TOM SWIFT
And The
Martian Moon Re-placement

BY

Victor Appleton II

Thackery Fox & Associates

Made in The United States of America

This book is dedicated to the surgical team in Portland, Oregon who performed my quadruple heart bypass surgery the Friday before Thanksgiving this past year and got me home for Turkey Day. It happened right in the middle of writing this story and sidetracked me for more than a month, They left me with a pair of scars that might have been worse, but they took their time and got me stitched up with minimal visual evidence of them having been inside. Bravo to them and also to my fans who heard about this and wrote those wonderful emails of encouragement. Thanks all!

THE NEW TOM SWIFT INVENTION SERIES

Tom Swift and the Martian Moon Re-placement

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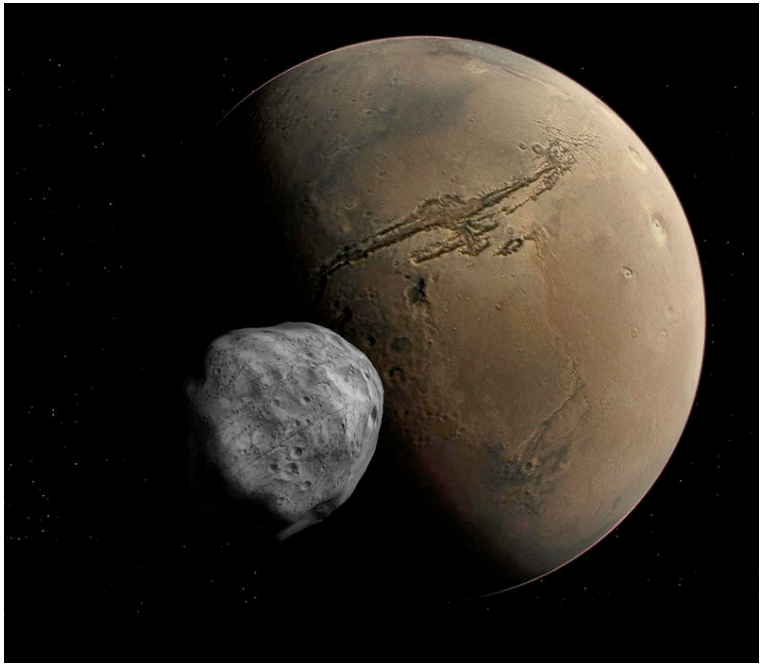
Small, irregular and rocky Deimos and Phobos circle the Red Planet in tight orbits. One is very close at 5,827 miles above the surface—about from New Delhi, India to Northern Australia—and the other circles at about 23,460 miles—or nearly geosynchronous orbit around the Earth like Tom Swift's Outpost in Space. Neither is very large and neither appear to be natural moons of the planet, but more likely large asteroids that were once caught in the Martian gravity influence… and just stayed around gathering more materials over the millennia.

There is a problem… tiny Phobos and its seven-and-a-half hour orbit has *moved*. Not a lot, perhaps only 170 miles since the last full measurement twelve months earlier, but it seems to be coming closer and far too fast for comfort of the colony on Mars.

So, what can go wrong if a chunk of rock less than eight miles wide hits the planet? Or, if the some people have their way, it gets shoved out of orbit and into the Sun and is just no longer an issue?

Tom Swift knows that there is a balance to just about everything in the universe and within our own solar system. He is greatly worried about the effects of either solution and now seeks to find a way to stabilize things and understand why the little planetoid has changed its behavior.

This book is dedicated to Asaph Hall who, in 1877 discovered the pair of rocks circling Mars. He called them Phobos (panic or dread) and Deimos (terror) the sons of Ares, Greek god of war (or *Mars* to the Romans). Neither is perfectly round like our own Moon, and neither has a totally-explained origin or purpose. Also, this is dedicated to Jonathan Swift (no relation) who, in *Gulliver's Travels*, speculated about them and came surprisingly close to guessing their sizes. Oh, and that was about 150 years before Hall actually found and named them. Curious or spooky???



Little Phobos traversed an area of the Red Planet some believed had been the impact site of an even smaller moon eons earlier. **CHAPTER 13**

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AUTHOR'S NOTE

The idea for this story came out of the blue as I lay in bed one night in July thinking I had only a few thousand words still to write in the previous book, and after that I did not have a good idea what I wanted to do.

