said in perfect English. “I am an employee of the China National Space

Administration. I will be your guide and translator during your stay in the People's Republic of China."

"Nice to meet you, Mr. Su," Teddy said. "I'm Teddy Sanders, and this is Dr. Venkat Kapoor."

"We need sleep," Venkat said immediately. "Just as soon as we get through customs, please get us to our hotel."

"I can do better than that, Dr. Kapoor." Su smiled. "You are official guests of the People's Republic of China. You have been preauthorized to bypass customs. I can take you to your hotel immediately."

"I love you," Venkat said.

"Tell the People's Republic of China we said thanks," Teddy added.

"I'll pass that along." Su Bin smiled.

...

"HELENA, MY LOVE," Vogel said to his wife. "*I trust you are well?*"

"Yes," she said. "*I'm fine. But I do miss you.*"

"Sorry."

"*Can't be helped.*" She shrugged.

"*How are our monkeys?*"

"*The children are fine.*" She smiled. "*Eliza has a crush on a new boy in her class, and Victor has been named goalkeeper for his high school's team.*"

"Excellent!" Vogel said. "*I hear you are at Mission Control. Was NASA unable to pipe the signal to Bremen?*"

"*They could have,*" she said. "*But it was easier for them to bring me to Houston. A free vacation to the United States. Who am I to turn that down?*"

"*Well played. And how is my mother?*"

“As well as can be expected,” Helena said. “She has her good days and bad days. She did not recognize me on my last visit. In a way, it’s a blessing. She doesn’t have to worry about you like I do.”

“She hasn’t worsened?” he asked.

“No, she’s about the same as when you left. The doctors are sure she’ll still be here when you return.”

“Good,” he said. “I was worried I’d seen her for the last time.”

“Alex,” Helena said, “will you be safe?”

“As safe as we can be,” he said. “The ship is in perfect condition, and after receiving the Taiyang Shen, we will have all the supplies we need for the remainder of the journey.”

“Be careful.”

“I will, my love,” Vogel promised.

...

“WELCOME TO JIUQUAN,” Guo Ming said. “I hope your flight was smooth?”

Su Bin translated Guo Ming’s words as Teddy took the second-best seat in the observation room. He looked through the glass to Jiuquan’s Mission Control Center. It was remarkably similar to Houston’s, though Teddy couldn’t read any of the Chinese text on the big screens.

“Yes, thank you,” Teddy said. “The hospitality of your people has been wonderful. The private jet you arranged to bring us here was a nice touch.”

“My people have enjoyed working with your advance team,” Guo Ming said. “The last month has been very interesting. Attaching an American probe to a Chinese booster. I believe this is the first time it’s ever been done.”

“It just goes to show,” Teddy said. “Love of science is universal across all cultures.”

Guo Ming nodded. “*My people have especially commented on the work ethic of your man, Mitch Henderson. He is very dedicated.*”

“He’s a pain in the ass,” Teddy said.

Su Bin paused before translating but pressed on.

Guo Ming laughed. “*You can say that,*” he said. “*I cannot.*”

...

“SO EXPLAIN it again,” Beck’s sister Amy said. “Why do you have to do an EVA?”

“I probably don’t,” Beck explained. “I just need to be ready to.”

“Why?”

“In case the probe can’t dock with us. If something goes wrong, it’ll be my job to go out and grab it.”

“Can’t you just move *Hermes* to dock with it?”

“No way,” Beck said. “*Hermes* is *huge*. It’s not made for fine maneuvering control.”

“Why does it have to be you?”

“’Cause I’m the EVA specialist.”

“But I thought you were the doctor.”

“I am,” Beck said. “Everyone has multiple roles. I’m the doctor, the biologist, and the EVA specialist. Commander Lewis is our geologist. Johanssen is the sysop and reactor tech. And so on.”

“How about that good-looking guy...Martinez?” Amy asked. “What does he do?”

“He pilots the MDV and MAV,” Beck said. “He’s also married with a kid, you lecherous homewrecker.”

“Ah well. How about Watney? What did he do?”

“He’s our botanist and engineer. And don’t talk about him in the past tense.”

