ABANDONIN PLACE

by Jerry Oltion

Six hours after Deke Slayton, the astronaut, died of cancer, his racing airplane took off from aCalifornia airport and never came down. The pilot didn't respond to the control tower, and the plane vanished from radar shortly after takeoff, but witnesses clearly identified it as Slayton's. Which was impossible, because that same airplane was in a museum inNevada at the time.

The story made the rounds at theCape . Engineers and administrators and astronauts all passed it along like scouts telling ghost stories around a campfire, but nobody took it seriously. It was too easy to mistake one plane for another, and everyone knew how fast rumors could get started. They had heard plenty of them over the years, from the guy who'd claimed to be run off the road by Grissom's Corvette after the Apollo 1 fire to the Australian who'd supposedly found a piece of Yuri Gagarin's spacesuit in the debris that rained over the outback when Skylab came down. This was just one more strange bit of folklore tacked onto the Apollo era, which was itself fast fading into legend.

Then Neil Armstrong died, and a Saturn V launched itself from pad 34.

Rick Spencer was there the morning it went up. He had flown his T-38 down from Arlingtonright after the funeral, grabbed a few hours of sleep right there at theCape , then driven over to the shuttle complex before dawn to watch the ground crew load a communications satellite into the Atlantis. The ungainly

marriage of airplane and rocket on pad 39A would be his ticket to orbit in another week if they ever got the damned thing off the ground, but one of the technicians forgot to mark a step off his checklist and the whole procedure shut down while the foreman tried to decide whether to back up and verify the job or take the tech at his word when he said he'd done it. Rick was getting tired of waiting for somebody to make a decision, so he went outside the sealed payload mating bay for a breath of fresh air.

The sun had just peeked over the horizon. The wire catwalk beneath his feet and the network of steel girders all around him glowed reddish gold in the dawn light. The hammerhead crane overhead seemed like a dragon's long, slender neck and head leaning out to sniff curiously at the enormous winged orbiter that stood there sweating with dew beneath its gaze. The ground, nearly two hundred feet below, was still inky black. Sunlight hadn't reached it yet, wouldn't for a few more minutes. The ocean was dark, too, except near the horizon where the brilliant crescent of sun reflected off the water.

From his high catwalk Rick looked down the long line of launch pads to the south, the tops of their gantries projecting up into the light as well. Except for pads 34 and 37. Those two had been decommissioned after the Apollo program, and now all that remained were the concrete bunkers and blast deflectors that couldn't be removed, low gray shapes still languishing in the shadow of early dawn. Just like the whole damned space program, Rick thought. Neil had been given a hero's burial, and the President's speech had been full of promise for renewed support of manned exploration in space, but it was all a lot of hot air and everyone knew it. The aging shuttle fleet was all America had, and all it was likely to get for the foreseeable future. Even if NASA could shake off the bureaucratic stupor it had fallen into and propose a new program, Congress would

never pass an appropriations bill for the hardware.

Rick looked away, but a flicker of motion drew his attention back to pad 34, where brilliant floodlights now lit a gleaming white rocket and its orange support tower. Rick blinked, but it didn't go away. He stepped closer to the railing and squinted. Where had that come from? Over half of it rose above the dawn line; Rick looked over the edge of the Atlantis's gantry and made a quick guess based on his own height. That rocket had to be over three hundred feet tall.

Three hundred and sixty-three, to be exact. Rick couldn't measure it that exactly, but he didn't need to. He recognized the black-striped Saturn V instantly, and he knew its stats by heart. He had memorized them when he was a kid, sitting in front of his parents' black-and-white tv set while he waited for the liftoffs. Three hundred sixty-three feet high, weighing over three thousand tons when fueled, the five F-1 engines in its first stage producing seven and a half million pounds of thrust--it was the biggest rocket ever built.

And it had also been over thirty years since the last of them flew. Rick closed his eyes and rubbed them with his left hand. Evidently Neil's death had affected him more than he thought. But when he looked to the south again he still saw the brilliant white spike standing there in its spotlight glare, mist swirling down its side as the liquid oxygen in its tanks chilled the air around the massive rocket.

Rick was alone on the gantry. Everyone else was inside, arguing about the payload insertion procedure. He considered going in and asking someone to come out and tell him if he was crazy or not, but he abandoned that thought immediately. One week before his first flight, he wasn't about to confess to

hallucinations.

It sure looked real. Rick watched the dawn line creep down the Saturn's flank, sliding over the ever-widening stages until it reached the long cylinder of the main body. The spectacle was absolutely silent. The only sound came from closer by: the squeak and groan of the shuttle gantry expanding as it began to warm under the light.

Then, without warning, a billowing cloud of reddish white smoke erupted from the base of the rocket. The eye-searing brightness of RP-1 and oxygen flame lit up the cloud from within, and more exhaust blasted sideways out of the flame deflectors.

Rick felt the gantry vibrate beneath him, but there was still no sound. The exhaust plume rose nearly as high as the nose cone, roiling like a mushroom cloud over an atomic blast, then slowly the rocket began to lift. Bright white flame sprayed the entire launch pad as the thundering booster, gulping thousands of gallons of fuel per second, rose into the sky. Only when the five bell-shaped nozzles cleared the gantry--nearly ten seconds after liftoff--did the solid beam of flame grow ragged at the edges. A few final tongues of it licked the ground, then the rocket lifted completely into the air.

The shuttle gantry beneath Rick's feet shook harder. He grabbed for support just as the sound reached him: a thunderous, crackling assault that sent him staggering back against the catwalk's inner railing, his hands over his ears.

The gantry shook like a skyscraper in an earthquake, knocking him to his knees on the non-skid grating. He didn't try to rise again, just stared upward in awe as the Saturn V dwindled rapidly now and the roar of its engines tapered off with distance.

The glare left afterimages when he blinked. He didn't care. He watched the

rocket arc over and begin its long downrange run, picking up orbital velocity now that it had cleared the thickest part of the atmosphere.

The door behind him burst open and a flood of white-jacketed technicians scrambled out. The first few stopped when they saw the enormous plume of exhaust rising into the sky, and the ones behind them piled into their backs, forcing them forward until everyone was packed near the railing. Molly, the payload foreman, gave Rick a hand up, and bent close to his ear to shout over the roar of the rocket and the babble of voices, "What the hell was that?"

Rick shook his head. "Damned if I know."

"There wasn't supposed to be a launch today," she said.

Rick looked up at the dwindling rocket, now just a bright spark aiming for the sun, and said, "Something tells me Control was just as surprised as we were." He pointed toward the base of the exhaust plume, where the cloud had spread out enough to reveal the gantry again.

"What?" Molly asked, squinting to see through the billowing steam. Then she realized what he was pointing at. "Isn't that pad thirty-four?"

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Molly and her payload crew reluctantly trooped back into the mating bay to see if the shaking had damaged their satellite, but since Rick was on his own time he rode the cage elevator down to the ground, climbed into his pickup, and joined the line of cars streaming toward the launch site.

The scrub oak and palmetto that lined the service road prevented anyone from seeing the pad until they had nearly reached it. Rick thought he should have been able to see the 400-foot gantry, at least, but when he arrived at the pad he realized why he hadn't. It had vanished just as mysteriously as it had

arrived, leaving not a trace.

Rick drove across the vast concrete apron to the base of the old launch pedestal. It looked like an enormous concrete footstool: four squat legs holding a ten-foot-thick platform forty feet in the air, with a thirty-foot-wide hole in the platform for the rocket exhaust to pour through. Off to the side stood the foundation and the thick blast protection wall of the building that had once housed propellant pumps and service equipment. Now both structures looked old and weathered. Rust streaks ran down their gray sides, and stenciled on the pitted concrete, the paint itself fading now, were the words, "ABANDON IN PLACE."

Weeds grew out of cracks in the apron, still green and vigorous even right up next to the pedestal. Rick was beginning to doubt what he'd seen, because obviously nothing had launched from this pad for at least a decade.

But the contrail still arched overhead, high-altitude winds snaking it left and right, and when Rick opened the door and stepped out of his pickup he smelled the unmistakable mixture of RP-1 smoke and steam and scorched cement that came with a launch.

Doors slammed as more people got out of their cars. Dozens of them were there already, and more arrived every minute, but what should have been an unruly mob was strangely quiet. Nobody wanted to admit what they'd seen, especially in the face of so much conflicting evidence.

Rick recognized Tessa McClain, an experienced astronaut whom he'd dated a few times in the last couple of months, climbing out of the back of a white van along with half a dozen other people from the vehicle assembly building. When she saw him she jogged across the concrete to his side and said, "Did you see it?" Her face glowed with excitement.

"Yeah," Rick said. "I was up on the gantry at thirty-nine."

She looked up at the contrail overhead, her straight blonde hair falling back over her shoulders. "Wow. That must have been a hell of a sight. I felt it shake the ground, but I didn't get outside until it was already quite a ways up." She looked back down at him. "It was a Saturn Five, wasn't it?"

"That's what it looked like," he admitted.

"God, this is incredible." She turned once around, taking in the entire launch pad. "A moon rocket! I never expected to see anything like it ever again."

"Me either," Rick said. He struggled to find the words to express what he was thinking. "But how could we possibly have seen anything? There's no tower here, no fuel tanks, nothing. And the launch pedestal is too small for a fully fueled Saturn V. This complex was for the S-1B's."

She grinned like a child at Christmas. "I'm sure whoever --or whatever--staged this little demonstration was able to make all the support hardware they needed. And take it away again when they were done with it."

Rick shook his head. "But that's impossible."

Tessa laughed. "We all saw it." She pointed upward. "And the contrail's still there." Suddenly her eyes grew even wider.

"What?" Rick asked.

She looked across the rolling hummocks of palmetto toward the fifty-story-high vehicle assembly building--and the launch control center at its base. "I wonder if it's sending back telemetry?"

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It took a while to find out. Nobody remembered what frequencies the Apollo spacecraft broadcast on or what protocols the data streams used, and the ground

controllers had to dig through archived manuals to find out. It took still more time to set up the receivers to accept the signals, but when the technicians eventually tuned into the right frequencies they found a steady information flow. They couldn't decode most of it, since the software to do that had been written for the old RCA computer system, but they did at least establish that the rocket had not vanished along with its ground support structures.

Rick and Tessa were in the launch control center now, watching the overhead monitors while programmers in the central instrumentation building frantically attempted to adapt the old programs to the new machines. What they saw was mostly a lot of numbers, but every few minutes one of the programmers would patch in another section of translated code and another display would wink into place on the screen. They had already figured out cabin temperature and pressure, fuel level in the upper stage tanks, and a few of the other simple systems.

By this point in a normal flight the whole project would rightfully belong to Mission Control inHouston , but there was nothing normal about this launch. When theHouston flight director heard what the Kennedy team was doing, he wanted nothing to do with it anyway. He intended to keep his own neck well out of the way when heads started rolling after this crazy debacle was over.

But the spacecraft stubbornly refused to disappear. Radar tracked it through one complete orbit and part of another, when its altitude and velocity began to rise. At the same time, the fuel levels in the third stage tanks began to drop. That could mean only one thing: The booster was firing again.

"Translunar injection," Tessa whispered. "They're going for the Moon."

"Who's 'they'?" Rick asked. So far none of the telemetry indicated a live--or even a ghostly--passenger in the command module.

"It's got to be Neil," Tessa said. "And who knows who else is going with him."

"Neil is in a box inArlington cemetery," Rick said. "I saw them put him there."

"And you saw the launch this morning," Tessa reminded him. "Neil being on board it is no more impossible than the rocket itself."

"Good point." Rick shrugged. Every dead astronaut from Gagarin on could be in the mystery Apollo capsule for all he knew. This bizarre manifestation was completely new territory; nobody knew the rules yet.

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Enough people claimed to, of course. Psychics seemed to crawl out of the woodwork over the next few days, each with their own interpretation of the event. NASA had to close the gates and post guards around the perimeter of the space center to keep it from being overrun by curious mystics, but that merely fueled speculation that they were developing a new super-secret space vehicle at the taxpayers' expense.

The administration tried the silent approach at first, but when that charge was levelled they reluctantly admitted that for once the fruitcakes were closer to the truth than the whistleblowers. In a carefully worded press release, NASA's public relations spokesman said, "What appeared to be a Saturn Five moon rocket seemed to launch from the deserted complex thirty-four. This alleged launch was not authorized by NASA, nor was it part of any program of which NASA is aware. A complete investigation of the incident is being made, and our findings will be made public as soon as we learn what actually occurred."

That was Bureauspeak for, "We don't have a clue either." Rick spent days with the investigation team, going over his story again and again--careful to say

"appeared to" and "looked like" at all the appropriate spots--until he could recite it in his sleep, but no one was the wiser afterward. They examined the launch pad, which revealed no sign of a liftoff. All they could do was listen to the telemetry coming from the spacecraft and speculate.

Three days after its launch, the ghost Apollo entered lunar orbit. A few hours after that, the lunar module separated from the command module and made a powered descent toward the surface. It wasn't headed for theSeaofTranquility . It appeared to be landing at Copernicus, one of the sites proposed for further Apollo missions before the last three had been cancelled. But when it reached 500 feet, the telemetry suddenly stopped.