Other that write more Tom Swift books.

But, to do that you have to have a title invention, a good idea of how Tom is going to build or accomplish it, and one, two or even three (?) well-rested hands to type thing with. Sorry, with which to type things (can't dangle that participle!)

I've long loved the lore, supposition and now combination of facts ("Mars must have had water in the past") all the way to crackpot statements ("There's a face on Mars" and "This picture proves there was a race of giant gorillas on Mars...") surrounding the Red Planet.

It takes a lot to write one book; it takes almost infinite patience to write eight or ten of them. This one is book 23 in the series I have previously told folks I believed might run for up to six books. Total.

Book 24? Sure. Why not? All it will take is a good title invention, a really good idea of what Tom will do to solve the problem or accomplish the task and giving my hands—and I only have the two of them—a damn good rest so they can once again glide over the keys on my Macintosh keyboard telling me the story.

Oh, haven't I mentioned this before? My *fingers* write everything; my brain only keeps them moving. I often believe that if I lost a finger, Tom might develop a stutter.

Tom Swift and the Martian Moon Re-placement

FOREWORD

Once upon a time a fellow writer, whose name was a play on the man's actual name, wrote a series of twenty books about a young man who did incredible things in outer space and on—and under—the Earth who was part of a great organization called UNEXA. That character, Chris Godfrey, had all those adventures as he grew up, took a more management role, and later tried to keep others from repeating mistakes he had made in his early years.

One of his adventures included Earth's moon suddenly coming in closer and closer. People on Earth try to pull together to build a giant repelling device that, at the eleventh hour, fails. But, a hero comes forward and saves things at the very last moment. Sorry for the spoiler!

Oh, don't worry; people survive and live ever after as they clean up the horrific devastation, but the thing that is most stark and disturbing about the entire story is how Hugh Walters (born Walter Hughes) sees the trivialness of man, narrowness of thought within religions, the pettiness of politicians, and the "What's in it for us?" of trade unions. There is also how some people will simply give up until panic forces them to do terrible things to each other.

I did not want to have that desperation and despair become part of this story, but the basic issue at hand—a moon or asteroid or something coming to hit something else (such as us!)—is becoming more and more a possibility. Thus was born this tale.

So, it is with a huge smile and a sigh of relief I can report that nobody injures their elbow when the courtesy missiles explode, no whale suddenly comes into being and falls hundreds of miles from the sky, a bowl of petunias does not simultaneously appear thinking, "Oh no. Not again!" and while the answer to the BIG QUESTION might remain "forty-two," that has nothing to do with what goes on inside *this* book.

Victor Appleton II

CHAPTER 1 /
MANY ENDS TIED UP ALL NICE AND NEAT

TOM SWIFT, twenty-seven years old, married with two children—Bart and Mary—and his brother-in-law, Bud Barclay, were cruising along at nine thousand feet. It was a bit noisy in the small helicopter, and nobody would ever claim the aircraft was vibration free, but they had incredible smiles on their faces.

Their wives were in the large, three-decked jet shadowing them. Sandy Swift-Barclay, Tom's younger sister, and his wife, Bashalli, were in the cockpit flying the *Sky Queen*, Tom's first large-scale invention and the very thing he'd been working on when he and Bashalli met more than nine years earlier.

Sandy was the more qualified pilot between them but Bashalli had just passed her three-hundredth hour of flying time and was rated to fly everything from single-engine propeller planes up to multi-engine jets. Her confidence level might not be the highest recorded, but she was a careful and proficient pilot. In other words, she took nothing for granted and would never end up in peril due to inattentiveness.

"They seem to be having *way* too much fun in that helo," Sandy declared, sounding a little miffed, as she zoomed the video camera she was using in on the underside of the 'copter.

"I still do not like that little beast," Bashalli told her. "Not after what the first one did crashing with Tom and Bud inside!"

And, crash it had, but only from about ten feet over the water. That prototype had been delivered to Swift Enterprises and for almost a week Bud had tested it on or close to the ground, noted what seemed to be a large number of materials deficiencies, fretted over what to tell the manufacturer, became frustrated with, and finally—even after warning Tom he did not want to place the inventor's life in jeopardy—the two of them took one final flight.

