

WATNEY SLEPT peacefully in his bunk. He shifted slightly as some pleasant dream put a smile on his face. He'd done three EVAs the previous day, all filled with labor-intensive Hab maintenance. So he slept deeper and better than he had in a long time.

"Good morning, crew!" Lewis called out. "It's a brand-new day! Sol 6! Up and at 'em!"

Watney added his voice to a chorus of groans.

"Come on," Lewis prodded, "no bitching. You got forty minutes more sleep than you would've on Earth."

Martinez was first out of his bunk. An air force man, he could match Lewis's navy schedule with ease. "Morning, Commander," he said crisply.

Johanssen sat up, but made no further move toward the harsh world outside her blankets. A career software engineer, mornings were never her forte.

Vogel slowly lumbered from his bunk, checking his watch. He wordlessly pulled on his jumpsuit, smoothing out what wrinkles he could. He sighed inwardly at the grimy feeling of another day without a shower.

Watney turned away, hugging a pillow to his head. "Noisy people, go away," he mumbled.

"Beck!" Martinez called out, shaking the mission's doctor. "Rise and shine, bud!"

"Yeah, okay," Beck said blearily.

Johanssen fell out of her bunk, then remained on the floor.

Pulling the pillow from Watney's hands, Lewis said, "Let's move, Watney! Uncle Sam paid a hundred thousand dollars for every second we'll be here."

“Bad woman take pillow,” Watney groaned, unwilling to open his eyes.

“Back on Earth, I’ve tipped two-hundred-pound men out of their bunks. Want to see what I can do in 0.4 g?”

“No, not really,” Watney said, sitting up.

Having roused the troops, Lewis sat at the comm station to check overnight messages from Houston.

Watney shuffled to the ration cupboard and grabbed a breakfast at random.

“Hand me an ‘eggs,’ will ya,” Martinez said.

“You can tell the difference?” Watney said, passing Martinez a pack.

“Not really,” Martinez said.

“Beck, what’ll you have?” Watney continued.

“Don’t care,” Beck said. “Give me whatever.”

Watney tossed a pack to him.

“Vogel, your usual sausages?”

“*Ja*, please,” Vogel responded.

“You know you’re a stereotype, right?”

“I am comfortable with that,” Vogel replied, taking the proffered breakfast.

“Hey Sunshine,” Watney called to Johanssen. “Eating breakfast today?”

“Mnrrn,” Johanssen grunted.

“Pretty sure that’s a no,” Watney guessed.

The crew ate in silence. Johanssen eventually trudged to the ration cupboard and got a coffee packet. She clumsily added hot water, then sipped until wakefulness crept in.

“Mission updates from Houston,” Lewis said. “Satellites show a storm coming, but we can do surface ops before it gets

here. Vogel, Martinez, you'll be with me outside. Johanssen, you're stuck tracking weather reports. Watney, your soil experiments are bumped up to today. Beck, run the samples from yesterday's EVA through the spectrometer."

"Should you really go out with a storm on the way?" Beck asked.

"Houston authorized it," Lewis said.

"Seems needlessly dangerous."

"Coming to Mars was needlessly dangerous," Lewis said. "What's your point?"

Beck shrugged. "Just be careful."

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THREE FIGURES looked eastward. Their bulky EVA suits rendered them nearly identical. Only the European Union flag on Vogel's shoulder distinguished him from Lewis and Martinez, who wore the Stars and Stripes.

The darkness to the east undulated and flickered in the rays of the rising sun.

"The storm," Vogel said in his accented English, "it is closer than Houston reported."

"We've got time," Lewis said. "Focus on the task at hand. This EVA's all about chemical analysis. Vogel, you're the chemist, so you're in charge of what we dig up."

"*Ja*," Vogel said. "Please dig thirty centimeters and get soil samples. At least one hundred grams each. Very important is thirty centimeters down."

"Will do," Lewis said. "Stay within a hundred meters of the Hab," she added.

"Mm," Vogel said.

"Yes, ma'am," said Martinez.

They split up. Greatly improved since the days of Apollo, Ares EVA suits allowed much more freedom of motion.

Digging, bending over, and bagging samples were trivial tasks.