“Engineer? Like Scotty?”

“Kind of,” Beck said. “He fixes stuff.”

“I bet that’s coming in handy now.”

“Yeah, no shit.”

...

THE CHINESE had arranged a small conference room for the Americans to work in. The cramped conditions were luxurious by Jiuquan standards. Venkat was working on budget spreadsheets when Mitch came in, so he was glad for the interruption.

“They’re a weird bunch, these Chinese nerds,” Mitch said, collapsing into a chair. “But they make a good booster.”

“Good,” Venkat said. “How’s the linkage between the booster and our probe?”

“It all checks out,” Mitch said. “JPL followed the specs perfectly. It fits like a glove.”

“Any concerns or reservations?” Venkat asked.

“Yeah. I’m concerned about what I ate last night. I think it had an eyeball in it.”

“I’m sure there wasn’t an eyeball.”

“The engineers here made it for me special,” Mitch said.

“There may have been an eyeball,” Venkat said. “They hate you.”

“Why?”

“‘Cause you’re a dick, Mitch,” Venkat said. “A total dick. To everyone.”

“Fair enough. So long as the probe gets to *Hermes*, they can burn me in effigy for all I care.”

...

“WAVE TO DADDY!” Marissa said, waving David’s hand at the camera. “Wave to Daddy!”

“He’s too young to know what’s going on,” Martinez said.

“Just think of the playground cred he’ll have later in life,” she said. “My dad went to Mars. What’s your dad do?”

“Yes, I’m pretty awesome,” he agreed.

Marissa continued to wave David’s hand at the camera. David was more interested in his other hand, which was actively engaged in picking his nose.

“So,” Martinez said, “you’re pissed.”

“You can tell?” Marissa asked. “I tried to hide it.”

“We’ve been together since we were fifteen. I know when you’re pissed.”

“You volunteered to extend the mission five hundred and thirty-three days,” she said, “asshole.”

“Yeah,” Martinez said. “I figured that’d be the reason.”

“Your son will be in kindergarten when you get back. He won’t have any memories of you.”

“I know,” Martinez said.

“I have to wait another five hundred and thirty-three days to get laid!”

“So do I,” he said defensively.

“I have to worry about you that whole time,” she added.

“Yeah,” he said. “Sorry.”

She took a deep breath. “We’ll get past it.”

“We’ll get past it,” he agreed.

...

“WELCOME TO CNN’s *Mark Watney Report*. Today, we have the director of Mars operations, Venkat Kapoor. He’s speaking to us live via satellite from China. Dr. Kapoor, thank you for joining us.”

“Happy to do it,” Venkat said.

“So, Dr. Kapoor, tell us about the *Taiyang Shen*. Why go to China to launch a probe? Why not launch it from the US?”

“*Hermes* isn’t going to orbit Earth,” Venkat said. “It’s just passing by on its way to Mars. And its velocity is *huge*. We need a booster capable of not only escaping Earth’s gravity but matching *Hermes*’s current velocity. Only the *Taiyang Shen* has enough power to do that.”

“Tell us about the probe itself.”

“It was a rush job,” Venkat said. “JPL only had thirty days to put it together. They had to be as safe and efficient as they could. It’s basically a shell full of food and other supplies. It has a standard satellite thruster package for maneuvering, but that’s it.”

“And that’s enough to fly to *Hermes*?”

“The *Taiyang Shen* will send it to *Hermes*. The thrusters are for fine control and docking. And JPL didn’t have time to make a guidance system. So it’ll be remote-controlled by a human pilot.”

“Who will be controlling it?” Cathy asked.

“The Ares 3 pilot, Major Rick Martinez. As the probe approaches *Hermes*, he’ll take over and guide it to the docking port.”

“And what if there’s a problem?”

“*Hermes* will have their EVA specialist, Dr. Chris Beck, suited up and ready the whole time. If necessary, he will literally grab the probe with his hands and drag it to the docking port.”

“Sounds kind of unscientific.” Cathy laughed.

“You want unscientific?” Venkat smiled. “If the probe can’t attach to the docking port for some reason, Beck will open the probe and carry its contents to the airlock.”