The main rotor hub had been cast from solid aluminum, something neither of them would ever consider, and had parted ways with the three blades accompanied by a *crack*, a *snap* and a huge jerk to the side.

Luckily for both men, Hank Sterling had worked on the auxiliary pontoons that could be extended from the helo, adding a detection circuit and canisters of CO2. These blew the pontoons out the side of the rear cabin and inflated them in a quarter second, just in time

to cushion the dropping fuselage and keep both young men from serious injury as they hit Lake Carlopa.

Now, with a lot of help from Enterprises—and Bud and Hank—the manufacturer had fixed everything, added the amenities requested, and turned what had been a deathtrap into an exhilarating little sports helo.

"Oh, don't worry, Bashi," Sandy said as whoever was on the stick in the helo sideslipped it at high speed and from there into a tight left turn. She rolled her eyes, but continued as the *Queen* turned to follow them. "Tom and Bud gave that thing more than a once over yesterday and again this morning before even flipping the ON switch. They're safe as long as my over eager husband doesn't try to do something really stupid."

Bashalli's eyes widened and she turned to look at Sandy.

"Like what?"

The blond let out a great sigh and pointed. "Like that!" she said.

As they watched, Bud had the helo climbing nearly straight up and soon had it upside down. It flipped over and back to level, upright flight within a few seconds and continued on its merry way.

"They went inverted," she explained. "Not something you or I would do, but then, we're women and have a lot more sense."

The two women followed along as the little *Whitcomb Dragonfly* wiggled, slalomed, rose and descended all around Vancouver Island in British Columbia where its manufacturer was located.

About an hour after they took off, both aircraft settled onto the runway at the International Airport in Sydney on the southeast side of the island.

Robert Whitcomb, a tall and every-so-slightly bent older man, climbed from his sedan and walked over to Tom and Bud as they got out. His right hand was extended and there were tears glistening in his eyes.

"By gosh, and unless you tell me something horrible was happening up there, I watched the entire thing with my field glasses. Magnificent!" He waited expectantly for either of them to say something.

Bud's face split into a smile. "It truly is a great little chopper," he declared. "Your folks did everything we asked for, and a couple more things, and it all just works! These past five months since Hank and I came out to help were all put to great use."

Bashalli got to them a moment later followed by Sandy who had stopped in one of the *Sky Queen's* bathrooms to brush her hair and re-band her ponytail.

"Is it everything you both hoped for?" Whitcomb inquired.

In unison, they nodded and grinned.

"Then, I can begin the certification process," he told them as Sandy approached, "and perhaps by this time in four months I can have a few of these coming off the line. I don't know quite how to thank you. All of you!"

Understanding the precarious financial situation the company was in, Tom stated, "You will allow us to take you to dinner down in Victoria. I know an excellent and relaxed place on Douglass near the corner of Pandora if you are interested."

Whitcomb smiled and nodded. "I know the place. Great food and there is one waitress who makes this old heart race. She always smiles, gives my shoulder a squeeze and calls me Bobby and knows just what I like. So I say why not! Other than the *who pays* thing."

Tom shook his head. "You've put your own fortunes on the line for the *Dragonfly*, so let me buy tonight. Once you start selling them we'll come back and dinner can be your treat."

Whitcomb agreed and made a quick call to have some of his men come move the small aircraft back to its hangar.

Over a great "small plates" dinner the five talked about how Victoria was undergoing a sort of renaissance. Older buildings that had gone empty for years were being repaired and updated and numerous small businesses were moving back downtown.

"We have a wonderful restaurant scene up here and even get visitors on gastro-vacations from as far away as New Zealand!" Robert boasted.

Tom was sitting at his desk in the small underground office next to the parking place for his *Sky Queen* a week later when he heard the elevator *ding* announcing he was about to have a visitor or visitors. From the heavy stomping of feet he knew quickly it was going to be his sister, Sandy, and she was in a bad mood. All her emotions came out through her feet.

As she stormed in through the door, her face was red with anger and frustration.

"It isn't fair, Tom Swift, and you know it!" she stated in a loud,

angry voice.

Knowing it never did any good to snap back at her, he calmly asked, “What is not fair, Sandy?”

“You know all about that stupid school mother went to and how her grandfather made sure if you didn’t go there you didn’t get any of his money?”