After a time, Lewis asked, "How many samples do you need?"

"Seven each, perhaps?"

"That's fine," Lewis confirmed. "I've got four so far."

"Five here," Martinez said. "Of course, we can't expect the navy to keep up with the air force, now can we?"

"So that's how you want to play it?" Lewis said.

"Just call 'em as I see 'em, Commander."

"Johanssen here." The sysop's voice came over the radio. "Houston's upgraded the storm to 'severe.' It's going to be here in fifteen minutes."

"Back to base," Lewis said.

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THE HAB shook in the roaring wind as the astronauts huddled in the center. All six of them now wore their flight space suits, in case they had to scramble for an emergency takeoff in the MAV. Johanssen watched her laptop while the rest watched her.

"Sustained winds over one hundred kph now," she said. "Gusting to one twenty-five."

"Jesus, we're gonna end up in Oz," Watney said. "What's the abort wind speed?"

"Technically one fifty kph," Martinez said. "Any more than that and the MAV's in danger of tipping."

"Any predictions on the storm track?" Lewis asked.

"This is the edge of it," Johanssen said, staring at her screen. "It's gonna get worse before it gets better."

The Hab canvas rippled under the brutal assault as the internal supports bent and shivered with each gust. The cacophony grew louder by the minute.

“All right,” Lewis said. “Prep for abort. We’ll go to the MAV and hope for the best. If the wind gets too high, we’ll launch.”

Leaving the Hab in pairs, they grouped up outside Airlock 1. The driving wind and sand battered them, but they were able to stay on their feet.

“Visibility is almost zero,” Lewis said. “If you get lost, home in on my suit’s telemetry. The wind’s gonna be rougher away from the Hab, so be ready.”

Pressing through the gale, they stumbled toward the MAV, with Lewis and Beck in the lead and Watney and Johanssen bringing up the rear.

“Hey,” Watney panted. “Maybe we could shore up the MAV. Make tipping less likely.”

“How?” Lewis huffed.

“We could use cables from the solar farm as guylines.” He wheezed for a few moments, then continued. “The rovers could be anchors. The trick would be getting the line around the—”

Flying wreckage slammed Watney, carrying him off into the wind.

“Watney!” Johanssen exclaimed.

“What happened?” Lewis said.

“Something hit him!” Johanssen reported.

“Watney, report,” Lewis said.

No reply.

“Watney, report,” Lewis repeated.

Again, she was met with silence.

“He’s offline,” Johanssen reported. “I don’t know where he is!”

“Commander,” Beck said, “before we lost telemetry, his decompression alarm went off!”

“Shit!” Lewis exclaimed. “Johanssen, where did you last see him?”

“He was right in front of me and then he was gone,” she said. “He flew off due west.”

“Okay,” Lewis said. “Martinez, get to the MAV and prep for launch. Everyone else, home in on Johanssen.”

“Dr. Beck,” Vogel said as he stumbled through the storm, “how long can a person survive decompression?”

“Less than a minute,” Beck said, emotion choking his voice.

“I can’t see anything,” Johanssen said as the crew crowded around her.

“Line up and walk west,” Lewis commanded. “Small steps. He’s probably prone; we don’t want to step over him.”

Staying in sight of one another, they trudged through the chaos.

Martinez fell into the MAV airlock and forced it closed against the wind. Once it pressurized, he quickly doffed his suit. Having climbed the ladder to the crew compartment, he slid into the pilot’s couch and booted the system.

Grabbing the emergency launch checklist with one hand, he flicked switches rapidly with the other. One by one, the systems reported flight-ready status. As they came online, he noted one in particular.

“Commander,” he radioed. “The MAV’s got a seven-degree tilt. It’ll tip at 12.3.”

“Copy that,” Lewis said.

“Johanssen,” Beck said, looking at his arm computer, “Watney’s bio-monitor sent something before going offline. My computer just says ‘Bad Packet.’”

“I have it, too,” Johanssen said. “It didn’t finish transmitting. Some data’s missing, and there’s no checksum. Gimme a sec.”

“Commander,” Martinez said. “Message from Houston. We’re officially scrubbed. The storm’s definitely gonna be too rough.”

