

Chapter 1

Engineering Marvels: Space Elevator—A space elevator consists of three sections: 1) A GEOSTATIONARY space station, called an ORBITAL DOCKING FACILITY (ODF); 2) A base platform, which serves to anchor the ODF on or near the equator of Earth or another planet; and 3) Multiple ribbon cables and elevator cars connecting the two.

Each cable is formed from a high-tensile composite consisting primarily of dozens of micron-thick bonded layers of MULTIWALLED CARBON NANOTUBES (CNTs), which have a strength-to-weight ratio hundreds of times superior to that of steel. Elevator cars operating on the principles of MAGNETIC LEVITATION (MAGLEV) ride along these cables at high rates of speed.

— Excerpt from Encyclopedia Solaris, 2176

“Crap, *crap*, CRAP!”

He clenched his teeth and watched the aftershave bottle roll across the floor.

This was the final straw, the ultimate thread in a richly-woven tapestry of frustration. It was as if the gods of travel had decreed that nothing would go right for young James McKie this day. Born of extreme exasperation, a grunt like that of a strangled moose caused other travelers in the terminal to cast puzzled glances his way.

McKie’s day had started out well enough, with a pleasant family breakfast. His mom made waffles while James and his dad swapped jokes. After the final morsel was used to mop up the last swirl of maple syrup, it was time to leave.

“You make sure you keep warm, Jamie. It’s awfully cold out there.” Jessica’s deep blue eyes peered into her son’s hazel ones. She fought back tears.

“Yes, Mom.” McKie made an effort not to roll his eyes as he spoke. “I think I know how to dress myself by now.” His smirk made Jessica smile and sniffle.

“The taxi’s on its way, son,” Talmadge said, stepping away from the phone. “In the meantime, I think your friends want to say good-bye.” He nodded in the direction of the front door.

McKie tucked a wayward lock of sandy hair under his stocking cap and yanked on his down jacket. His beat-up old duffel bag was already waiting for him by the door.

He turned to his mother and gave her a big bear hug, then he stepped back and shook hands with his father. Jessica dabbed at her eyes with the flowered dishtowel draped over her shoulder.

“We’ll miss you, son,” Talmadge said.

Jessica nodded, silently.

“I’ll miss you, too—both of you. But I can’t turn down an opportunity like this.”

“We know, Jamie. But almost *three years*. That’s such a long time.”

McKie shrugged. What else could he say? He turned and picked up his bag. As he held open the door to leave, he turned back. “Bye, Mom, bye, Dad. I’ll be back as soon as I can. I love you both.”

Jessica’s eyes overflowed at last. Talmadge spoke for both of them. “We love you, too, son.”

McKie waggled his fingers in a half-wave and slipped through the door, closing it firmly behind him.

Outside by the curb, his friends were awaiting their turn to say good-bye. Mary-Anne

Sevinski and Dave Plowright were his oldest friends. The trio had been together since grade school. McKie trudged through the fresh knee-deep snow on the walk until he reached his friends.

"I can't believe you're leaving like this," Dave said. "We've always been here for each other. Now you're running off and leaving us."

"Don't be so melodramatic," Mary-Anne scolded. "He's just taking a job. You'd do the same, given the chance."

"Well, maybe. But I'm not the one who's leaving."

"That's only because you have a job waiting for you at your dad's company," McKie said. "We don't all have that luxury."

Dave shrugged. "Still, I hate that you're going."

"Me too," said Mary-Anne. Now *her* eyes were beginning to mist over.

It was McKie's turn to shrug. "I'll be home before you know it."

"Yeah. Sure." Dave looked like his best friend had just died. It wasn't quite that bad, but for the next few years his best friend would not only be out of town but millions of kilometers away. In his eyes, it wasn't *much* better than being dead.

From that point on, the goodbyes devolved into a teary affair involving much hugging and back-slapping. Mary-Anne made a point of fussing with the scarlet wool scarf she'd given him as a going-away present. Eventually, the taxi arrived to take McKie to the airport.

That's when things started to go wrong.

The overnight blizzard had dumped a half-meter of fluffy white snow on Winnipeg. It sparkled in the scattered morning sunlight shining through gaps in the leaden cloud cover. This briefly gave the city a pristine appearance.

It's too bad it doesn't look like this all winter. McKie knew from experience that it wouldn't be long before the air pollution desecrated the unsullied surface with a peppery coating.