"What the hell happened?" demanded Dale Jackson, the impromptu flight director for the mission. He stood beside one of the consoles on the lowest of the terraced rows, looking around at the dozens of technicians who were scrambling to reacquire the signal.

Tessa and Rick were watching from farther up, sitting side by side at unused consoles and holding hands like teenagers on a date at the best movie of all time. When the telemetry stopped, Tessa flinched as if a monster had just jumped out of a closet.

"What happened?" Rick asked. "Did it blow up?"

Tessa shook her head. "Everything stopped," she said. "The command module too, and it was still in orbit."

"Five hundred feet," Rick said. Something about that figure nagged at him. What happened at five hundred feet in a normal lunar descent? "Got it!" he said, loudly enough that everyone in the room looked back up at the screens. When they saw no data there, they turned to him.

"Five hundred feet was 'low gate,' when the pilot was supposed to take over from

the descent computer and actually land the LEM," he told them. "The computer couldn't take it all the way to the surface. It wasn't sophisticated enough to choose a landing site."

Jacksonasked, "So, what, you think it crashed? It was still five hundred feet up."

Rick hesitated. He'd been biting his tongue for days now, afraid of knocking himself off the Atlantis mission with a poorly chosen phrase, but he had grown tired of being timid. He cleared his throat and said, "I think when the time came for a human to take over, it went back to wherever it came from."

"Sure it did."Jackson turned to the technicians. "Get me that signal."

They tried, but it quickly became apparent that there simply wasn't a signal any longer. Not even radar could find any sign of the spacecraft. The mysterious Apollo had vanished without a trace.

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NASA held back Rick's Atlantis mission an extra week while the ground crew checked the ship for damage from the shaking it had received, but at last they pronounced it ready to fly. On the morning of the launch, Rick and four other astronauts rode the elevator up the gantry, climbed in through the hatch in the side of the orbiter, and strapped themselves into their acceleration chairs.

After a countdown that was only interrupted twice due to a defective pressure sensor in a fuel line, they finally lit the three main engines and the two solid rocket boosters and rodeAmerica 's space truck into orbit.

It was Rick's first time in space. He had expected to be excited, and he was, but somehow not so excited as he had imagined. Instead of watching the Earth slide past beneath him, he spent most of his free time watching the Moon, now

just past full. It had been lunar dawn at the landing site when the Apollo had lifted off, just the way it had been for the real flights over a quarter of a century earlier. That was to give the crew the best lighting angle for landing, and to make sure they had plenty of daylight to explore in. And to make emergency repairs if anything went wrong.

What a wild time that must have been, he thought as he floated between the pilot's and copilot's chairs and looked out the forward windows at the white disk a quarter million miles away. Flying by the seat of your pants, your life right at your fingertips and the entire world watching over your shoulder to see if you had the wits to keep yourself alive. Aldrin had accidentally snapped off the pin of the ascent engine arming switch with his backpack, and he'd had to poke a felt pen into the hole to arm the engines before he and Armstrong could leave the Moon. A felt pen! If something like that happened on the shuttle, ground control would probably order the crew to conserve power and wait for a rescue--except they still couldn't launch a second shuttle within a month of the first one. Maybe they could get the Russians to come up and push the button for them with one of their felt pens.

He was being unfair. The Hubble telescope repair had taken some real ingenuity, and the spacelab scientists were always fixing broken equipment. But none of that had the same dazzle as flying to the Moon. Nowadays the shuttle astronauts seemed more like appliance repairmen than intrepid explorers. Rick had convinced himself that the shuttle was doing some valuable science, but now, after seeing a Saturn V launch only two weeks earlier, he realized that science wasn't what had thrilled him when he'd watched them as a kid, and it wasn't why he was here now. He was in space because he wanted to explore it, and this--barely two hundred miles off the ground--was the farthest into it he could get.

He wished Tessa were on his flight. She would know what he was feeling. On their dates, they had talked a lot about their reasons for becoming astronauts, and she had admitted to the same motives as him. But she had been scheduled for Discovery's next launch in a month and a half.

He heard a shout from the mid-deck. "Merde!" A moment later, Pierre Renaud, the Canadian payload specialist whose company had paid for his ticket, floated through the hatchway onto the flight deck.

"What's the matter?" Rick asked when he saw the look of dismay onPierre 's face.

"The toilet has broken,"Pierre said.

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Rick was on post-flight vacation inKey West when the next one went up. The phone woke him from a sound sleep just after dawn, and when he fumbled the receiver to his ear and answered it, Dale Jackson's gravelly voice said,

"There's been another Saturn launch. Get your ass up here so we can compare notes with the last time."

Rick came instantly awake. Less than an hour later he was in the air headed north. By the time he crossedLake Okeechobee he could see the ragged remains of the contrail, and when he arrived at theCape the place looked like an anthill that had just been kicked. Cars zoomed up and down the service roads, and the public highways outside the gates were packed in all directions.

Two wide-eyed Air Force cadets escorted him from the airport to a meeting room in the headquarters building, where NASA's administrator, flight director, range safety officer, and at least a dozen other high-ranking officials were already deep in discussion over the incident. Rick noted with amusement that the flight

surgeon was also present, and presumably taking notes.Jackson , the flight director, was talking about the difficulty of decommissioning a fully fueled Saturn V on the pad, should another one appear.

"We don't even have facilities there to store the fuel anymore, much less pump it," he was saying. "Especially not in the fifteen minutes or so that these things stick around. That's barely time enough to hook up the couplings."

Tessa was there as well, and she smiled wide and waved when she saw Rick. He edged around the conference table and pulled up a chair beside her. "What are you doing here?" he whispered.

"Getting the third degree," Tessa answered. "I was at the pad when this one lifted off."

"Which pad?"

"Thirty-four."

"You're kidding. You'd be toast if you were that close to the launch."

"I was in the blockhouse."

Rick supposed that would offer some protection. And besides, even that might not be necessary. The weeds hadn't been charred or blown away in the first launch.

"Why were you there?" he asked. "How did you know it would happen again?"

She grinned, obviously proud of herself. "Because ghosts usually repeat themselves until they get whatever they came for, and today was the next launch window."

At the head of the table, Jackson was still talking. "...Nor do we have crawler capability to remove the rocket even if we could pump it dry. We'd have to completely rebuild the access road, and in the meantime we'd be left with a thirty-six-story embarrassment."

Rick sized up the meeting in an instant. NASA saw these ghost rockets as a

threat, and wanted them stopped.

"Why don't we just put astronauts in them instead?" he asked. "There's time enough to ride up the gantry and climb inside before launch."

Jackson squinted down the table at him. "In a completely unknown and untested vehicle? No way."

"It's not unknown or untested," said Tessa. "It's a Saturn Five."

"It's a goddamned mystery," Jackson said, "and there's no valid reason to risk anyone's life on one, either on the ground or in space."

"What do you propose to do, then?" the range safety officer asked. "Shoot them down?"

Nervous laughter broke out around the table, but quickly died out. Jackson shook his head. "I propose we let them go. Assuming there are any more. They aren't harming anything except our image."

Warren Altman, latest in a string of five new administrators in the last two years, said, "Yes, precisely. Our image. We're in enough trouble as it is without Congress thinking things are out of control down here." He paused to take off his glasses, and used one of the earpieces for a pointer as he continued, "No, Dale, we can't afford to do nothing. No matter how bizarre this situation is, we've got to take control of it, show Congress that we're handling it, or we'll lose even more credibility than we already have. That means decommissioning the damned things, and if we can't do it on the ground then we'll just have to do it in orbit."

"How?" asked Jackson.

"Just as Rick suggested. Put an astronaut in one, and let him interrupt the mission once it reaches Earth orbit. We'll already have a shuttle up there next

month; it can rendezvous with the Apollo and our astronaut can return on the shuttle."

"Leaving the third stage and the rest of the spacecraft in orbit," Jackson pointed out.

"Better there than on the pad," Altman replied. "Besides, maybe we can figure out a use for it. Skylab was just an empty Saturn third stage." He laughed. "Hell, if this continues for a few months, we could have all the habitat modules we need to build a real space station."

"And what if they disappear on us just like the last one?"

Altman's eyes narrowed. He hadn't thought of that. But he just shrugged and said, "We'll worry about that later. Chances are the damned things will fade out as soon as we interfere anyway. That's what usually happens with ghosts." He pointed his glasses at Rick. "It's your idea; do you want to volunteer?"

"Of course I do!" Rick said.

"You lucky bastard," Tessa whispered.

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He thought so too, until the training started. For the next month, Jackson kept him on sixteen-hour days in the simulators, training for a mission that hadn't even been considered in over two decades. He learned every switch and dial in the Apollo command module until he could operate the ship with his eyes closed, and he practiced every contingency that the flight engineers could come up with, including a lunar flyby and slingshot back to Earth in case the rocket wouldn't let him shut it down before translunar injection. They had plenty of data already for that kind of abort: Apollo 13 had done a slingshot return when an oxygen tank had blown on the way to the Moon.

Rick even argued them into letting him train in a mockup lunar module, reasoning

that he might be able to use it as a lifeboat in case of a similar emergency.

They also let him practice using the descent and ascent engines for emergency thrust, and after he wheedled with them for a few days they even let him practice landing.

"Only because it'll help you get a feel for the controls," Jackson told him. "You couldn't actually land even if you wanted to, because if you separate the lunar module from the command module, you're dead. Rendezvous and docking is done from the command module, and you won't have a pilot."

Rick wondered about that. They didn't know who or what might inhabit the capsule atop the enormous rocket. It might be anything from Armstrong's preserved corpse to the Ghost of Christmas Future. The only thing NASA knew for sure was that they weren't going to risk more than one person on this flight.

So Rick found himself standing alone at the base of the concrete pedestal during the hour before dawn on the morning of the next launch window. He wore a shuttle spacesuit modified to allow him to lie in an Apollo couch--the best they could come up with in only a month, since the few remaining Apollo suits in the Smithsonian and other museums were over thirty years old and wouldn't hold air without major refurbishing. He also wore a parachute strapped to his back. The parachute was Jackson's idea, in case the whole Saturn V, gantry and all, faded away when Rick tried to enter the capsule 350 feet off the ground.

Pad 34 was spooky in the pre-dawn twilight. Little gusts of wind rattled the bushes that grew out of the cracks in the concrete, and Rick felt eyes watching him. Most of those belonged to the NASA personnel who waited in the blockhouse nearly a thousand feet away, but the tingling at the back of his neck made Rick wonder if other eyes were watching him as well, and maybe judging him. What

would they make of him? He'd been barely ten years old when the Eagle landed, was never a military pilot like the first astronauts, never even a soldier. Just a kid who'd always dreamed of becoming an astronaut. And now here he stood with his spacesuit on, holding his suitcase-sized portable ventilator like a banker with his briefcase waiting at a subway stop, while the empty launch pad mocked his every breath.

Even the pads to the north were empty. Discovery had already lifted off three days ago, taking Tessa and five others into orbit with the Spacelab, where they were to study the effects of free fall on fruit fly mating habits--and also to await Rick's arrival. They had put themselves in the most likely orbit for the Apollo to take, but it was still a gamble and everyone knew it. If they had guessed wrong, Rick would have to go to plan B: re-entry using the Apollo capsule.

There would be no rescue if that didn't work. None of the other shuttles were even close to being ready for launch; Atlantis was still at Edwards, waiting for a ride home that might never come because the 747 carrier plane had developed cracks in the wing struts, and Columbia and Endeavor were both in the vehicle assembly building with their supposedly reusable engines scattered across acres of service bay while the technicians tried to match enough parts to get one complete set to work.

At least Rick was there. His heart was pounding, but he was there and ready to fly. He squared his shoulders and checked his watch. Any time now.

Suddenly, silently, the rocket appeared. Spotlight glare blinded Rick until he lowered his sun visor, then he turned once around to orient himself. The gantry was right where he'd expected it to be, and the Saturn V...Rick tilted his head back and felt his heart skip a beat. It was colossal. From right there at the

base of it, the thing looked like it already reached to the Moon.

He didn't have time to gawk. He ran awkwardly for the elevator, his boots slapping the concrete, then climbed inside the elevator cage and rode it all the way to the top, nervously watching the ground drop farther and farther away.

Two-thirds of the way up, he crossed into sunlight.

The metal structure squeaked and groaned around him, just like the shuttle gantry did. The grating underfoot scuffed against his boots as he crossed over on the swing arm bridge to the white room and the capsule. The hatch was open, as if waiting for him. Normally a crew of technicians would be there to help him into his seat, but he was completely alone. Nobody waited inside the capsule, either. Quickly, lest the rocket launch with him on the gantry, he climbed in, unplugged his ventilator and tossed it back out the hatch, and plugged one of the ship's three umbilicals into his suit. He jounced up and down on the seat a time or two. Banged on the hatch frame with his gloved hand. Solid. Satisfied, he tossed the parachute out after the ventilator, pulled the hatch closed, sealed it, and sank back into the center couch.