It was true. Matthew Bartle, a railroad tycoon and Anne Swift’s maternal grandfather, had given his children next to nothing from his vast fortune. Instead, he’d set up a multi-million dollar fund to not only build a school to educate girls in what he termed the “household arts”—cooking, cleaning, baby rearing (but no education on how they came about) sewing, keeping the household budget, and such—but to pay the female members of his family for attending that school. It came in the form of a gift of whatever one percent of the total fund had in it and only if she attended the school outside of Schenectady for at least four years, graduated, and then reached the age of thirty.

“Yes, Sandy, I do know all about it.” He eyed her carefully, waiting for the volcano that was Sandy Swift-Barclay’s temper to blow.

“Well, then you’re part of the whole problem! You boys get money even if you don’t go there, and until lately *you* couldn’t ‘cause it was just for girls, and you get yours when you turn eighteen no matter what. *It’s not fair!*”

She sat down on the sofa and started to cry. He came around the desk, sat next to her and put an arm around her.

Taking a deep breath because he wasn’t certain how she would react to hearing some of the basic truths, he told her, “I know mom told you all about that place when you turned something like ten. And then, she told you again the summer you were eleven, and twelve and even thirteen. All those times you pretty much told her you’d rather eat worms than go to some place like that and didn’t give a hoot about the money.”

She sniffled and shuddered, but she nodded. “But, I didn’t know…” she wailed.

“You *did* know because I had to listen to mom, and even dad, telling you all about what it would mean and what you’d miss out on. You just never wanted to listen to it. They gave you the ultimate choice and you chose to stay in Shopton. I’m really sorry about it all, but it was the rules and not even Enterprises’ best lawyer could find a way to break that will. I’m also sorry and a little embarrassed that

Matthew Bartle was seemingly so short sighted he only burdened girls with that, but it was his way of getting them an education where few made it past about sixth grade back then."

"But," she said with tears streaming down her cheeks, "you didn't even go to high school and still got your money on your eighteenth birthday!"

Tom did not want to get into the finer details, but it was true that the boys of the extended family got their money on completion of high school, or the equivalent, and reached their eighteenth birthday. It was money to allow them to attend college and start a family, not as a reward for completing any specific point of education. Bartle had set the female age at thirty because that was the point where some women became widows and he wanted them to not be a public burden.

He gently pushed her away and held her at arm's length, looking into her eyes. "I'm going to tell you something I promised myself I wouldn't ever do until you turn thirty, and maybe not then, but that money I got? I never planned on it and never needed it. I already had over five million dollars in the bank from my patents, so I put the entire check into a special account with *your* name on it. When I got mine the amount was almost one-point-two million bucks. With the interest you have been getting since you turned seventeen, now going on nine years, I believe that account is worth one-point-six million dollars."

Sandy had nearly stopped breathing she was so frightened what her brother was telling her would turn out to be some big joke on her. She looked in his eyes and saw only honesty.

"Really?" she squeaked out.

Tom nodded. "Yeah, San. Really. I didn't need the money and still don't, but I knew someday you'd realize what you did, what you lost out on, and hate yourself or me or mom and dad for not getting your share."

"It's not my money," she whispered. "It's yours."

Now, Tom shook his head. "My name has not been associated with that account all these years. You are the primary account holder with mom as your next of kin if you have some horrible accident. Even she doesn't know about it. But, now you do. I do have to tell you I can't change the terms of when you get the money. You and Bud will need to wait a little more than four years but it will be yours. I just hope you understand it is something to not go out and blow; it is something for your futures, and any family you have

at *some* point."

Sandy Swift felt as though she'd been punched in the stomach and was about to discover she was growing up. No longer a teenage girl, even though she still *felt* that young, she had a notion that this was the turning point in her life.

She put her arms around her brother's neck and pulled him to her in a hug.

"I love you, Tom. Not for this, even though it is wonderful of you, but because you've been the dream brother any girl could ever want. Thank you." She warmly kissed his cheek.

"Just do me one favor," he requested. "Don't tell Bud that I did this or told you about it. You are married to a proud guy and I don't ever want him feeling like he isn't your main income man. When it happens, tell him it is from a delayed gift from Grandpa George and that I got one as well. If he asks I'll smile and say how unexpected it was. Okay?"