The snow, heaped atop the previous accumulation, barely slowed the cab; the snow chains had been on the tires for months. Nor did the changing landscape befuddle the vehicle's autopilot, a veteran of more than a decade of severe Canadian winters. Unfortunately, the dozens of wrecked and stalled vehicles that clogged roads all over the city accomplished what the snow alone couldn't: the cab slowed to a crawl.

It didn't matter that McKie had allowed four hours to make his flight. The city's icelock made the roads nearly impassable. The cab took the entire four hours just to reach the airport.

That's it, then.

Because clearing the multiple security checks typically took the better part of half an hour, he knew he had no hope of making his flight.

McKie took his time getting to the ticket counter, where he hoped to find another flight sometime soon. Having nine people ahead of him in line didn't exactly improve his disposition. Finally he reached the counter.

"Good morning, sir. Welcome to BrazAir!" In McKie's current mood, the chipper tone of the AI on the holoscreen grated like fingernails on an old-fashioned blackboard.

His irritation was offset somewhat by the name of the airline, which—as always—made him think of women's undergarments.

“Morning. It looks like I missed my flight. When’s your next one to Macapá?” He held out his arm so the terminal’s scanner could read the subdermal chip embedded in the back of his hand.

“Let me check for you, Mr. McKie.” A long second passed. “It looks like you’re in luck, sir. Your flight has been delayed while the airport finishes clearing snow off the runway and de-icing the aircraft. You have just enough time to make your flight—if you hurry.”

McKie closed his eyes for a moment and shook his head. *Here we go again.* He thanked the AI and took off running.

Jogging through the terminal with his duffel, he worked up a sweat dodging passengers with too much time on their hands and electric carts moving passengers with infirmities from one place to another. Rounding a corner, he tripped over a bag someone had set down while checking the wall holoscreen for departure times. McKie fell, banging his right knee solidly on the floor.

“Damn it!” This got him a rude look from the passenger whose bag he’d stumbled over and kicked.

When McKie regained his feet, he found he was reduced to a shambling shuffle by his throbbing knee. He pushed on, eventually working through the stiffness and resuming a jog until he reached the security checkpoint. The agent seemed determined to find *something* in McKie’s bag—maybe it was due to the wild look in his eyes and the sheen of perspiration on his face.

Finally McKie reached the gate, only to find the suborbital plane gone.

“Damn it!”

The AI at the next gate looked his way. “Sir? Are you looking for flight 1139?” When McKie nodded, she crooked a finger and said, “The plane was moved to this gate. We’ve just begun boarding.”

Sighing in relief, McKie limped over to the gate and presented the back of his hand. The terminal scanned it and compared McKie’s face to the image stored in his implant. The AI smiled. “You’re in seat 73E, Mr. McKie.”

McKie smiled for the first time in hours. “Thanks.” He followed a little old lady onto the suborbital. She seemed determined to walk as slowly as humanly possible down the aisle; but at this point McKie didn’t care. He was aboard the plane and that was all that mattered. He stuffed his jacket in his duffel and the latter into the overhead compartment. He then took his window seat next to an extremely tall and burly man, one who spilled over into the seats to either side of him. *Why do the largest human beings on Earth always seem to end up in the middle seats?*

For the moment, being crowded didn’t bother McKie. This, however, was a feeling that didn’t last.

“Ladies and gentlemen, this is your captain. Unfortunately, the snow-removal is taking longer than anticipated. It looks like we’ll be stuck here for another forty minutes or so. You might as well get comfortable.”

Comfortable? Ri-i-ight.

Even though the flight attendants were serving a late breakfast, McKie couldn’t eat. His stomach was in an uproar.

Eventually the plane received the go-ahead to depart. Even at a top speed of just over Mach-10, it took nearly two hours, including circling, for the suborbital scramjet to travel the eight thousand-plus kilometers to its destination—two hot, cramped, thoroughly unpleasant hours.

The large man next to McKie dropped off to sleep almost immediately after takeoff—and snored the entire rest of the trip. Before long, he'd slumped to one side with his shoulder pressing against McKie's.

Wonderful. Can this day possibly get more annoying?

By the time the suborb landed in Macapá, McKie was irritated, overheated and feeling as fresh as a crumpled, used tissue—and just about as damp.

The vehicle finally rolled to a stop and the passengers rose to leave.

Thank God that's over with. I was beginning to think I'd never get here. Well, whatever happens from here on out, it can't be as bad as what I've already been through. He was mistaken. The gods of travel weren't quite done having fun with him yet.