The instrument panel was a forest of switches and knobs before him, uncomfortably close to his face. He scanned the readouts, looking for anomalies, while he took a deep breath and smelled the cool, metallic scent of pressurized air. His suit umbilical was working, then. He should have a radio link now, too.

He spoke into his suit's microphone. "Control, this is Apollo, do you read?"

"Loud and clear," Jackson's voice said.

"Ready for liftoff," Rick told him.

"Good. Estimated time to launch...uh, call it two minutes."

"Roger." Rick's pulse rate was sky high. He tried to calm himself down, but the

lack of a real countdown somehow underscored how crazy this whole thing was. He was sitting on top of a ghost!

He forced himself to concentrate on the instruments in front of him. Main power bus, green. Cabin temperature, nominal. Fuel pressure--

Amber lights blinked on, and a low rumble vibrated the walls.

"Ignition sequence starting," Jackson said.

"Roger. I feel it."

"All engines running."

Through the hatch window Rick saw the swing arm glide away, and the cabin seemed to sway slightly to the right.

"Liftoff. We have liftoff."

The rumble grew louder, and now Rick felt the acceleration begin to build. The launch tower slid downward out of sight, and then all he could see was blue morning sky. He had expected the G's to slam him back into the seat, but they built gently as the booster burned its fuel and the rocket grew lighter. When the second stage ignited there was a lurch and the G's grew stronger, but still bearable.

This time Houston had gotten in on the act. Mission Control took over the flight now, and Laura Turner, the capsule communicator, said, "You're looking good, Apollo. Escape tower jettison in twenty seconds."

Rick felt the thump right on schedule, and now that the tower and its boost protection cover were gone he could see out the side windows as well. Florida was a long ways down already, and receding fast.

The third stage ignited a few minutes later, propelling the spaceship on into orbit. "Right on target," Laura said. "We track you one hundred miles uprange of Discovery and closing."

"Roger."

And now it was time for Rick to earn his ride. He didn't have to do much; NASA wouldn't let him fly the Apollo toward the shuttle. It was his job to disarm the engines and let Tessa bring the shuttle to him. Holding his breath, he reached out to the too-close instrument panel with his gloved index finger. Would the ship let him take over now, or would it hold him prisoner all the way to the Moon? Or would it vanish in a puff of smoke the moment he touched the controls?

Only one way to tell. The switches clicked home with a satisfying thunk, and the indicator lights showed those circuits dead. The rest of the instruments, and the capsule itself, remained undisturbed. Rick took a breath, then reported, "Engines disarmed. Apollo is now safe for rendezvous."

"Roger, Apollo. Sit back and enjoy the ride, Rick."

He unstrapped himself and drifted free of the acceleration couch. The Apollo capsule might be cramped compared to the shuttle, but with only one person in it he had enough room to float from window to window and look at the blue and white Earth below.

And at the Moon, once again in its crescent phase. It beckoned to him stronger now than ever, for here he sat in a spaceship that could take him there. Take him there and land, if only he had two more astronauts to fly with him.

The shuttle was a bright speck against the solid black of space, drawing steadily closer. Rick watched until it resolved into the familiar stubby-winged orbiter.

"Apollo, this is Discovery," Tessa said over the radio. "Do you read?" Her voice sounded excited, as well it might. Not every day did she get the chance to rendezvous with a ghost.

Rick smiled at the sound of her voice. He had always wanted to fly a mission with her. He had always assumed when it happened he would be the low man on the duty roster, cleaning rat droppings out of cages on a Spacelab flight or something, but here he was commander of his own ship, making space history.

He said, "Discovery, this is Apollo. I read you loud and clear. Good to see you, Tessa."

"Are you ready for EVA?"

EVA. Extra-vehicular activity. They couldn't actually dock the Apollo and the shuttle; Rick would have to transfer across on his own, leaving the Apollo to coast onward alone, its engines silenced, its mission--whatever that might be--unfulfilled.

But if NASA really turned it into another Skylab, that might mollify whoever or whatever was behind these launches. Then maybe it wouldn't go to waste.

Rick shook his head. Who was he kidding? NASA would never use this ship for anything. He'd known it ever since he saw the look on Altman's face when Jackson asked what they would do if it faded away. Altman just wanted to show Congress--and the power behind the new Apollo--that NASA was still in control.

He expected this to be the last of the mystery ships, now that Rick had deactivated it.

"Apollo, do you copy?" Tessa asked.

Rick swallowed. If he screwed with the flight plan, it would be the last time he ever flew. Worse, the spaceship could turn into gossamer and cobwebs at any moment, stranding him in cislunar space with nothing but a pressure suit, slowly suffocating as his air supply ran out. Or it could wait until he reached the Moon before fading out, just as the last two had done, the first over Copernicus and the second over the Aristarchus plateau. But if he didn't at least try it,

could he live with himself for the rest of his life, knowing that he'd once had the opportunity to go to the Moon but had turned it down?

He had always wanted to explore the unknown; well this was certainly his opportunity for it. He had no idea whose ghost this was or what its purpose might be, but it was his ship now, by right of conquest if nothing else. So what was he going to do with it?

Tessa called again. "Hello Apollo, are you ready for EVA?"

He took a deep breath. "Negative," he said. "Negative. In fact, I think I'm going to need a little help over here."

"What sort of help, Apollo?"

Looking out at the brilliant white crescent, he said, "I need someone to ride with me to the Moon. Preferably two someones. You know anybody who wants to go?"

Tessa's shriek was inarticulate, a primal whoop of surprise or relief or laughter, but before Rick could ask her which it was Laura, in Houston, said, "Don't even think it, Rick. You do not have authorization for an extended mission. Is that clear?"

Rick sighed. But he could already hear the roar of bridges burning. "Clear as space itself, Laura, but I'm going. And if I can take a full crew with me, then I'm going to land when I get there. There's nothing you can do to stop me."

"Negative, Rick. You need ground control. Now that you've disarmed the engines, you have no assurance that any aspect of the mission will proceed normally. You'll have to re-arm and fire the engines yourself, but without us you won't know when to do that. Even after you're on your way, you'll need our radar for tracking, and you'll need our computers to calculate course corrections, and--"

"I get the point, Capcom." By the quickness of her response, Laura had obviously considered all this beforehand, but it didn't matter. "You're bluffing," Rick told her. "You wouldn't let us die out here if you could prevent it."

She didn't answer. Rick took that as answer enough. Tessa evidently did too; she said, "We're coming over."

A new voice, Dale Jackson's, said, "You're staying right there. Rick, Tessa, we will not provide tracking for a Lunar flight. I don't care if you drift straight out of the Solar system, we will not jeopardize the entire space program just to satisfy your curiosity."

"What space program?" Tessa asked. "We're breeding fruit flies over here." That wasn't exactly fair; one of the payload specialists was an astronomer who was running a free-flying instrument platform--but she was from Japan.

"I'm not going to argue with you. Tessa, if you leave Discovery, you will be charged with dereliction of duty and reckless endangerment of the rest of the crew. And I'm not bluffing; if you attempt to leave Earth orbit in that Apollo, you'll be on your own."

Rick looked at the empty seats on either side of him. In a cramped alcove behind them was the navigation equipment--a telescope and sextant and a primitive guidance computer--that could theoretically provide him with enough measurements and computing ability to stay on course. But he hadn't trained to use them, and he bet neither Tessa nor whoever was coming with her knew how to calculate their trajectory with them, either.

"What do you think, Tessa?" he asked. "Can we do it without ground control?"

"I don't--"

"That will not be necessary," a new voice said, drowning her out. It had a heavy accent, but Rick couldn't place it immediately. Some foreign ham operator

broadcasting on the Tracking and Data Relay Satellite frequencies?

"Who's that?" he asked.

"I am Gregor Ivanov, of the Russian Space Agency in Kaliningrad. I have been monitoring your signal, and am prepared to offer assistance."

Houston was evidently receiving his signal, too. "You can't do that!" Jackson yelled.

The Russian laughed. "I certainly can. In fact, I must. International treaties legally require that Russia offer help to any craft that has been disabled or abandoned either at sea or in space."

"You stay out of this!" Jackson yelled again. "That craft is neither disabled nor abandoned."

"Oh? Perhaps I mis-heard you. Do you plan to offer ground radar support for the lunar landing mission?" Gregor laughed again, clearly enjoying his position.

Jackson wasn't amused. "Get off this frequency, Russkie," he growled. "You're creating an international incident."

"I certainly hope so," Gregor replied. "Apollo, I repeat my offer. Kaliningrad control will provide your ground support for a Lunar landing and sample return mission. Do you wish our assistance?"

Rick felt a laugh bubbling up from his own throat. Could he trust the Russians to guide an Apollo to the moon? Would they actually help an American crew re-enact the mission that had embarrassed their country over thirty years ago?

Probably. The cold war was dead and buried, with the Berlin Wall for a tombstone. Whether or not they could actually perform was the big question. Their computer equipment was nearly as antiquated as the 36K of wire-wrapped core memory under the navigation console.

But Rick really didn't have much choice. Houston would fight him every step of the way. And besides, an international mission sounded kind of nice about now. Rick would need someone on his side when he returned. If he returned. Shaking his head, he said, "Any port in a storm, Kaliningrad. I accept your offer."

"This is treason!" Jackson shouted, but Rick ignored him.

Tessa said, "We're coming across, Apollo."

"You're already suited up?" It took two hours of pre-breathing pure oxygen to purge the nitrogen from a shuttle astronaut's bloodstream before they could exit the ship; Tessa and whoever else was coming with her must have started before Rick had even launched.

"Contingency planning," Tessa replied, amusement in her voice. "You might have needed rescue, you know."

"Ah, of course," Rick said.

Jackson tried again. "Tessa, think about this. You're throwing away your whole career for nothing."

"I wouldn't call a lunar landing 'nothing.'"

"It's a goddamned ghost! It's worse than nothing. You could be killed!"

"Yes, I could, couldn't I?" Tessa said. "We could all be killed. Or worse yet, we could all give up the dream and keep flying shuttles into low orbit until they all wear out and congress decides that manned space flight is a waste of time. I don't want to die in a geriatric ward, wishing I'd taken my one big chance at a real space mission."

She grunted with effort, and Rick saw the shuttle's airlock door swing open. A white spacesuited figure slowly emerged, then another. Rick wondered who the second person was. Another of the shuttle's regular crewmembers? Unlikely. They needed someone to fly the thing back home. That left the Spacelab scientists.

Rick ran down the list in his mind and came up with the obvious choice: Yoshiko Sugano, the Japanese astronomer. Her instrument pallet was designed to fly free of the shuttle's annoying vibration and surface glow, and she had been trained to guide it by remote control. She understood docking maneuvers better than most of the regular astronauts; she would make a perfect command module pilot. Besides which, she would make the mission a truly international effort, a point that Tessa had no doubt considered long before Kaliningrad got into the act.

Sure enough, when the two spacesuited figures bumped up against the Apollo and crawled around to the open hatch, Rick saw Tessa's grinning face through her bubble helmet, and behind her, swimming a bit in the one-size-fits-most shuttle suit, was Yoshiko. She didn't look nearly as pleased with herself as Tessa, but she had come along.

"Request permission to come aboard," she said somewhat breathlessly.

"Yes, yes, of course!" Rick said, helping her and Tessa through the narrow rectangle. It was a tight fit; his modified suit had made it okay, but regular shuttle suits had never been designed to fit through an Apollo hatch. Rick felt a moment's panic run through him as he suddenly wondered if they would fit through the lander's hatch. They could make it all the way to the Moon only to get stuck in the doorway.

It was too late to worry about that. Like Aldrin and Armstrong and the engine arming switch, they would just have to figure out something on the scene.

As they struggled to fit themselves into the three seats, Jackson tried one last grandstand act, threatening to charge them and the entire Russian Federation with piracy, but Rick said, "NASA doesn't own this ship. Nobody does. Or maybe everyone does. Either way, if you're not going to help us then get off this

frequency, because we need it to communicate with ground control."

"We're ground control, dammit!" Jackson shouted, "and I'm telling you to return to the mission profile."

"Sorry," Rick said. "Kaliningrad is now in control of this flight. Please get off the air."

Jackson said something else, but Gregor Ivanov also spoke at the same time, and neither transmission was intelligible.

"Say again, Kaliningrad, say again," Rick said, and this time Jackson stayed quiet.

Gregor said, "You still have a chance to make your original launch window if you can prepare for boost within the next fifty minutes. Do you think that is possible?"

Rick looked at Tessa, who nodded and gave the thumbs up. Yoshiko, her eyes wide, only shrugged. This was her first space flight, and it was obviously not turning out the way she'd expected.

"We'll have to get out of these damned suits," Tessa said. "Ours aren't modified for these chairs, and the TLI boost would probably break our necks if we tried it suited up."

"Remove your suits, then," Gregor said, "and prepare for acceleration in fifty-three minutes."

"Roger." Rick made sure the hatch was sealed, then repressurized the cabin. When the gauge neared 5 pounds, he twisted his helmet until the latches clicked free and pulled it off. Tessa and Yoshiko did the same.