“Copy,” Lewis said.

“They sent that four and a half minutes ago,” Martinez continued, “while looking at satellite data from nine minutes ago.”

“Understood,” Lewis said. “Continue prepping for launch.”

“Copy,” Martinez said.

“Beck,” Johanssen said. “I have the raw packet. It’s plaintext: BP 0, PR 0, TP 36.2. That’s as far as it got.”

“Copy,” Beck said morosely. “Blood pressure zero, pulse rate zero, temperature normal.”

The channel fell silent for some time. They continued pressing forward, shuffling through the sandstorm, hoping for a miracle.

“Temperature normal?” Lewis said, a hint of hope in her voice.

“It takes a while for the—” Beck stammered. “It takes a while to cool.”

“Commander,” Martinez said. “Tilting at 10.5 degrees now, with gusts pushing it to eleven.”

“Copy,” Lewis said. “Are you at pilot-release?”

“Affirmative,” Martinez replied. “I can launch anytime.”

“If it tips, can you launch before it falls completely over?”

“Uh,” Martinez said, not expecting the question. “Yes, ma’am. I’d take manual control and go full throttle. Then I’d nose up and return to preprogrammed ascent.”

“Copy that,” Lewis said. “Everyone home in on Martinez’s suit. That’ll get you to the MAV airlock. Get in and prep for launch.”

“What about you, Commander?” Beck asked.

“I’m searching a little more. Get moving. And Martinez, if you start to tip, launch.”

“You really think I’ll leave you behind?” Martinez said.

“I just ordered you to,” Lewis replied. “You three, get to the ship.”

They reluctantly obeyed Lewis’s order and made their way toward the MAV. The punishing wind fought them every step of the way.

Unable to see the ground, Lewis shuffled forward. Remembering something, she reached to her back and got a pair of rock-drill bits. She had added the one-meter bits to her equipment that morning, anticipating geological sampling later in the day. Holding one in each hand, she dragged them along the ground as she walked.

After twenty meters, she turned around and walked the opposite direction. Walking a straight line proved to be impossible. Not only did she lack visual references, the endless wind pushed her off course. The sheer volume of attacking sand buried her feet with each step. Grunting, she pressed on.

Beck, Johanssen, and Vogel squeezed into the MAV airlock. Designed for two, it could be used by three in emergencies. As it equalized, Lewis’s voice came over the radio.

“Johanssen,” she said, “would the rover IR camera do any good?”

“Negative,” Johanssen replied. “IR can’t get through sand any better than visible light.”

“What’s she thinking?” Beck asked after removing his helmet. “She’s a geologist. She knows IR can’t get through a sandstorm.”

“She is grasping,” Vogel said, opening the inner door. “We must get to the couches. Please hurry.”

“I don’t feel good about this,” Beck said.



“Neither do I, Doctor,” said Vogel, climbing the ladder, “but the commander has given us orders. Insubordination will not help.”

“Commander,” Martinez radioed, “we’re tilting 11.6 degrees. One good gust and we’re tipping.”

“What about the proximity radar?” Lewis said. “Could it detect Watney’s suit?”

“No way,” Martinez said. “It’s made to see *Hermes* in orbit, not the metal in a single space suit.”

“Give it a try,” Lewis said.

“Commander,” said Beck, putting on a headset as he slid into his acceleration couch, “I know you don’t want to hear this, but Watn—...Mark’s dead.”

“Copy,” Lewis said. “Martinez, try the radar.”

“Roger,” Martinez radioed.

He brought the radar online and waited for it to complete a self-check. Glaring at Beck, he said, “What’s the matter with you?”

“My friend just died,” Beck answered. “And I don’t want my commander to die, too.”

Martinez gave him a stern look. Turning his attention back to the radar, he radioed, “Negative contact on proximity radar.”

“Nothing?” Lewis asked.

“It can barely see the Hab,” he replied. “The sandstorm’s fucking things up. Even if it wasn’t, there’s not enough metal in— Shit!”

“Strap in!” he yelled to the crew. “We’re tipping!”

The MAV creaked as it tilted faster and faster.