She nodded and kissed him again on the cheek, this time much longer. "Yes, Tomonomo. I promise."

The second round of building underwater domes for growing of foods in places that had no more useable land was well underway. The same British agency represented by a man named Jameson Carr was spearheading worldwide development and all Tom had to do was make the occasional visit to the various Enterprises' departments involve in making it happen.

The ladies of the Uniforms department, under the management of Marjorie Morning-Eagle—known as the Major, affectionately, by many—had one three-dome set behind them so this next one, only two domes interconnected, was going to be a breeze for them.

A few interior changes were needed but Tom knew everybody was on board with those and there would be no delays. Each seven-hundred by six-hundred by three-hundred foot tall structure, and all the interior terraces, could grow as much food as any sixteen acre plot on dry land and give three complete crop cycles per year.

With that now mostly off his plate, and actually bringing in some income for all of Enterprises' work, Tom was satisfied. Almost as important, his father, Damon, and the accountants at Enterprises were also quite pleased.

Tom's mother, Anne Swift, was a bit of an enigma. Trained and

highly skilled as a biologist with a Masters in Microbiology and Doctorate in Molecular Biology, she appeared to give it all up when Tom and Sandy were young and the family moved from Florida to Shopton so Damon could take over the family business.

The only thing was, she had *not* given it up. For about two decades she put her skills and education to work on occasional top secret projects for the FBI in a secret lab hidden under a *cover* bank that *was* a real bank, only it was operated and staffed by the FBI. Her double life was kept from her family until about the time Sandy turned seventeen and had been one of the people brought to the lab when another girl maliciously poisoned some of her classmates. And the rest of the family was "read in" to the truth a few months later.

When Tom had been getting the first of his underwater growing domes running, both a strain of a virus and a cyanide-like poison had been introduced into the domes by the henchmen of an old, grudge-bearing enemy of Tom's. She couldn't refuse her son's request for help identifying all aspects of these attacks, so even through she was officially retired, the FBI had allowed her to use the secret lab for that work. In return, she worked one final project for them determining how more than a hundred house cats had mysteriously died from the same thing even though none had ever been in proximity of any of the others. And, it had nothing to do with anything they all ate or played with.

Now, sitting in her favorite easy chair in the living room of the house she and Damon had decided to remain in even with both their children married and living in their own houses, she was reading an anthology paperback of medical mysteries when she dropped it in her lap, letting out a grown.

"Oh, gawd! Not *that* one!" she said to nobody. Picking up the book she started to laugh. The story that caught her eye was one titled, *Anne Swift and the Incendiary Insect Infestation*, one of her cases from several years back that had been declassified and put to paper by a nice author she'd spent several days describing that project to. It had been the project seeing her retire for the first time.

Might as well see how bad it was, she told herself as she picked the book up and flipped back to the start of the story.

An hour and a half later she set the book aside, sighed at the memories the story brought back, and got up to prepare their dinner.

As she entered the kitchen she glanced back at the book sitting

next to the chair. “She was such a clever girl,” she said with a sigh.

* * * * *

Flying was Bud Barclay’s life—other, of course, than his wife, Sandy—and he was a truly great test pilot. His brain remembered each and every snap roll, climb, dive and Immelmann from every test flight he’d ever made. Nearly all were like fond memories of good friends.

But, a few haunted him. Those were the flights that ended up in losing the aircraft for some reason. He was the sort of pilot who would not just bail out unless he was absolutely certain why something failed and there was no hope of recovery. Most of the time he got closure on crash results, but one relatively recent crash still nagged at him at night and even sometimes as he sat in his office out in Hangar 6 on Enterprises’ northeast corner.

It had been a new, small, two-seat jet built for both fun and for fast travel for businessmen. During the scheduled second to final flight test something had locked up and he had nearly no stick control. All he could do was reduce the throttle and use his feet to steer the falling jet away from Enterprises and toward an uninhabited area of woods a couple miles away.

The damage was total and the wreckage had been hauled way for investigation, but nothing found would say for certain, ‘this is the piece that failed or locked up.’ And so, another test jet had been prepared and Bud and three of the other test pilots at the company —Art Wiltessa, Zimby Cox and Red Jones—had flown it, giving the little jet eight of the more demanding test flights it might ever encounter.