Their three helmets alone nearly filled the space between their heads and the control panels. Removing their suits became a comedy in a closet as they elbowed each other and bumped heads and shoulders in their struggle. The control

switches all had guards surrounding them, round loops of metal like old-style flip tops from pop cans sticking out on either side of the toggles to keep people from accidently tripping them, but Rick still winced each time someone brushed a panel with a hand or a foot.

"This is ridiculous," Tessa said, giggling. "Let's unsuit one at a time, and help each other out."

"Right," said Rick. "You first." He and Yoshiko unsealed the waist ring around Tessa's suit and lifted the top half over her head, then Yoshiko held her shoulders while Rick worked the lower half off her legs. That left her in the Spandex cooling and ventilation suit; not as comfortable as regular clothing, with its woven-in plastic tubes and air hoses snaking along all four limbs, but better than the spacesuit. She also left her communications carrier "Snoopy hat" on so she could still hear the radio signals from the ground. Rick stuffed the suit in the equipment bay behind the seats, then he and Tessa helped Yoshiko out of hers, and finally the two women helped him unsuit as well. It was still clumsy business, and at one point Rick found his face pressed against Yoshiko's right breast, but when he said, "Oops, sorry!" and pulled away, he bonked his head on the control panel.

Yoshiko laughed and said, "Don't worry about it. I think we will all become very familiar with one another before this is finished." Rick glanced at Tessa, with whom he'd already become pretty familiar on the ground, and saw that she was grinning.

"In your dreams, Rick," she said. "There's barely room enough in here to pick your nose."

Yoshiko blushed, and so did Rick. He said, "That's not what I was thinking."

"Sure it wasn't. Watch yourself, Yo. He's insatiable. Fortunately, the checklist will keep him too busy to paw us much."

Yoshiko laughed nervously, and Rick realized he'd been had. Nothing he could say would redeem him.

Luckily, Tessa was right about the checklist. Besides stowing the spacesuits, they had to move the Apollo away from the shuttle--which was already receding on its own as well--then orient the ship correctly for the burn that would send them out of orbit, all while making sure the rest of the electronic and mechanical equipment was functioning.

Just over half an orbit later, their panel green and the moment of truth approaching, they waited nervously for the last few minutes to tick by. The engines were armed, the guidance computer was on line, and Kaliningrad had calculated the proper start time and duration for the burn just in case they had to go to manual control. As Rick, in the left seat, hovered with his finger near the manual fire button, Tessa said, "Hey, we haven't named the ship yet. We can't launch for the Moon without a name."

"No, that would be bad luck," Yoshiko agreed.

They both looked at Rick, who shrugged and said, "I don't know. I hadn't even thought about it. How about 'The Ghost,' or 'The Spook?'"

Tessa shook her head. "No, that sends the wrong message. We need something positive, hopeful. Like 'Second Chance,' or, or--"

"Yes, you said it: 'Hope,'" Yoshiko said. Then, looking at Rick, she said, "Or 'The Spirit of Hope' if you want to keep the ghost aspect."

Rick nodded. "Yeah. I like it."

"Me too." Tessa licked her forefinger, tapped the overhead hatch in the docking collar--the farthest forward point she could reach--and said, "I christen thee

The Spirit of Hope."

Gregor's voice came over the radio. "Very good, Spirit of Hope. Stand by for Trans-Lunar Injection in thirty seconds."

The DSKY, the primitive display/keyboard, flashed, "Go/No-go?" This was their last chance to abort. Rick hardly hesitated at all before he pushed the proceed button. He had already committed himself.

The three astronauts kept their eyes on the controls, watching for signs of trouble, as Gregor counted down the time. The seconds seemed to stretch out forever, but at last Gregor said, "Now!" and right on cue, the Saturn IVB third stage engine automatically fired for the last time, pressing them back into their seats with a little over a gee of thrust. Rick let his hand fall away from the manual fire button and tucked it against the armrest.

The cabin rumbled softly, the acceleration much smoother than during the ride up through the atmosphere. Rick glanced out the side window at the Earth, but the gee force blurred his vision until it was just a smear of blue and white.

The burn went on and on, over five minutes of thrust, propelling them from 17,000 miles per hour to 25,000, enough to escape the Earth's pull. Near the end of the burn, Rick forced his hand out to the cutoff button, just in case the computer didn't shut it off at the right moment, but Gregor's "Now!" and the sudden silence came simultaneously. Rick's hand leaped forward with the cessation of thrust and pushed the button anyway, but it wasn't necessary. They were coasting now, headed for the Moon.

#

As soon as they unbuckled from their couches, they began taking stock. They had three days of coasting to do before they reached the Moon, plenty of time to

explore every nook and cranny in the tiny capsule. Every cubic inch of it seemed filled with something, and the only way to find out what was there was to unpack it, inspect it, and put it back into place. There was no room to leave things out; in fact, there was hardly room enough for them all to explore the ship at once.

Yoshiko had been right: within the first half hour they had ceased to worry about bumping into one another. In fact, attempting to avoid it just made them all the more aware of each other, so they simply ignored the forced intimacy and went on with their work, gently brushing aside the stray elbows and feet and other body parts that got in their way. Their spandex cooling and ventilation suits at least allowed the illusion of modesty, which was really all they could ask for in such a tiny space.

Rick didn't mind brushing against Tessa, nor did she seem to mind it when he did. Both of them were grinning like newlyweds, and the air between them seemed charged with a thousand volts. They kissed once while Yoshiko was busy in the equipment bay, just a quick touch of the lips, but it sent a thrill down Rick's spine nonetheless. This was better than any Shuttle flight with her would have been.

In most ways, at least. Rick's conviction wavered a bit when Yoshiko found the food, which came in vacuum-packed plastic bags with little accordion necks to squirt water in through to rehydrate it--and to squirt the gooey result out into the astronaut's mouth. Rick and Tessa laughed at her incredulous expression when she saw how it worked. "Like toothpaste?" she asked, and Rick, who had eaten the commercially available version in his school lunches throughout the fall of '69, laughed and said, "It tastes about like it, too."

"It'll keep us alive," Tessa said. "That's what counts. I doubt I'll taste a

thing anyway."

She was fiddling with something she had found in a locker. Suddenly she laughed and said, "Smile!" and when Rick and Yoshiko looked up, they saw that she had a TV camera aimed at them. "Hey Gregor, are you getting a picture?" she asked, panning from Rick to Yoshiko and back.

"Da, affirmative," Gregor said. "Very clear signal."

"Great!" Tessa panned slowly around the cabin, then went to a window and shot some footage of the Earth, already much smaller behind them.

"Wonderful!" Gregor said. "Perfect. We're getting it all on tape, but if you'll wait a few minutes I think we can broadcast you live on national television."

"You're kidding," Tessa said, turning the camera back inside.

"Nyet. We are working on it right now. It's late night in most of Russia; so what if we interrupt a few old horror movies? This is much more interesting."

"Wow. Hear that, Houston? The Russians are showing us live on TV."

Mission Control had been silent since before the TLI burn, but now Laura Turner, the regular capcom, said, "We read you, ah...Hope. We're receiving your signal, too. Hi Rick. Hi Yoshiko."

"Hi." Rick and Yo waved at the camera. They could hear some sort of commotion going on in the background, either in Houston or Kaliningrad, but they couldn't tell which.

Yoshiko said, "I wonder if anyone in Japan is receiving this?"

A few seconds later, a new voice said, "Yes, we are. This is Tomiichi Amakawa at Tanegashima Space Center, requesting permission to join communication."

"Granted," Gregor said. "And welcome to the party."

"Thank you. We, too, are arranging to broadcast your signal. And Yoshiko, I have

a message for you from your colleages at university. They are very angry at you for abandoning their observatory, and they also wish you good luck."

She grinned. "Give them my apologies, and my thanks. And tell them if any of them would have done differently, they have rocks where their hearts should be."

"Hah! They envy you. We all do."

"You should. This is an incredible experience."

Gregor said, "We are ready. Perhaps you should give an introduction, so people will know why we are suddenly getting pictures from space."

"Right," said Tessa. She pointed the camera at Rick. "Go for it, Rick. You know as much about this as any of us."

Rick swallowed, suddenly nervous. All of Russia and Japan were watching. And who knew who else? Anybody with a satellite dish and the right receiver could pick up their signal. He slicked his hair back, licked his lips nervously, and said, "Uh, right. Okay, well, hi, I'm Rick Spencer, an American astronaut, and this is Yoshiko Sugano from Japan, and Tessa McClain behind the camera, also from America." Tessa turned the camera around, let it drift free, and backed up to get into the shot. She waved, tilting slowly sideways until she bumped her head against the back of a couch. All three astronauts laughed, and Rick felt himself relax a bit. When Tessa retrieved the camera and aimed it at him again, he said, "As you've probably heard by now, NASA has been plagued with ghosts for the last three months. Ghost Apollo rockets. Well, we decided to see if somebody could ride one into orbit, and once I got there I picked up Tessa and Yoshiko from the Discovery, and here we are." He neglected to mention that they were defying orders; let NASA say so if they wanted to. At this point, they would look like the Grinch if they tried it.

Rick said, "Despite its mysterious origin, it seems to behave like a regular Apollo spacecraft. It's every bit as solid as the original article--" he thumped one of the few bare stretches of wall with his knuckles "--and as you can see, every bit as cramped. But there's an amazing amount of stuff in this little thirteen-foot-wide cone. Let's show you some of it." With that for an introduction, Rick led the camera on a tour through the command module, pointing out all the controls and the few amenities, including the waste collection bags, about which he said, "They're primitive, but guaranteed not to break down at a delicate moment, like the shuttle toilet does half the time." He waved at the control panels again, at the hundreds of switches and knobs and gauges, and said, "That's the whole Apollo concept in a nutshell: nothing fancy, but it got the job done. And God willing--or whoever is responsible for this--it'll get the job done again."

Tessa held the camera on the control panel until Gregor said, "Thank you, Rick. We've been thumbing through the manual down here, and it looks like it's just about time for you to dock with the Lunar Module. Are you ready for that?"

Rick wondered what manual they were consulting. Probably a copy of Aldrin's Men from Earth, or one of the later books published around the 25th anniversary of the first landing. Or it was conceivable that they had copies of the actual checklists from the original flights. The Soviets had had a good spy network back in the 60's.

It didn't matter. They needed to dock with the LM, that much was obvious. Rick looked to Yoshiko. "How about it?" he asked. "I've trained a little on these thrusters in the simulator, but you're our resident expert in docking maneuvers. You want to have a go at it?"

She gulped, realizing that this was her first big moment to either shine or screw up, but she nodded and said, "Yes, certainly," and she pulled herself down into the pilot's chair.

Rick and Tessa strapped themselves into their own chairs, and with Gregor's coaching they blew the bolts separating the Command and Service Module from the S-IVB booster, exposing the Lunar Module that had ridden just beneath them all this way. Yoshiko experimented for a few minutes with the hand controller, getting the feel of the thrusters, while Tessa filmed the whole process, showing the people back home the ungainly, angular LM perched atop the spent third stage booster, and Yoshiko peering out the tiny windows as she concentrated on bringing the CSM around until the docking collar at the top of the capsule pointed at the hatch on top of the LM. A gentle push with the forward thrusters brought them toward it at a few feet per second, drifting slightly to the side, but she corrected for that with another attitude jet, and they drove straight in for the last few feet. The docking rings met a few inches off center, but the angled guide bars sticking out from the top of the Command Module did their job and with a little sideways lurch and a solid clang of metal on metal, the two spaceships met.

"Latches engaged," Rick reported when the indicators lit up. He reached out and squeezed Yoshiko's hand. "That was great," he said. "Kaliningrad, we're in business!"

Yoshiko sighed and closed her eyes for the first time in minutes, and over the radio Gregor said, "Congratulations. And thank you for the live coverage. It might interest you to know that millions of people in Russia and across most of Europe were watching over your shoulders."

"And Japan, too," Tomiichi Amakawa said.

Tessa whistled softly. "Wow. People are watching a space mission? Who'd have thought. Just like old times, eh?"

Yoshiko said, "It has been a long time. A whole new generation has been born who have never seen a Lunar flight. People are interested again."

Rick looked out the window at a footpad of the LM angling through his view of the Earth. People were interested again? After years of shuttle flights, the astronauts taping science shows that were only boadcast on the educational channels after they ran out of cooking and painting programs, that was hard to believe. It was evidently true, though. For now, at least, people all over the world were once more looking up into the sky.

The Earth seemed to grow brighter, more distinct, as he gazed at it. Rick blinked his eyes, then flinched when Tessa screamed in his ear.

Rick whipped his head around toward her, and she pointed at the control panel. "It's fading out!" she said.

Sure enough, the entire spaceship had taken on a hazy translucence. Earth could be seen right through the middle of it, without need for windows. It was like looking through heavily tinted glass, but it grew lighter even as they watched.

"Holy shit," Rick whispered. His heart was suddenly pounding. They hadn't lost any air yet, but if the ship kept fading...

"Spacesuits!" Yoshiko yelled, reaching around to pull one from behind the seats.