“Like bringing in the groceries?” Cathy asked.

“Exactly like that,” Venkat said. “And we estimate it would take four trips back and forth. But that’s all an edge case. We don’t anticipate any problems with the docking process.”

“Sounds like you’re covering all your bases.” Cathy smiled.

“We have to,” Venkat said. “If they don’t get those supplies... Well, they need those supplies.”

“Thanks for taking the time to answer our questions,” Cathy said.

“Always a pleasure, Cathy.”

...

JOHANSSSEN’S FATHER fidgeted in the chair, unsure what to say. After a moment, he pulled a handkerchief from his pocket and mopped sweat from his balding head.

“What if the probe doesn’t get to you?” he asked.

“Try not to think about that,” Johanssen said.

“Your mother is so worried she couldn’t even come.”

“I’m sorry,” Johanssen mumbled, looking down.

“She can’t eat, she can’t sleep, she feels sick all the time. I’m not much better. How can they make you do this?”

“They’re not ‘making’ me do it, Dad. I volunteered.”

“Why would you do that to your mother?” he demanded.

“Sorry,” Johanssen mumbled. “Watney’s my crewmate. I can’t just let him die.”

He sighed. “I wish we’d raised you to be more selfish.”

She chuckled quietly.

“How did I end up in this situation? I’m the district sales manager of a napkin factory. Why is my daughter in space?”

Johanssen shrugged.

“You were always scientifically minded,” he said. “It was great! Straight-A student. Hanging around nerdy guys too

scared to try anything. No wild side at all. You were every father's dream daughter."

"Thanks, Dad, I—"

"But then you got on a giant bomb that blasted you to Mars. And I mean that literally."

"Technically," she corrected, "the booster only took me into orbit. It was the nuclear-powered ion engine that took me to Mars."

"Oh, much better!"

"Dad, I'll be all right. Tell Mom I'll be all right."

"What good will that do?" he said. "She's going to be tied up in knots until you're back home."

"I know," Johanssen mumbled. "But..."

"What? But what?"

"I won't die. I really won't. Even if everything goes wrong."

"What do you mean?"

Johanssen furrowed her brow. "Just tell Mom I won't die."

"How? I don't understand."

"I don't want to get into the how," Johanssen said.

"Look," he said, leaning toward the camera, "I've always respected your privacy and independence. I never tried to pry into your life, never tried to control you. I've been really good about that, right?"

"Yeah."

"So in exchange for a lifetime of staying out of your business, let me nose in just this once. What are you not telling me?"

She fell silent for several seconds. Finally, she said, "They have a plan."

"Who?"

“They always have a plan,” she said. “They work out everything in advance.”

“What plan?”

“They picked me to survive. I’m youngest. I have the skills necessary to get home alive. And I’m the smallest and need the least food.”

“What happens if the probe fails, Beth?” her father asked.

“Everyone would die but me,” she said. “They’d all take pills and die. They’ll do it right away so they don’t use up any food. Commander Lewis picked me to be the survivor. She told me about it yesterday. I don’t think NASA knows about it.”

“And the supplies would last until you got back to Earth?”

“No,” she said. “We have enough food left to feed six people for a month. If I was the only one, it would last six months. With a reduced diet I could stretch it to nine. But it’ll be seventeen months before I get back.”

“So how would you survive?”

“The supplies wouldn’t be the only source of food,” she said.

He widened his eyes. “Oh...oh my god...”

“Just tell Mom the supplies would last, okay?”

...

AMERICAN AND Chinese engineers cheered together at Jiuquan Mission Control.

The main screen showed *Taiyang Shen*’s contrail wafting in the chilly Gobi sky. The ship, no longer visible to the naked eye, pressed onward toward orbit. Its deafening roar dwindled to a distant rumbling thunder.

“Perfect launch,” Venkat exclaimed.

“Of course,” said Zhu Tao.

“You guys really came through for us,” Venkat said. “And we’re grateful!”

“Naturally.”

“And hey, you guys get a seat on Ares 5. Everyone wins.”

“Mmm.”

Venkat looked at Zhu Tao sideways. “You don’t seem too happy.”