Nothing came of it and it was put down to failure of a “component, unidentifiable,” and the jet went into production. Bud was not satisfied and asked that all wreckage be brought to his hangar. It was spread out in an approximation of the aircraft shape and some parts sported paper tags identifying them if their condition made them unrecognizable. In his spare time he picked at the pieces, sometimes rearranging them when he decided one or more were out of place.

Today, he was sitting on a very tall chair, something like either a life guard or tennis umpire might use, looking down at the bits and pieces. He had nearly a full binder of notes about various things and was looking through some of the middle pages now, often placing his finger on one note and looking over the wreckage.

With a nod, he closed the book, left it on the seat and climbed

down. Three minutes later he had wheeled out a strange rather insectoid-looking aircraft featuring a wide disc on top, not a rotor. It was one of Tom's Wasps and used the principles of lower air pressure over a moving wing disc to pull the craft into the air. He radioed for and got permission to take off with a destination of a couple miles away.

When he landed, he got out and looked at the area still staked out showing where the overwhelming majority of parts had been recovered. Bud reached back into the Wasp and pulled out a collapsible rod with a small circular pad at the bottom and headed for the far side of the debris field. He turned the small metal detector on and began sweeping around five or more feet outside the area.

Two hours later he's managed to cover a two-hundred degree arc out an additional fifty-five feet and was about to give up when the light on the handle flashed and he heard a *beep*. He moved the pad over an area three times and receive that many more beeps before setting things down and pulling out a small trowel from his back pocket. With great care he prodded and dug down two inches until he felt the tip touch something more solid than the dirt. Then, using only his hands, he pulled away the dirt until he'd exposed a small piston with a rod sticking from one end.

Bud smiled. He knew what that component was and also knew it was missing from the assemblage of parts in his hangar. He reached up and tapped his TeleVoc communications pin and silently mouthed, "Tom Swift." A couple seconds later he heard the inventor's voice inside his head.

"Yeah, Bud, What's up?

Bud told him where he was and what he'd hoped to accomplish. "You'll never guess what I found, skipper. The starboard mini-actuator for elevators. It's in great shape all except for the really bad place it twisted apart. And, my bet is it happened before the crash. Otherwise it would have snapped. I think I know what happened when things went bad, and I'm really happy it turns out it wasn't me doing somethings stupid after all!"

CHAPTER 2 /
THE CALL FROM HAZ

TOM WAS at his desk in the big office when a radio call came in.

"It's Mr. Sampson up on Mars. He needs to speak with you, Tom," his secretary, Munford Trent, announced. "Line five has the tie-in to the radio room."

Tom thanked the man and pressed the line number. "Haz? It's Tom. What's happening up on our favorite Red Planet?"

Hazard Sampson had been the commander of the Swift's Mars colony since day one. He'd originally signed up for a one year contract but quickly discovered he loved the challenges of living on a remote and somewhat barren planet brought to them all. His one year assignment stretched out to two, then three and now he had been the commander for nearly five entire years. In fact, another three months and a few days would see that anniversary.

"Well, I've got to talk to you about a small issue we've started to see up here."

"Nothing wrong with the domes, I hope," Tom said recalling he'd finally provided the colony with a trio of Attractatron drones to patrol the skies so nothing could drop unannounced from space and hit any of the now five habitat domes. A puncture would not be as catastrophic as, say, on the Moon, but damage and loss of life could result.

"No, not the domes, but I'll take a guess and say you are familiar with our two little moons." Tom said he did. "Fine. Well, our larger of the *sky stones*, as we call them, Phobos, has long been known to be coming a little closer with each passing orbit."

"Right, Fractionally, but to the tune of something like seven feet a century if I remember correctly," Tom said. "Been that way since we were able to first measure things up there."

"Yeah, something like that. At least through last year's measurements. But we did this year's yesterday, and we may have a problem. Phobos is more than three-hundred feet closer to the surface than before."

Tom sat up straight. "Say that again."

Haz repeated the measurement number. "Deimos is staying up where it's been give or take its own few feet a year. It's the larger one we're worried about but, as you well know, we don't have the

wherewithal to do anything about it. I did send the drones up to try giving it a push and one of them nearly shut down from overheating. We were lucky to get it back in one piece. All we got for our troubles was maybe a foot of distance back out."