"Hope, what is happening?" Gregor asked, his voice tense.

"We've got--" Rick began before his voice failed. He swallowed and said, "Kaliningrad, we have a problem." He helped Yoshiko with her suit, but he knew that they would be dead anyway if the ship vanished. In just their spacesuits

they could survive for seven hours, maximum, before they ran out of air.

"What kind of problem?" Gregor asked.

"The ship is fading out on us," Rick said, holding the lower half of Yoshiko's suit while she stuffed her feet into it.

"Can you see it on the TV transmission?" Tessa asked, aiming the camera at the bright Earth through the spaceship's walls. She was breathing hard, but after that initial scream she had brought herself firmly under control.

"Yes, we can," Gregor answered.

"Damn. It's really happening, then."

Rick was having a lot more trouble than Tessa in keeping his fear from controlling him, but a sudden thought made him forget about his own predicament for a moment. "Cut the transmission," he said to her.

"Why?"

"You want another Challenger?"

"Oh." Tessa shut off the camera. She understood him perfectly. The biggest catastrophe with the Challenger, in terms of the space program as a whole, was not that it blew up, but that millions of people watched it blow up. NASA had never really recovered from that. If the whole world saw the Spirit of Hope kill its crew, it could destroy any renewed interest in space they had managed to create as well.

"It's too late," Tessa told him. "They already know what killed us."

But even as she said it, the walls grew distinct again. Yoshiko stopped struggling into her suit, and Rick simply stared at the metal walls that once again enclosed them.

"Hope, what is your status?" Gregor asked.

"It's back," Rick said. "The ship is solid again."

"What happened? Do you know what caused it?"

"Negative, negative. It just faded out, then came right back."

"Did you do anything that might have influenced it?"

Rick looked at Tessa, then at Yoshiko. Both women shook their heads. "Hard to tell," Rick said. "We screamed. We scrambled for spacesuits. Tessa shut off the camera."

"We all realized we were going to die," Tessa added, and when Rick frowned at her she said, "Well, we're dealing with a ghost here. Maybe that's important."

"Maybe so," Rick admitted.

Gregor said, "Do you have any abnormal indications now?"

Rick scanned the controls for any other clues, but there were none. No pressure loss, no power drain, nothing. "Negative, Kaliningrad," he said. "According to the dashboard, we've got a green bird up here."

Gregor laughed a strained, harsh laugh. "I begin to regret my hasty decision to oversee this mission. Never fear! I will not desert you. But this is troubling. Should I consult the engineers, or a medium?"

"Why don't you try both?" Rick said.

Gregor paused a moment, then said, "Yes, of course. You are absolutely right. We will get right to work on it."

The astronauts sat still for a moment, letting their breath and heart rates fall back toward normal. Rick looked over at his two companions: Yoshiko half into her spacesuit, Tesssa holding the TV camera as if it were a bomb that might explode at any moment. Yoshiko reached out and touched the control panel, reassuring herself that it was solid again, then she turned up the cabin temperature. "I'm cold," she said.

Rick chuckled. "That's not surprising. Ghosts are supposed to make people feel cold."

Tessa narrowed her eyes.

"What?"

"I was just thinking. Ghosts make people feel cold. They repeat themselves. What else do they do? If we can figure out the rules, maybe we can keep this one from disappearing on us again until we get home."

Maybe it was just relief at still being alive after their scare, but the intense look in Tessa's eyes was kind of a turn-on. All the same, Rick tried to pay attention to what she was saying. They did need to understand the rules. "Well," he said, "they sometimes make wailing noises."

Tessa nodded. "And they leave slime all over everything."

Rick wiped at the edge of his couch. Bare metal and rough nylon webbing. No slime. "I don't think we're dealing with that kind of ghost," he said.

Yoshiko asked, "Aren't ghosts supposed to be the result of unfilfilled destiny?"

"Yeah," Rick said. "I think that's pretty clear in this case, anyway."

"You mean Neil Armstrong, right?"

"Who else?"

"I don't know. Armstrong doesn't make sense. He already made it to the Moon. If this was his unfilfilled destiny, I'd think it would be a Mars ship, or a space station or something."

"Good point," Tessa said. "But if it isn't Armstrong's ghost, then whose is it?"

Rick snorted. "Well, NASA thinks it's theirs. Maybe the organization is really dead, and we just don't know it."

"Was there another budget cut in Congress?" Tessa asked facetiously.

Rick laughed, but Yoshiko shook her head vigorously. "No, no, I think you have it!"

"What, it's NASA's ghost?"

"In a sense, yes. What if it's the ghost of your entire space program? When Neil Armstrong died, so did the dreams of space enthusiasts all over your nation. Maybe all over the world. It reminded them that you had once gone to the Moon, but no longer could. Maybe the unfulfilled dreams of all those people created this spaceship."

Rick looked out his tiny triangular window at the Earth again. Could he be riding in some kind of global wish-fulfillment fantasy? "No," he said. "That can't be. Ghosts are individual things. Murder victims. People lost in storms."

"Shipwrecks," Tessa said. "They can be communal."

"Okay," Rick admitted, "but they need some kind of focus. An observer. They don't just pop into being all by themselves."

Tessa's hair drifted out in front of her face; she pushed it back behind her ears and said, "How do you know? If a ghost wails in the forest..."

"Yeah, yeah. But something made it fade out just now, and come back again a minute later. That seems like an individual sort of phenomenon to me, not some nebulous gestalt."

Yoshiko was nodding wildly. "What?" Rick asked her.

"I think you're right. And if so, then I know whose ghost this is."

"Whose?"

"It's yours."

Rick, expecting her to name anyone but himself, laughed. "Me?"

"Yes, you. You're the commander; it makes sense that you would control the, um, more spiritual aspects of the mission as well."

Both women looked at him appraisingly. A moment ago Rick had found Tessa's intensity compelling, but now those same eyes seemed almost accusatory. "That's ridiculous," he said. "I don't have any control over this ship. Except for the usual kind," he amended before anyone could argue the point. "Besides, the first two launches didn't have anybody on board. And I wasn't even there for the second one."

Tessa said, "No, but you were there for the first one, the day after Neil's funeral. And you'd just gotten back from your shuttle flight--depressed about all the things that went wrong--when the second one went up. If anybody was convinced the space program was dead, it was you."

Rick steadied himself with the grab handle at the top of the control panel. "What, you think I'm channeling the combined angst of all the trekkies and fourteen year old would-be astronauts in the world?"

"Maybe. What were you thinking just now?"

"When it faded? I was thinking--" Rick wrinkled his forehead, trying to remember. "I was thinking how good it felt to have people interested in space again."

"There, you see?"

"No, I don't see," Rick said, exasperated. "What does that have to do with anything?"

"It's a perfect correlation. When you thought nobody cared, that space exploration was dead, you got your own personal Apollo, but when you thought maybe the rest of the world did want to go into space after all, it went away."

Yoshiko said, "And it came back when you thought our deaths would ruin that

renewed interest."

Rick's head felt thick, abuzz with the crazy notion that he might be responsible for all this. The way Tessa and Yoshiko presented it made a certain sort of sense, but he couldn't bring himself to believe it. "Come on," he said. "This is a spaceship, not some...some vague shadow in the mist. It's got rivets, and switches, and...and...well, hardware." He gestured at the angular walls enclosing them.

Tessa said, "So? We already know it's a ghost. That's not the question. The question is whether or not you're behind it."

"I'm not," Rick said.

"No? I think you are. And it'd be easy enough to test. Let's experiment and find out."

Rick felt his heart skip a beat. Any emotion he had felt for Tessa a moment ago was drowned out now by unreasoning panic. Ghostly hardware was one thing--he could accept that even if he didn't understand it--but the notion that he might somehow exert some kind of subconscious control over it scared him to death.

"Let's not," he said.

Tessa pulled herself closer to him. "You agreed that we should figure out the rules so we can keep it from disappearing on us again. We've got a theory now, so let's experiment and see if we're right."

Rick looked out the window again. Black space all around. No stars. Earth visibly receding. He shivered at the sight. For the first time since the launch, he really understood how far they were from help. Whether or not he was responsible for the ghost, he was now responsible for three lives. And maybe, just maybe, a few dreams back home as well. He turned back inside and said,

"We've got plenty to do already without crazy experiments. We've got to get this ship rotating or we'll overheat on the side facing the sun, and we've got to take a navigational fix, and check out the lunar module, and so on. Right, Kaliningrad?"

"Yes," Gregor said. "Portside skin temperature is rising. Also--" Voices just out of microphone range made him pause, then he said, "Our engineers agree with your theory, but suggest that you refrain from testing it at this time."

"Your engineers agree?" Tessa asked.

"That is correct."

"You're kidding, right?"

"Nyet. I--" More voices, then Gregor said, "--I cannot tell you anything more yet. But please give us more time to study the problem here before you do anything, ah, unusual."

Rick nodded and pulled himself down into his couch again. Gregor was obviously hiding something, but whether he was hiding information or ignorance, Rick couldn't tell. Either way, he was glad to be let off the hook. He said, "I agree one hundred percent. All right, then, let's get to work. Roll maneuver first, so strap in."

Tessa looked as if she might protest, but after a few seconds she stowed the camera and belted herself into her couch as well. Yoshiko smiled and shook her head. "You beg the question," she said, but she strapped in too.

#

Rick knew she was right. As they worked to set the spacecraft spinning, he considered what Yoshiko and Tessa had said. Logically, if any single person were responsible for the Apollo manifestations then he was as good a candidate as anyone, but despite his fear of uninformed experimentation he couldn't make

himself believe it. He didn't feel responsible for anything; certainly not the fade-out they had just seen. His own life was on the line, after all, and he didn't have a death wish.

He began to wonder about that as they went through their checklist. Would he be here if he didn't? So many things could go wrong, nearly all of them deadly.

Even the most routine tasks contained elements of danger. For instance, when they blew the bolts separating the spent S-IVB third stage from beneath their lunar module, the long tube began to tumble, spinning end over end and spraying unused propellent uncomfortably close to them. They had to use the thrusters twice to push themselves away from it before they finally watched it recede into space. The "barbecue roll" went off without a hitch, and the ship's skin temperature evened out, but when Rick unbuckled and pulled himself over to the navigation instruments in the equipment bay he discovered that all their maneuvering had driven them off course.

"It looks like we're closer to a polar trajectory than an equatorial one," he reported to Kaliningrad after he had sighted on a guide star and a lunar landmark and let the computer calculate their position. A polar course was no good; landing and rendezvous would be much easier if they stayed close to the Moon's equator. That way the command module would pass over the landing site on every orbit, and they would have a launch window every two hours without having to do a fuel-wasting plane change.

Gregor said, "Da, our radar confirms your measurement. Wait a moment, and we will calculate a correction burn for you."

"Roger." Rick strapped back into his couch and they used a short burst from the the service propulsion system engine to bring themselves back onto an equatorial

course. That, at least, provided some relief from another nagging worry; the SPS engine was the last link in the multi-stage chain that had brought them this far, and if it had failed to ignite they wouldn't be able to brake into lunar orbit, or even make course corrections for a slingshot trajectory back home.

After the burn they had to check out the lunar module. With Yoshiko steadying her feet, Tessa opened the hatch between the two spaceships, then removed the docking probe so they could fit through the tunnel. Rick stowed the probe in the equipment bay and followed the two women into the lander, but it had even less room than the command module so he stayed in the tunnel, feeling a bit disoriented as he looked down from above on the angular instrument panel and flight controls. The ascent engine was a big cylinder between the slots where pilot and copilot stood, sort of like the way the engine in an older van stuck out between the driver and the passenger.

"Is this what you sit on during descent?" Yoshiko asked.

Tessa laughed. "No, you fly it standing up, with bungee cords holding your feet to the deck."

"You're kidding."

"Nope."

Yoshiko looked around at the spartan furnishings. To save weight, everything not absolutely essential had been omitted, including switch covers and wiring conduit. Bundles of wires were tied into place, fuel and air lines ran exposed along the walls, and the few storage areas were covered with nylon nets rather than metal panels. The whole ship looked fragile, and in fact it was. A person could shove a screwdriver through the walls if they wanted to. Yoshiko said, "I think I'm glad you two are flying this one."

They hadn't talked before this about who would stay in the command module while

the other two went down to the Moon. Though keeping Yoshiko in the command module where her docking skills would be most useful was the logical choice, Rick said, "Are you sure? I was prepared to draw straws for it if you wanted."

She shook her head. "No. This is adventure enough. And who knows, if we inspire enough people I may have another chance to land later, when my own country sends a mission."

Rick wondered what a Japanese lander would look like. Probably a lot slicker than this, he figured, though to be fair he had to admit that anybody's lander would be slicker if it were built with modern materials. Most of the equipment--the engines and the computers and so forth--could be bought straight off the shelf nowadays. It would be so much easier to build a lunar lander now than it had been the first time, if people just wanted to.

Well, maybe they would. Who could say?

"You'll certainly have a better chance than we will," Tessa said. "Rick and I will be lucky to stay out of prison when we get--whoa!"