“I spent four years working on *Taiyang Shen*,” he said. “So did countless other researchers, scientists, and engineers. Everyone poured their souls into construction while I waged a constant political battle to maintain funding.

“In the end, we built a beautiful probe. The largest, sturdiest unmanned probe in history. And now it’s sitting in a warehouse. It’ll never fly. The State Council won’t fund another booster like that.”

He turned to Venkat. “It could have been a lasting legacy of scientific research. Now it’s a delivery run. We’ll get a Chinese astronaut on Mars, but what science will he bring back that some other astronaut couldn’t have? This operation is a net loss for mankind’s knowledge.”

“Well,” Venkat said cautiously, “it’s a net gain for Mark Watney.”

“Mmm,” Zhu Tao said.

...

“DISTANCE 61 meters, velocity 2.3 meters per second,” Johanssen said.

“No problem,” Martinez said, his eyes glued to his screens. One showed the camera feed from Docking Port A, the other a constant feed of the probe’s telemetry.

Lewis floated behind Johanssen’s and Martinez’s stations.

Beck’s voice came over the radio. “Visual contact.” He stood in Airlock 3 (via magnetic boots), fully suited up with

the outer door open. The bulky SAFER unit on his back would allow him free motion in space should the need arise. An attached tether led to a spool on the wall.

“Vogel,” Lewis said into her headset. “You in position?”

Vogel stood in the still-pressurized Airlock 2, suited up save his helmet. “*Ja*, in position and ready,” he replied. He was the emergency EVA if Beck needed rescue.

“All right, Martinez,” Lewis said. “Bring it in.”

“Aye, Commander.”

“Distance 43 meters, velocity 2.3 meters per second,” Johanssen called out.

“All stats nominal,” Martinez reported.

“Slight rotation in the probe,” Johanssen said. “Relative rotational velocity is 0.05 revolutions per second.”

“Anything under 0.3 is fine,” Martinez said. “The capture system can deal with it.”

“Probe is well within manual recovery range,” Beck reported.

“Copy,” Lewis said.

“Distance 22 meters, velocity 2.3 meters per second,” Johanssen said. “Angle is good.”

“Slowing her down a little,” Martinez said, sending instructions to the probe.

“Velocity 1.8...1.3...,” Johanssen reported. “0.9...stable at 0.9 meters per second.”

“Range?” Martinez asked.

“Twelve meters,” Johanssen replied. “Velocity steady at 0.9 meters per second.”

“Angle?”

“Angle is good.”

“Then we’re in line for auto-capture,” Martinez said. “Come to Papa.”

The probe drifted gently to the docking port. Its capture boom, a long metal triangle, entered the port’s funnel, scraping slightly along the edge. Once it reached the port’s retractor mechanism, the automated system clamped on to the boom and pulled it in, aligning and orienting the probe automatically. After several loud clanks echoed through the ship, the computer reported success.

“Docking complete,” Martinez said.

“Seal is tight,” Johanssen said.

“Beck,” Lewis said, “your services won’t be needed.”

“Roger that, Commander,” Beck said. “Closing airlock.”

“Vogel, return to interior,” she ordered.

“Copy, Commander,” he said.

“Airlock pressure to one hundred percent,” Beck reported. “Reentering ship.... I’m back in.”

“Also inside,” Vogel said.

Lewis pressed a button on her headset. “Houst— er... Jiuquan, probe docking complete. No complications.”

Mitch’s voice came over the comm. “Glad to hear it, *Hermes*. Report status of all supplies once you get them aboard and inspected.”

“Roger, Jiuquan,” Lewis said.

Taking off her headset, she turned to Martinez and Johanssen. “Unload the probe and stow the supplies. I’m going to help Beck and Vogel de-suit.”

Martinez and Johanssen floated down the hall toward Docking Port A.

“So,” he said, “who would you have eaten first?”

She glared at him.

“Cause I think I’d be tastiest,” he continued, flexing his arm. “Look at that. Good solid muscle there.”

“You’re not funny.”

“I’m free-range, you know. Corn-fed.”

She shook her head and accelerated down the hall.

“Come on! I thought you liked Mexican!”

“Not listening,” she called back.