It was known that the larger of the two moons of Mars—irregular chunks of rock that possibly had been snagged by the planet's gravity long after the planet was created and were not "native" satellites at all—was coming in closer, but all experts pretty much agreed that it would be between twenty million and forty million years before it either dropped from the sky and made a big impact crater on the surface, or what was more likely, it would break up into small pieces that might continue to orbit in a sort of ring.

Phobos was thought to be more or less a loose set of dirt and stones that were just looking for a reason to break apart.

They talked about the need to make daily checks to ensure the previous measurement was right and that the moon was not decreasing in its orbital speed.

"Could it be that Phobos has rotated a little and the point of this latest measurement is on a bulge that spun to reveal those three hundred feet?"

"I wish that were the case, Tom," Haz stated with a sigh. "We have our megascope looking up and I have the past five shots taken concurrent with the laser measurement. They are identical in orientation to within two degrees. Now, I'm not saying there can't be coincidental rotation up there, and Phobos might have taken an impact on the back side when it was on the other side of the planet causing this, but if it is coming closer and faster than ever before, I'm thinking we are going to be in trouble at some point. If it breaks up there isn't enough density to the atmosphere to burn all the larger pieces up, and our current trio of mules might not be able to keep up with everything that might rain down on us. Is there any way to get you up here to take a close look?"

Tom pondered the question a moment. "The good news for you is that I have a spot on my dance card, so yes, I can come up. You guys are within weeks of coming into a good position orbitally speaking for the next few months of travel between planets. The people I would want to bring along might take a week or so to pull together and one of them is elderly and we'll need to keep travel speed to no more than one-point-two Gs so the trip will take two weeks. Then, there is the fact you are retrograde to us by a twentieth of an orbit. Having you sitting that far behind our orbit makes the trip longer."

"We know, but one of our sky-peekers tells me that if you wait for the planets to come closer for a short trip it will actually put you here five days later. So, we accept whatever you can do. And, thanks, Tom. Really!"

After consulting with his father, Tom called one of the astronomers up at the Swift Observatory.

"Doctor Heller? It's Tom down at Enterprises. First, I want to ask how are you?"

"Hmmm. Ahh, now that you start a conversation like that I am cautious. Well and healthy is the answer I believe you want, but wondering what is really behind this call."

Tom told him about Phobos and the possible lower orbits.

"Oh, dear. Then the little observation we made last week would seem to be true."

Tom was amazed. "You've seen the change?"

"Yes, but we wanted to make five additional night observations this week before announcing anything. This tells me those extra sightings are important, but not as much as before your news. How did you hear about this?"

Tom told him of the radio call from Mars. "They have checked to see if some odd rotation might be the cause for this, but nothing they are seeing indicates this is anything other than Phobos coming closer for an unknown reason."

"Could your Space Friends be responsible?"

Tom thought, "I doubt it. Even if they've gone almost completely silent on us, I can't think they would not tell us if they were doing something like this or at least know about it. They have proved to be capable of moving large objects—I'm thinking of Nestria—in the past but always for mankind's good; this is not in that category!"

While Tom and his father had once been in relatively frequent contact with a small outpost of aliens stationed near, but not on, Mars for more than seven years, and had even managed to get them down to the surface of the Earth for a brief visit, the fact was nearly eighteen months earlier they announced their "Masters"—another race they served—had "changed" and since that time had been hesitant or unable to communicate very much at all. The last time Tom got anything from them was more than a year earlier and only said it was, "Difficult to communicate."

After telling Dr. Doctor Heller he would like the man to consider

coming to Mars—eagerly accepted without any questions—the inventor decided he might just go ahead with a message to the aliens, and so he headed for the Communications department building.

He TeleVoc'd his father who was finishing a meeting at the Construction Company asking if he concurred with trying a message.

"I say yes, but with reservations. In case their Masters are listening in, make certain you do not word it in any way that might be considered an accusation. Just a friendly inquiry. Good luck, Son."

After letting the department head, George Dilling, know what he was about to do, Tom headed for the room where his computerized space dictionary and translation unit sat. Once in his seat he composed the message, read it slowly as he considered if any hidden meanings might be in the words, made numerous changes to it, and then sent it out.