For a second, the Moon had shone brightly through the flight control panel. It was just a flicker, gone as soon as it had appeared, but the ship had done it again.

"It is you," Tessa said, pointing accusingly at Rick. "You were thinking positive again, weren't you?"

His heart had begun to pound, and a cold sweat broke out on his body as he said, "Jail isn't exactly my favorite dream."

"No, but I'll bet money you were thinking good stuff just before that."

"Well, yeah, but--"

"But nothing. Every time you think we're going to jump-start the space program

with this little stunt, the ship disappears, and every time you think we're not, it comes back. Admit it."

Rick suddenly felt claustrophobic in the narrow access tunnel. He said, "No way! There are a million other factors that could be operating here. My optimism or pessimism isn't controlling the ship."

"I think it is."

They stared at one another for a few seconds, then Gregor said over the radio, "Tessa's theory may be correct. Our studies indicate that ghosts are often closely tied to emotional states."

"Your studies of what?" Rick asked. "You can't put ghosts in a lab."

Gregor laughed. "No, but you can sometimes take the lab to the ghosts. You forget, Russia has been studying paranormal phenomena since the cold war. We may not know everything about them, but we have learned a thing or two."

Rick and Tessa looked at each other, both clearly amazed. The Russians had actually gotten results? Impossible. Rick said, "I don't believe you for a second."

The Japanese controller, Tomiichi, had not spoken up for some time, but now he said, "Believe it. The Russians aren't the only ones to investigate these matters."

The Japanese too? Rick looked at Yoshiko, but she merely shrugged and said, "I am an astronomer, not a parapsychologist."

"True enough," Rick muttered, wondering why she hadn't remembered that before when she and Tessa were brainstorming their crazy explanation for all of this. But evidently someone in Russia--and maybe Japan, too--thought they had a handle on it. "So what if you're right, Kaliningrad?" Rick asked. "What do you suggest we do?"

"Be aware that you could die out there," Gregor said. "And if Tessa is correct, then you should remind yourself occasionally that your death will also kill any chance of a resurgence in popularity for manned space flight."

"I'm the one who made her turn off the camera," Rick reminded him. To Tessa he said, "I know we're in danger out here."

"You've got to feel it," Tessa said. "That's what matters to a ghost. You've got to remind yourself all the time that this isn't some kind of picnic."

Rick shuddered at the thought of the ship disappearing again, maybe for good, and of the three of them blowing away in opposite directions in the last puff of breathing air. "That won't be hard," he told her.

#

It turned out to be tougher than he thought. Over the next two days, as they coasted toward the Moon, the ship faded out twice more, once to almost transparency before whatever was responsible brought it back. Maybe it was him, Rick thought after the second time. It had happened while he was asleep, and when Yoshiko had shaken him awake he had to admit that he had indeed been dreaming about a colony on the Moon.

Both Yoshiko and Tessa were looking at him like hostages in a bank robbery or something. That accusing look, combined with the adrenaline rush from waking to their screams and his own fear of death, suddenly pissed him off. As he rubbed the sleep from his eyes, he said, "All right, dammit, maybe I am in control of this thing. And if you're right about that, maybe you're right about experimenting with it, too."

"What do you mean?" Tessa asked nervously.

"I mean if I'm God all of a sudden, then why don't I use it for something? Like

make us a bigger ship, or at least a more modern one. Something with a shower, for instance. Or how about the Millennium Falcon? Maybe we could go to Alpha Centauri as long as we're out here."

"Nyet!" Gregor said loudly. "Do not experiment! It is more dangerous than you can imagine."

Rick snorted loudly. "Well, comrade, if I'm in the dark then it's because you guys are holding back on me. If you know what's going on up here, then tell me. Why shouldn't I dream up a nice, big fantasy instead of this cramped little can?"

"E equals MC squared, that's why," Gregor said. "Your ghost cannot violate the known laws of physics. We do not know where the energy comes from to create the...ah, the physical manifestation, but we do know that a clumsy attempt to manipulate it can result in a violent release of that energy."

"You do, eh? And how do you know that?"

Gregor conferred for a moment with someone else in the control room with him, then came back on line. "Let us just say that not all of our underground explosions in the 1970's were nuclear."

Rick looked out the window at black space. "You've made a weapon out of ghosts?" he asked quietly.

Gregor said, "Is an industrial accident a weapon? It is not useful unless you can direct it, and that's what I'm trying to tell you now. You are the focus of this phenomenon, but not its master. If you are careful you can maintain it, but if you attempt to manipulate it, the result will be disastrous."

"So you say."

"So we have come to understand. We do not have all the answers either."

Rick's mad was wearing off, but frustration made him say, "Well why don't you

come up with some? I'm getting tired of being the scapegoat up here."

Gregor laughed softly. "We are doing our best, but you will understand if that is too little and too late. We are having trouble reproducing your situation in our flight simulators."

"Hah. I'll bet you are." Rick took a deep breath and let it out slowly. "All right," he said, "I'll try to be good. But if you learn anything more about how this works, I want to know it instantly. Agreed?"

"Agreed," Gregor said.

Rick rubbed his eyes again and unstrapped from his chair. Looking pointedly at Tessa and Yoshiko, he said, "Okay, then unless anybody has an objection, I think I'll have some breakfast."

"No problem," Tessa said, holding her hands out. Yoshiko nodded. They both turned away, either to give him some privacy or to escape his anger, but whichever it was he really didn't care.

Tessa pulled herself into the equipment bay and began taking a navigational reading while he re-hydrated a bag of dried scrambled eggs.

"Hey," she said a few minutes later. "We're on a polar trajectory again." She looked directly at Rick, who was sucking on a packet of orange juice.

"It's not me," he protested. "A polar orbit means we can't land. The command module wouldn't pass over our landing site again for an entire lunar day." That was twenty-eight Earth days, far too long for a crew to wait on the surface. In order to rendezvous with the command module, they would have to make an orbital plane-change in mid-launch, a much more tricky and fuel-costly maneuver. Either that or the command module would have to make a plane change, which was equally difficult.

Yoshiko acquired a rapt expression for a few seconds, then said, "Unless you land at the pole. The command module would pass over both poles on every orbit."

"We can't land at the...can we?"

"Absolutely not," Gregor's voice said. "Even I will not allow that kind of risk. You would have bad lighting, extremes of temperature, no margin for error in landing sites, possibly even fog obscuring your vision on final approach."

"Fog?" asked Tessa.

"It is possible. Current theory predicts water ice in some of the deeper craters near the pole, where sunlight can never reach them."

"Wow," whispered Rick. "Ice on the Moon. That would make supporting a colony a lot easier."

"Rick." Tessa was looking intently at the walls, but they remained solid.

"Look, it's a fact," Rick told her, still put out with the whole situation. "Ice would make it easier to set up a colony. We wouldn't have to fly all our water up from Earth. That doesn't mean I think we're actually going to build one, okay?"

"All right," Tessa said. "I just want you to be careful." She looked out the window at the Earth, now just a tiny blue and white disk in the void. "So, Kaliningrad, what do you suggest?"

Gregor said, "Give us a minute." He took longer than that, but when he came back he said, "We want to check your guidance computer's program. Perhaps we can discover where it intends to take you."

So Rick, who had at least trained with the primitive keyboard and display, pulled himself down into the equipment bay and ran the computer while Kaliningrad talked him through the procedure, and sure enough, the program was

indeed for a polar trajectory. And when they checked the computer in the lander, they learned that it was programmed for a descent to the rim of the Aitken Basin, a 6-mile-deep crater right on the Moon's south pole.

"That's ridiculous," Rick said when he heard the news. "How could we be expected to land on the south pole? Like Gregor said, the light would be coming in sideways. Shadows would extend for miles, and every little depression would be a black hole."

Tessa, who had been running the computer in the lander, said, "Well, maybe this switch labeled 'Na inject' could provide a clue. If it sprays sodium into the descent engine's exhaust plume, it would probably light up like a candle flame and provide all the light we need."

"You're kidding." Rick pulled his way through the docking collar into the lunar module to look for himself, and sure enough there was the switch, right next to one labeled "Hi-int Floods."

Tessa said, "It looks like landing lights to me. Two separate systems for redundancy."

"Those weren't on the simulator I trained with," Rick said.

"Of course not. NASA would never plan a polar landing. Too dangerous."

They knew that NASA had been listening in on their broadcast all along, and sure enough, now Laura Turner in Houston said, "Well, maybe not, Tessa. We've been digging through the old paperwork here, and in fact one of the mission proposals was for a polar landing. You're right, there was a lot of argument against it, but it was considered a possibility for a later mission after we'd gained enough experience with the easy ones. Of course it got axed along with everything else when the budget cuts came down, but if we'd had the support for it, we would

eventually have gone."

Rick felt a shiver run up his spine. "The last two ghosts went to Copernicus and Aristarchus. Those were on the list too, weren't they?"

"That's right."

"So basically we're re-enacting what the U.S. should have done all along."

"That's a matter of opinion, but yeah, I guess you could say that."

Gregor asked, "Houston, can those guidance computers be reprogrammed for a less difficult landing site?"

"Negative," Laura said. "The programs are hard-wired in core memory. There's only two kilobytes of erasable memory, and they need that for data storage."

"So it's a polar landing or nothing," Rick said, his breath coming short. He looked at the controls again. They were solid as a rock now.

"Looks that way," Tessa said. She grinned at him. Even with the added danger, it was obvious what she would choose.

Rick gulped. Her wide smile and intense, almost challenging stare were incredibly alluring, but at the same time he couldn't help wondering how deep a hole they could dig themselves into on this flight, anyway? Deeper, apparently, than he had first thought. But they were already in quite a ways; he couldn't back out now. "All right, then," he said. "A polar landing it is. I just hope we find something worth the risk."

Tessa laughed, and leaned forward to kiss him. "Just going is worth the risk," she said. "That's what exploring is all about."

#

Both Houston and Kaliningrad were unhappy with their choice, but Houston didn't have any say in the matter anymore, and Kaliningrad was caught in a dilemma of its own making, for bailing out now would amount to abandoning an international

rescue in the middle of the attempt. So they reluctantly set up their own computers to match the course wired into the onboard ones, and on the eighty-third hour of the flight Rick, Tessa, and Yoshiko strapped themselves into their couches for the long rocket burn that would slow them into orbit around the Moon. That had to happen after they had rounded the horizon, which meant they would be cut off from Earth for the burn. The computer would count down the time and fire the engine automatically, but just in case it didn't, they all set their watches to keep track as well.

The last few minutes dragged by. The moon wasn't visible in the windows; they had turned the ship end-for-end so it was behind them now, their course missing the horizon by a mere hundred miles. Rick kept glancing at his watch, then at the computer display, then at the attitude indicators, making sure they were still lined up properly for the burn.

Yoshiko took careful notes. If Rick and Tessa crashed or couldn't return from the surface, she would have to fire the trans-Earth injection burn herself and make the homeward flight alone.

Just before the burn, the computer asked Go/No-go? again, and Rick pushed "Proceed." The three astronauts watched the countdown continue to zero, but Rick didn't feel the engine kick in. He stabbed at the manual fire button hard enough to break his fingernail on it, and then he felt the thrust.

Tessa looked over at him, her mouth open. "The computer didn't fire it on time?"

"I didn't feel it," Rick said. "Not until I--"

"It did," Yoshiko said. "I felt it before you pushed the button. The computer's okay."

"Are you sure?" It had been a split-second impression on Rick's part, and his body was so high on adrenaline that he might not have felt the thust immediately, but he'd have sworn it hadn't fired until he hit the button.

"I'm sure," Yoshiko said.

Rick looked to Tessa, who shrugged. "Too close to call, for me."

Rick laughed a high-pitched, not-quite-panicky laugh. "What the hell," he said. "We got it lit; that's what counts. Are we still go for landing?"

Tessa nodded. "I am."

"You still comfortable with the idea of staying up here by yourself for a day?" Rick asked Yoshiko.

"Yes," she said.

"All right, then, let's do it."

They didn't mention the possible computer glitch to Gregor when they rounded the back side of the Moon and reacquired his signal. They reported only that they had achieved orbit and were ready to proceed. Gregor had them fire another burn to circularize their orbit, and that one went off automatically, so Rick began to relax about that anyway. He had plenty else to keep him occupied. The flight out had been a picnic compared to the constant checklists they had to follow and the navigational updates they had to key into the computers before they could separate the two ships. They hardly had time to look out at the Moon, its gray cratered surface sliding silently past below. But finally after two more orbits, two hours each in the lighter lunar gravity instead of the hour and a half they were used to in Earth orbit, they were ready.

They had named the lunar module Faith, to go along with Hope and to signify their trust that it would set them down and bring them back again safely. So when Gregor was satisfied that everything was ready, he radioed to the

astronauts, "You are go for separation, Faith."

"Roger," said Rick. He and Tessa were both suited up again and standing elbow to elbow in front of the narrow control panel.

In the command module, Yoshiko said, "Going for separation," and she released the latches that held the two ships together. A shudder and a thump echoed in the tiny cabin, and they were free.