“Thirteen degrees,” Johanssen called out from her couch.

Buckling his restraints, Vogel said, “We are far past balance. We will not rock back.”

“We can’t leave her!” Beck yelled. “Let it tip, we’ll fix it!”

“Thirty-two metric tons including fuel,” Martinez said, his hands flying over the controls. “If it hits the ground, it’ll do structural damage to the tanks, frame, and probably the second-stage engine. We’d never be able to fix it.”

“You can’t abandon her!” Beck said. “You can’t.”

“I’ve got one trick. If that doesn’t work, I’m following her orders.”

Bringing the orbital maneuvering system online, he fired a sustained burn from the nose cone array. The small thrusters fought against the lumbering mass of the slowly tilting spacecraft.

“You are firing the OMS?” Vogel asked.

“I don’t know if it’ll work. We’re not tipping very fast,” Martinez said. “I think it’s slowing down...”

“The aerodynamic caps will have automatically ejected,” Vogel said. “It will be a bumpy ascent with three holes in the side of the ship.”

“Thanks for the tip,” Martinez said, maintaining the burn and watching the tilt readout. “C’mon...”

“Still thirteen degrees,” Johanssen reported.

“What’s going on up there?” Lewis radioed. “You went quiet. Respond.”

“Stand by,” Martinez replied.

“Twelve point nine degrees,” Johanssen said.

“It is working,” Vogel said.

“For now,” Martinez said. “I don’t know if maneuvering fuel will last.”

“Twelve point eight now,” Johanssen supplied.

“OMS fuel at sixty percent,” Beck said. “How much do you need to dock with *Hermes*?”

“Ten percent if I don’t fuck anything up,” Martinez said, adjusting the thrust angle.

“Twelve point six,” Johanssen said. “We’re tipping back.”

“Or the wind died down a little,” Beck postulated. “Fuel at forty-five percent.”

“There is danger of damage to the vents,” Vogel cautioned. “The OMS was not made for prolonged thrusts.”

“I know,” Martinez said. “I can dock without nose vents if I have to.”

“Almost there...,” Johanssen said. “Okay we’re under 12.3.”

“OMS cutoff,” Martinez announced, terminating the burn.

“Still tipping back,” Johanssen said. “11.6...11.5...holding at 11.5.”

“OMS Fuel at twenty-two percent,” Beck said.

“Yeah, I see that,” Martinez replied. “It’ll be enough.”

“Commander,” Beck radioed, “you need to get to the ship now.”

“Agreed,” Martinez radioed. “He’s gone, ma’am. Watney’s gone.”

The four crewmates awaited their commander’s response.

“Copy,” she finally replied. “On my way.”

They lay in silence, strapped to their couches and ready for launch. Beck looked at Watney’s empty couch and saw Vogel doing the same. Martinez ran a self-check on the nose cone OMS thrusters. They were no longer safe for use. He noted the malfunction in his log.

The airlock cycled. After removing her suit, Lewis made her way to the flight cabin. She wordlessly strapped into her couch, her face a frozen mask. Only Martinez dared speak.

“Still at pilot-release,” he said quietly. “Ready for launch.”

Lewis closed her eyes and nodded.

“I’m sorry, Commander,” Martinez said. “You need to verbally—”

“Launch,” she said.

“Yes, ma’am,” he replied, activating the sequence.

The retaining clamps ejected from the launch gantry, falling to the ground. Seconds later, preignition pyros fired, igniting the main engines, and the MAV lurched upward.

The ship slowly gained speed. As it did, wind shear blew it laterally off course. Sensing the problem, the ascent software angled the ship into the wind to counteract it.

As fuel was consumed, the ship got lighter, and the acceleration more pronounced. Rising at this exponential rate, the craft quickly reached maximum acceleration, a limit defined not by the ship’s power, but by the delicate human bodies inside.

As the ship soared, the open OMS ports took their toll. The crew rocked in their couches as the craft shook violently. Martinez and the ascent software kept it trim, though it was a constant battle. The turbulence tapered off and eventually fell to nothing as the atmosphere became thinner and thinner.