Faith's computer rotated them around to the right angle, and when the proper time came the engine lit for a thirty-second burn that lowered their orbit to within eight miles of the surface. They coasted down the long elliptical track, watching the cratered surface grow closer and closer, until their radar began picking up return signals and Gregor finally said, "You are go for powered descent."

Rick pushed "proceed" on the keyboard, and the computer fired the engine again, slowing them to less than orbital velocity. They were committed now.

Tessa reached out and punched Rick in the shoulder. "Break a leg, buddy," she said. "It's showtime."

It was indeed. Rick gave her a quick hug, clumsy in the suits but nonetheless heartfelt, then gave his attention completely to the controls. Their course was bending rapidly now, curving down toward the surface, which this close to the pole was a stark pattern of white crater rims holding pools of absolute blackness. Rick's gloved finger hovered near the sodium inject switch, but he didn't flip it yet. He didn't know how much he had, and he wanted to save it for the actual landing.

Tessa called out their altitude, dropping rapidly at first, then slower and slower, until at six hundred feet they were only falling at twenty feet per

second. Five seconds later she whispered, "Low gate," and Rick rocked the controller in his hand, switching out the computer.

He held his breath. This was when the previous two lunar modules had disappeared, at the point where the pilot had to take over. He waited for that to happen again, but the lander dropped another fifty feet, then seventy-five, and it was still there.

"Whew," he said. "We made it."

"What do you mean?" demanded Tessa. "We're still four hundred feet up!"

"Piece of cake," Rick said, looking out the window at the landscape slowly moving past. It was impossible to tell which little arc of crater rim was their target, and the tiny triangular windows were too small to give them an overview of the larger picture, so Rick just picked one that looked reasonably wide and brought the lander down toward it. It was strewn with boulders, but there were plenty of clear spaces between them, if he could just hit one.

"Quantity light," Tessa called out. He had only a minute of fuel left, less than he was supposed to have at this altitude, but it was still plenty at their rate of fall.

He slowed their descent to ten feet per second and rotated them once around. One big boulder right on the rim had a wide flat spot beside it, so he angled over toward it. Flying the lander felt just like the simulator, save for the shifting of weight, and that actually helped him get a feel for the controls.

"Two hundred feet, eleven down," Tessa said.

Too fast. Rick throttled up the engine a bit.

"One eighty, six down. One seventy, three down. One sixty-five, zero down--we're going back up!"

"Sorry," Rick said, dropping the thrust again. While he was at it, he flipped on

the sodium injector, and sure enough, the landscape exploded in bright yellow light. Even the bottoms of the craters were visible now, though they seemed fuzzy, out of focus.

No time to sightsee now, though. Tessa kept reading off the numbers, her voice rising a little in pitch. "Forty-five seconds. One sixty feet, four down. One fifty, five down; one forty, six down...you're picking up too much speed!"

"Got it," Rick said, nudging their thrust up a bit.

"One hundred, five down. Thirty seconds."

Rick did the math in his head. At this rate of descent he had ten seconds of fuel to spare. Far less than regulation, but still enough if he didn't waste any more. "Piece of cake," he said again, holding it steady for the spot he had chosen.

The descent went smoothly through the next fifty feet, but with only fifty feet to go, the ground began to grow indistinct. "What's that, are we kicking up dust?" Rick asked.

"I don't know," Tessa said. "It looks more like fog."

"Fog? Damn, Gregor was right." Rick held the controls steady, but they were descending into a white mist. The big boulder he'd been using for a marker disappeared in the cloud swirling up from the crater floor. Rick couldn't tell if they were still going to miss it or not; they could be drifting right over it for all he could tell.

Tessa's hand hovered near the Abort Stage button. That would fire the ascent stage's engine, smashing the lower half of the lander into the surface as it blasted the top half free and back into orbit.

"We're too low for that," Rick said. "We'd crash with the descent stage if we

tried it. Just hang on and call out the numbers."

"Roger. Twenty, five down."

That was pretty fast, but Rick didn't budge the controller. If he shifted them sideways in the process, they could hit the boulder.

"Fifteen...ten...contact light!"

The feelers at the ends of the landing legs had touched the surface. Rick let the engine run for another half second, then shut it down. The lander rocked sideways just a bit, then lurched as they hit the surface hard. "Engine off," Rick said, his eyes glued to the ascent engine fuel level. It held steady. No leaks, then, from the shaking, and no warning lights on any other systems. Looking over at the descent engine's fuel gauge, he saw that they had six seconds left.

Tessa glared at him. "Piece of cake?" she asked. "Piece of cake?"

Rick, at a loss for words, could only shrug.

Yoshiko's voice came over the radio. "Faith, Are you down?"

Tessa laughed. "Yes, we're down. Through fog as thick as soup, with six seconds of fuel left."

Fog. There was water on the moon. Rick looked out the window, pointed. "Look, it's blowing away."

Without the rocket exhaust and the harsh sodium light to heat the ice in the crater floor, what had already vaporized was rapidly expanding into the vacuum, revealing the rubble-strewn crater rim on which the lander had touched down. Rick looked for his landmark boulder, saw it out of the corner of his window, only a few feet away from the side of the lander. They had barely missed it. In fact two of the legs had straddled it. If one of them had hit it the lander would have tipped over.

Rick put it out of his mind. They were down, and they had more important things to worry about.

Time seemed to telescope on them as they ran through another checklist to make sure the ascent stage was ready to go in an emergency, then they depressurized the lander and popped open the hatch to go outside. Rick went first, not because it was his Apollo or because he was in any way more deserving, but for the same reason that Neil Armstrong went first on Apollo 11: because in their bulky spacesuits it was too difficult for the person on the right to sidle past the person on the left in order to reach the door.

It was a tight squeeze, but he made it through the hatch. The corrugated egress platform and ladder were in shadow, so Rick had to climb down by feel. He pulled the D-ring that lowered the outside camera, and Gregor radioed that they were receiving its signal back on Earth. Rick figured he was probably just a silhouette against the side-lit background, but he supposed that was about as good as the grainy picture of Neil taking his first step.

He was on the last rung when he realized he hadn't thought up anything historic to say. He paused for a moment, thinking fast, then stepped off onto the landing pad and then from there onto the frozen lunar soil. It crunched beneath his feet; he could feel it, though he couldn't hear it in the vacuum.

Tessa had made it through the hatch, too, and was watching from the platform, obviously waiting for him to speak, so he held his hand up toward her--and symbolically toward Earth, he hoped--and said, "Come on out. The water's fine!"

#

The water was indeed fine. Fine as powdered sugar, and about the same consistency. Brought to the Moon's surface in thousands of comet strikes over

the millennia, it had accumulated molecule by molecule as the vaporized water and methane and other gasses froze out in the shadowed crater bottoms at the poles. It was too cold, and the Moon's gravity was too light, for it to pack down into solid ice, so it remained fluffy, like extremely fine snow. When Rick and Tessa walked out into it they sank clear to their thighs, even though they only weighed about fifty pounds, and they would probably have sunk further if they'd gone on. But they could feel the cold seeping into their legs already, so they had to scoop up what samples they could in special thermos bottles designed for the purpose and turn back. The sample equipment packed in the lander was designed for a polar mission, but their spacesuits were made to keep them warm in vacuum, not against ice that could conduct heat away.

So they walked around the crater rim, bounding along in the peculiar kangaroo-hop gait that worked so well in light gravity, looking for anything else that might prove interesting. That was just about everything as far as Rick was concerned. He was on the Moon! Every aspect of it, from the rocky, cratered ground underfoot to the sharp, rugged horizon, reminded him that he was walking on another world. He looked out toward the Earth, about two-thirds of it visible above the horizon, about two-thirds of that lit by the sun, and he felt a shiver run down his spine at the sight. He had thought he would never see it like that except in thirty-year-old pictures.

They were making pictures of their own now. Tessa carried the TV camera and gave a running commentary as they explored. Gregor said that everyone in Russia and Europe was watching, and Tomiichi said the same for Japan. And surprisingly, Laura said the same about the United States. "They even pre-empted Days of Our Lives for you," she told them.

"Hah. Maybe there's hope for our country yet," Rick muttered.

"Watch it," Tessa said, but whether for fear of him offending their watchers or for fear of him getting too hopeful she didn't say.

Rick didn't care. He felt an incredible sense of well-being that had nothing at all to do with whether or not they made it back alive. They were on the Moon, he and Tessa, at the absolute pinnacle of achievement for an astronaut. Higher than anything either of them had ever expected to achieve, at any rate. No matter what they faced on the way home, or after they got there, nothing could alter the fact that they were here now. And Rick couldn't think of anyone he would rather share the experience with. He and Tessa would be spoken of in the same breath forever, and that was fine with him. He watched the way she bounded along in the low gravity, listened to her exclaim with delight with each new wonder she discovered, and he smiled. He wouldn't mind at all sharing a page in the history books with her.

They collected rocks and more ice from all along their path. At one stop Rick packed a handful of snow into a loose ball and flung it at Tessa, who leaped nearly five feet into the air to avoid it. When the snowball hit on the sunlit side of the crater, it burst into a puff of steam.

"Wow," Tessa said as she bounced to a stop, "did you see that? Do it again."

Rick obligingly threw another snowball past her, and she followed it with the camera until it exploded against a rock.

"Did you guys back home see it too?" she asked. "What makes them blow up like that?"

Gregor said, "Heat, I'd guess. And vacuum. Without an atmosphere to attenuate the sunlight, a rock will heat up just as much there at the pole as it would at the equator, so when the snow touches the hot rock it flashes into steam."

"Hah, I suppose so. Looks pretty wild."

"It might also give us a good idea what gasses are in the snow. Rick, could you set a sample down a bit more gently on a sunlit surface and let us see how it boils off?"

Rick did as he asked, packing a double-handful of snow and setting it on a boulder's slanted face. Steam immediately began to rise from it, then stopped after a few seconds. The snowball shifted slightly and more steam sublimed off, then another few seconds passed before the remaining snow melted into a bubbling puddle.

"Aha!" Gregor said. "Three separate fractions, at least. I would guess methane for the first, then ammonia or carbon dioxide, and finally water. That is wonderful news! All four gasses will be useful to a colony."

"If we ever send one," Rick said, trying to suppress his silly grin so Tessa wouldn't grow afraid of his optimism, but that in itself made him laugh out loud.

"Damn it, Rick, you're scaring me half to death!" she said. They both turned to look at the lander, glittering like a gold and silver sculpture on the concrete gray crater rim, but it remained solid.

"Don't worry," Rick told her. "I may be having fun, but I'm still just as scared as you are."

"Good."

They explored for another hour, but before they had even made it a tenth of the way around the crater they had to turn back. The suits only held another two hours of oxygen, and they would need that time to return to the lander, climb back inside, and pressurize the cabin again. And after that their time on the Moon would be over, because they had to get back to Hope as quickly as possible

and blast off for Earth again before the plane of their polar orbit shifted too far away from a return path. Their SPS engine had enough fuel for a plane change of a few degrees, but the longer they waited the more it would take.

They had done enough already. They had discovered water on the Moon, and had gone a long ways toward proving that it could sustain a colony if humanity wanted to send one. Now all they had to do was get home alive, but that in itself was a big enough job to keep them occupied full-time.

Yet as he waited for Tessa to climb up the ladder and kick the dust from her boots, Rick thought of one more thing he could do. His heart leaped in his throat at the thought, but it would be the perfect cap to a perfect day--provided he really wanted to do it. And provided he'd read Tessa's signals right as well.

He had no time to decide. It was now or never. He gulped, muttered, "He who hesitates is lost," and moved back away from the lander.

"What?" Tessa asked. She had reached the egress platform.

"Don't go inside yet." Rick paced a few yards away, then began scuffing five-foot-high letters into the crunchy soil with his boot. They showed up beautifully in the low-angled light.

"What are you doing?" she asked him.

He didn't answer. It would become obvious in a moment, if he could just remember how to spell. That was no sure bet; his head buzzed like an alarm going off, and his breath came in ragged gasps that had nothing to do with the exertion of drawing in the dirt. This would change his life even more than the trip to the Moon. Maybe.

"Oh, Rick," Tessa said when he completed the first line, but she grew silent

when she saw him begin a second. She was still silent when he finished his message:

Tessa, I love you.

Will you marry me?

He was still standing on the final dot below the question mark. He looked up at her, a dark silhouette against the darker sky, her gold-mirrored faceplate reflecting his own sunlit form and the words he'd written. He couldn't see her expression through it, couldn't tell what she was thinking. He waited for some indication, but after the silence stretched on so long that Gregor asked, "Rick? Tessa? Are you okay?" she began to climb down the ladder again.

"Stand by, Kaliningrad," Rick said.

Tessa stepped back onto the lunar surface, walked slowly and deliberately over to stand beside Rick. Even this close, he couldn't see her face, but he heard her sniff.

"Tess?"

She didn't answer him, at least not over the radio. But she shook her head a little and stepped to the side far enough to scratch a single word in the soil:

Yes.

Rick echoed it aloud. "Yes!" All his apprehension died in an instant. He bounded over to her and wrapped her in a bear hug. "Tessa, I love you!"

"Oh, Rick."