Suddenly, all force stopped. The first stage had been completed. The crew experienced weightlessness for several seconds, then were pressed back into their couches as the next stage began. Outside, the now-empty first stage fell away, eventually to crash on some unknown area of the planet below.

The second stage pushed the ship ever higher, and into low orbit. Lasting less time than the massive first stage, and thrusting much more smoothly, it seemed almost like an afterthought.

Abruptly, the engine stopped, and an oppressive calm replaced the previous cacophony.

“Main engine shutdown,” Martinez said. “Ascent time: eight minutes, fourteen seconds. On course for *Hermes*

intercept.”

Normally, an incident-free launch would be cause for celebration. This one earned only silence broken by Johanssen’s gentle sobbing.

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*Four months later...*

Beck tried not to think about the painful reason he was doing zero-g plant growth experiments. He noted the size and shape of the fern leaves, took photos, and made notes.

Having completed his science schedule for the day, he checked his watch. Perfect timing. The data dump would be completing soon. He floated past the reactor to the Semicone-A ladder.

Traveling feet-first along the ladder, he soon had to grip it in earnest as the centripetal force of the rotating ship took hold. By the time he reached Semicone-A he was at 0.4 g.

No mere luxury, the centripetal gravity of *Hermes* kept them fit. Without it, they would have spent their first week on Mars barely able to walk. Zero-g exercise regimens could keep the heart and bones healthy, but none had been devised that would give them full function from Sol 1.

Because the ship was already designed for it, they used the system on the return trip as well.

Johanssen sat at her station. Lewis sat in the adjacent seat while Vogel and Martinez hovered nearby. The data dump carried e-mails and videos from home. It was the high point of the day.

“Is it here yet?” Beck asked as he entered the bridge.

“Almost,” Johanssen said. “Ninety-eight percent.”

“You’re looking cheerful, Martinez,” Beck said.

“My son turned three yesterday.” He beamed. “Should be some pics of the party. How about you?”

“Nothing special,” Beck said. “Peer reviews of a paper I wrote a few years back.”

“Complete,” Johanssen said. “All the personal e-mails are dispatched to your laptops. Also there’s a telemetry update for Vogel and a system update for me. Huh...there’s a voice message addressed to the whole crew.”

She looked over her shoulder to Lewis.

Lewis shrugged. “Play it.”

Johanssen opened the message, then sat back.

“*Hermes*, this is Mitch Henderson,” the message began.

“Henderson?” Martinez said, puzzled. “Talking directly to us without CAPCOM?”

Lewis held her hand up to signal for silence.

“I have some news,” Mitch’s voice continued. “There’s no subtle way to put this: Mark Watney’s still alive.”

Johanssen gasped.

“Wha—” Beck stammered.

Vogel stood with his mouth agape as a shocked expression swept across his face.

Martinez looked to Lewis. She leaned forward and pinched her chin.

“I know that’s a surprise,” Mitch continued. “And I know you’ll have a lot of questions. We’re going to answer those questions. But for now I’ll just give you the basics.

“He’s alive and healthy. We found out two months ago and decided not to tell you; we even censored personal messages. I was *strongly* against all that. We’re telling you now because we finally have communication with him and a viable rescue plan. It boils down to Ares 4 picking him up with a modified MDV.

“We’ll get you a full write-up of what happened, but it’s definitely not your fault. Mark stresses that every time it

comes up. It was just bad luck.

“Take some time to absorb this. Your science schedules are cleared for tomorrow. Send all the questions you want and we’ll answer them. Henderson out.”

The message’s end brought stunned silence to the bridge.

“He...He’s alive?” Martinez said, then smiled.

Vogel nodded excitedly. “He lives.”

Johanssen stared at her screen in wide-eyed disbelief.

“Holy shit,” Beck laughed. “Holy shit! Commander! He’s alive!”

“I left him behind,” Lewis said quietly.

The celebrations ceased immediately as the crew saw their commander’s expression.

“But,” Beck began, “we all left togeth—”

“You followed orders,” Lewis interrupted. “I left him behind. In a barren, unreachable, godforsaken wasteland.”

Beck looked to Martinez pleadingly. Martinez opened his mouth, but could find no words to say.

Lewis trudged off the bridge.