"Are you two getting mushy again?" Yoshiko asked.

Rick laughed. "Mushy, hell, we're getting married."

The radio burst into a jumble of voices as everyone spoke at once, then Gregor's voice cut through the rest. "My sincere congratulations," he said, "but your launch window is fast approaching."

"Roger," Rick said. "We're going inside now."

He helped Tessa climb back into the lander, then he climbed up and kicked off as much dust as he could. Before he ducked in through the hatch he looked down at the words they had written on the ground, their declaration clearly written for all to see. Those words could stay there for a billion years or so, the way things weathered on the Moon. Or if people actually came up and mined the crater for ice, they could be obliterated within a decade. That would depend quite a bit on what happened on the trip home.

Rick thought again of all the things that could yet go wrong. Engine failures, docking failures, computer failures--the list seemed endless. Despite his excitement over his and Tessa's future, if their personal welfare over the next few days made any difference then he would have no trouble staying sufficiently pessimistic to keep the ghost from fading away on them.

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The number of possible disasters shrank with each stage of the mission: Faith's ascent engine carried them into orbit, and Yoshiko docked smoothly with the lander, and the SPS engine fired on time to send them back homeward; but the way Rick figured it, infinity minus a few was still infinity. Plenty of things could still go wrong.

Including, of course, the ghost disappearing. Twice more on the return trip, both times right after Gregor reported that "Moon fever" was once more gripping the world, the spacecraft's walls grew indistinct around them, and both times they came back only after Rick convinced himself that their deaths could still squelch humanity's renewed enthusiasm for space. All the evidence seemed to support Yoshiko's and Tessa's theory that he was somehow in control of the

apparition, whether or not he was directly responsible for it.

Gregor would say no more about it, save that he should listen to them. Tessa took that as carte blanche to control his every action, including sleep, which she wouldn't let him do. She was afraid he would start dreaming of the bold new age of space exploration and they would all die of explosive decompression before he could wake up. She refused to let Gregor or Tomiichi or Laura tell them anything about the situation on Earth, and she kept inventing elaborate new scenarios in which humanity would decide not to follow their lead after all. And now that they were engaged, she seemed to think Rick's personal space was hers to invade in whatever imagininative ways she could think of as well. She would tickle him if she thought he was drifting off, or kiss him, or brush against him seductively. Rick found it alternately amusing and annoying, depending on which stage of his sleep deprivation cycle he was in at the time.

To keep himself busy, and to keep his mind on other things, he made her an engagement ring out of one of the switch guards, which were already nearly the right size and shape. He snapped one off from beside a third-stage booster control that didn't connect to anything anymore, and with a little filing on a zipper he buffed the rough edges down enough for her to wear it.

"I'll treasure it forever," she told him when he slid it onto her finger, but Rick was too befuddled from lack of sleep to know if she was fooling or serious.

Finally, less than a day out from Earth, Tessa could no longer stay awake either. As she drifted off to sleep, she admonished Yoshiko to continue the job, but as soon as her breathing slowed, Yoshiko told Rick, "Go ahead and sleep if you want. I think you'll be more valuable to us tomorrow if you get some rest now."

Rick, groggy with fatigue, tried to focus on her face. "Why?" he asked. "What's tomorrow?"

She grinned diabolically. "Re-entry. Twenty-five thousand miles an hour, smack into the atmosphere. Sleep well."

Rick slept, but just as Yoshiko had intended, all his dreams were of burning up in a fireball as the Apollo capsule hit the atmosphere at too steep an angle, or of skipping off into interplanetary space if they hit too shallow. Or of hitting their window square on and still burning up when the ghost ship proved incapable of withstanding the heat. The gunpowdery smell of the lunar dust they had tracked inside on their spacesuits didn't help any, either; it only provided another sensory cue that they were on fire.

When he woke, Earth was only a couple hours away. It still looked much smaller than it had from the shuttle, but it felt so much closer and it looked so inviting after his hours of bad dreams that Rick almost felt like he was home already.

With that thought, the capsule grew indistinct again. Tessa screamed, "Rick!" and punched him in the chest, and Yoshiko said quickly, "Remember the consequences!"

The ship solidified once more, and Rick rubbed his sore sternum where Tessa's ring had jabbed him. "Jeez, you don't have to kill me," he said. "I get scared just fine on my own when that happens."

Tessa snorted. "Hah. If you were as scared as I am the ship would never disappear in the first place."

"Well I'm sorry; I'll try to be more terrified from now on." Rick turned away from her, but there was no place to go to be alone in an Apollo capsule. After a

few minutes of silence, he looked back over at her and said, "Okay, I'll try harder to control this. But don't look at me so accusingly when it happens, okay? I'm not trying to make it disappear."

Tessa sighed. "I know you're not. It's just--I don't know. I don't have any control over it, except what little control I have over you. My life is in your hands. Hell, at this point the entire space program is in your hands. And all you have to do to kill it is get cocky."

"No pressure," Rick said sarcastically.

Yoshiko laughed. "Whether you like it or not, you embody the spirit of exploration. When we get back, that spirit will probably pass on to someone else, but right now it resides in you, and you have to bring it safely home."

"With all due respect," Rick said, "that sounds like a bunch of tabloid speculation to me."

She shook her head. "No, this is really no different than any space mission. Every time someone goes into space, their nation's spirit flies with them. When Apollo 1 killed its crew, your nation faltered for two years before going on, and when the Challenger blew up it took three more. When the Soviets' Moon rocket blew up in 1969, they completely scrapped their lunar program and shifted to space stations. It's like that all over the world. Every astronaut who has ever flown has had your ability, and your responsibility; yours is just more obvious than most, made physical by the same power that created this ship."

Rick studied the industrial gray control panel before him while he considered what she'd said. The truth of it seemed undeniable, at least in principle. The details could be argued--retooling after an accident wasn't exactly backing off--but it was true that exploration stopped each time an accident happened, and when it started again it almost always took a new, more conservative

direction.

"Well," Rick said at last, "I'll try my best to pass the baton without fumbling. We've only got a couple hours left; after that it's somebody else's problem."

They spent the time before re-entry stowing all the equipment and debris that had accumulated in the cabin throughout their week in space. While they worked, the Earth swelled from a blue and white ball to the flatter, fuzzy-edged landscape they were familiar with from the shuttle flights. At that point they only had a few minutes left before atmospheric contact, just time enough to jettison the cylindrical service module with its spent engine and fuel tanks, then reorient the command module so it would hit the atmosphere blunt end first.

All three of them were breathing hard as the last few seconds ticked away. They weren't wearing their spacesuits; the gee forces would be too severe for that, and besides, if anything happened to the capsule they would burn up instantly anyway, spacesuits or no. Rick reached out and held Tessa's hand, wishing he could reassure her that they would be okay, but he knew that a phrase like "Don't worry" coming from him would only make her worry all the more. So he merely said, "Ready with the marshmallows?"

"Very funny," she replied.

Yoshiko laughed, though, and said, "Never mind marshmallows, I'm getting out my bathing suit. Hawaii, here we come!"

Their splashdown target was about a thousand miles west of there, but that would be their first landfall after the recovery ship picked them up. There were two recovery ships, actually, one Russian and one American, but the Russians had agreed to let the Americans pick up the capsule if they wished. NASA wished very

much, so they got the prize, though neither Rick nor Tessa looked forward to the official reception.

The unofficial one, however, would be worth every minute of NASA's wrath. The main reason for the Russian ship's presence was to televise the splashdown for the curious world, which Gregor said was even more excited now that the last, most perilous stage of the mission was about to commence. The love story didn't hurt their ratings, either.

Despite the extra danger from the publicity, Rick was glad for the attention; he was counting on public support to keep him and Tessa out of serious trouble, and maybe even provide them with a source of income from the lecture circuit until the new space program got started. Their careers in the shuttle program were certainly dead now, and only hero status would ever let them fly again.

Contact. The capsule shuddered and the seats pressed up against them. The force eased off for a second, then built again, stronger and stronger, until it was well over a gee. Air heated to incandescence shot past the windows, lighting up the inside of the capsule like a fluorescent tube, and the ship began to rock from side to side. Some of that was no doubt the guidance computer fine-tuning their trajectory with shots from the attitude control jets, but every few seconds the capsule would lurch violently as it hit a pocket of denser air. The deeper they plunged into the atmosphere, the greater their deceleration, until they were pulling nearly seven gees and struggling just to breathe.

Long minutes dragged past as the three astronauts remained pinned to their couches, barely able to move. Rick kept his hand near the manual controls mounted on the end of his armrest, but even when the buffeting became severe and the automatic system seemed to be overreacting, he didn't take over control. He trusted the ghost more than he trusted his own instincts. It wouldn't let them

die now, not this close to the end of the mission.

The cabin walls flickered momentarily at that thought, and Rick cringed as he waited for a blast of flame to engulf him, but the fade-out only lasted for an eyeblink. Tessa and Yoshiko both gasped, but they said nothing. Speech was impossible with the incredible weight pressing them into their couches.

The ionized gas roaring by had cut off communications with the ground. Rick heard only static in his headphones, but the shriek of air around the blunt edge of the heat shield nearly drowned out even that. Up through the window he could see a twisting tail of white-hot flame stretching away for miles into a sky that grew steadily bluer as they fell.

Finally after six minutes the gee force began to ease off, and the flames streaming past the windows faded away. They had slowed to terminal velocity now, still plenty fast but not fast enough to burn away any more of their heat shield.

Rick looked at the altimeter at the top of the control panel. At 25,000 feet, just as the needle passed the black triangle on the gauge, the drogue parachutes opened with a soft jolt. Rick watched them flutter overhead, stabilizing the craft and slowing them just a bit more, then at ten thousand feet the main chutes streamed out and snapped open in three orange and white striped canopies.

The capsule lurched as if it had hit solid ground, but then it steadied out and hung there at the bottom of the shroud lines, swaying slightly from side to side as it drifted.

The sun was only a few hours above the horizon, and waves scattered its light like millions of sparkling jewels below them. Rick let out a long sigh. "Home sweet home," he said.

"Don't relax yet," Tessa said, eyeing the altimeter. "We're still a couple miles up."

"Yes, Mom."

A new voice over the radio said, "Apollo, this is the U.S.S Nimitz. We have you in visual."

"Roger, visual contact," Rick said. He loosened his harness and peered out the windows, but he couldn't spot the ship, nor the Russian one. It was a big ocean.

The altimeter dropped steadily, swinging counter-clockwise through five thousand feet, then four, three, two...

"All right," Rick said. "We're going to make it."

"Rick!" Tessa shot him an angry look. "We're still at a thousand feet."

Rick looked out at the ocean, now seeming close enough to touch. "I don't care. I've played doublethink with the supernatural the whole way to the Moon and back; well now I'm done with that. We could survive a fall from here, so unless this thing sinks right on out of sight with us in it, I say superstition be damned: we're home safe and sound." He banged on the hatch for emphasis. It made a solid enough thud when he hit it, but a moment later it began to shimmer like a desert mirage.

"Rick, stop it!" Tessa yelled, and Yoshiko said, "Not yet, damn it, not yet!"

"I take it all back!" Rick shouted, but this time the capsule continued to fade. It supported their weight for another few seconds, but that was all. The control panel grew indistinct, the altimeter going last like the grin of the Cheshire cat, its needle dropping toward the last few tic marks, and then the couches gave way beneath them, pitching all three astronauts out into the air.

Rick flailed his arms wildly to keep from tumbling. His right hand struck one of

the spacesuits and it bounced away from him, spinning around with arms and legs extended. The other two spacesuits had remained solid, too, and for a moment Rick wondered why they hadn't faded along with the ship, but then he rememebered that he and Tessa and Yoshiko had worn them aboard.

He twisted around, looking frantically for the only other non-ghostly items in the capsule, and he saw them just below, falling like the rocks they were: the samples he and Tessa had collected from the lunar surface.

"No!" he shouted, reaching for them as if he could snatch at least one rock out of the air, but he suddenly got a face full of water and he choked and coughed. The sample containers had been part of the ship, and they had disappeared, too, splashing him with their contents. He smelled ammonia, and something else he couldn't identify before the wind whipped it away.

Everything they had collected, everything they had done, had vanished in one moment of arrogant pride. They were returning to Earth with nothing more than what they had taken with them.

Except the entire world knew they had gone and knew what they'd seen; nothing could take that away.

Tessa was a few feet to the side, but she had spread her arms and legs out to slow her fall. As she swept upward, her hair streaming out behind her, Rick shouted, "Don't hit like that!"

"Of course not," she yelled back at him. "I'll dive at the last minute."

Yoshiko was windmilling her arms to keep from going in headfirst, but she was tumbling too fast. "Cannonball!" Rick yelled at her, but he didn't see if she tucked into the position or not. He barely had time to twist around so his own feet were pointed downward.

The ocean came up at them fast. Rick looked away, and this time he saw the ships, two enormous gray aircraft carriers plowing side-by-side through the waves toward him, their decks covered with sailors. And reporters. And scientists, and bureaucrats, and who knew what else.

Rick closed his eyes and braced for the impact he knew was coming.

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