To Swift Space Friends from Later Swift. Greeting and I hope all is well for you. Our experts have detected a movement in the larger of the two moon objects around fourth planet, Mars. I ask if you have also detected the orbital height change to object we call Phobos?

If answer is positive, do you have any understanding of the reason? Did that moon take an impact causing this? Is there some other reason we can not detects with our instruments?

I am anticipating your ability to give some response to this, even if it is to tell me you have no current data about this new movement.

Tom had already pressed the button when he had another idea but decided to wait to see if this first message received an answer. The technician who normally manned the room asked if Tom wanted him to be notified if and when an answer came back.

"Yes, please. I have to go a couple places before I head to the office, so TeleVoc me, Jeff. Thanks."

"Sure, and I have a question. I think you once told me, but why

the ‘Later’ Swift thing?”

Tom chuckled. “They have no concept of father or son and so dad hit on the notion of him being the earlier Swift and me being the later one. They do understand that distinction so it has sort of stuck.”

The tech thanked him for clearing that up and turned back to his panel as a message from someone else started to come in.

Tom slipped out of the room and went to thank George.

“Actually, Tom, it is I who should thank you. I don’t have an idea in the world what you told your sister, but she waltzed in here a couple days ago with the brightest smile on her face I’d seen in months, announced that life was wonderful, and asked if she might work an occasional Saturday to make up for her Friday afternoons over doing the flight demos.” He shrugged but smiled.

“George, I have no idea myself. But Bud tells me she’s been very happy for the past week or so. File this under ‘Gift horse,’ and ‘mouth, not looking in,’ I guess.”

“You don’t think she’s…” and the Communications man made a big belly motion with his hands.

“Gee, I really doubt it but I’ll ask our mother. Sandy would tell her even before she told Bud if she was going to have a baby. In fact, she’d tell my wife, Bashalli, before she said a word to Bud. The husband is always the last to know.”

“In oh so many ways, Tom. Take it from a man who’s been married thirty years next month. It seems to work better that way.”

As he left the building Tom thought he knew the basic reason, that being his admission of the money situation, but still, Sandy and Bud had been trying to have a baby since the day they got married. Maybe…

By quitting time no response to Tom’s message had come back so he chalked it up to the likelihood their Space Friends might not even be in the solar system now. The thought saddened him a little, but at the very least he’d been able to determine their ancestors had walked on the Earth and even made inscriptions in a temple on the Yucatan Peninsula in Mexico hundreds of years ago, and had managed to get the latest aliens down to Earth to fulfill their actual reason for being in the solar system.

“Perhaps that is the reason they have left,” Bashalli said at dinner that evening. “They completed their mission and as soon as possible, they left.”

"Without so much as a good-bye?"

"Tom, where I came from originally nobody ever says 'good-bye' on the phone. When the conversation is over, they hang up. Or, if they meet on the street, once they say what they want to people just nod and walk away. Perhaps the space beings do not understand the politeness of saying good-bye."

He had to admit that was quite likely the reason. If they were gone, they were gone. At least they had helped Tom and his father in many ways during the early days of their communication. *It's just too bad I never got the translation stuff settled until a few years after that*, he thought as he helped clear the table. *We might have had many more fruitful conversations.*

One thing they had left the Swifts were a set of special radios that communicated in ways Tom couldn't even dream about much less understand, and conversations from Earth to Mars took no longer to go back and forth than a phone call across the street. The issue was they were in such limited numbers, Tom never felt comfortable trying to open one up, and wasn't certain he could duplicate it even if he saw what was inside.

Some of the artifacts they had given him seemed more *grown* than manufactured.

He went back to the table in time to see Bashalli picking up little Mary for her feeding. Although she was transitioning to mushy baby foods, Bashalli still believed in the powers of milk at least once a day.

Tom picked Bart up, Now just about to turn four, and took him to the living room where he sat in his father's lap and looked at a movie he'd been watching earlier on a tablet computer. It was an old science fiction classic, *Forbidden Planet*, and a favorite of the boy.

"Daddy? Do you make Robbie the Robot?"

"Well, I have made robots but nothing quite like Robbie. Why do you ask?"

Bart thought a moment. "Because Robbie could help momma with the cleaning and dishes and food and she could spend more time with Mary and with me!"

"Later, or better yet, tomorrow, you ask your mother if she wants a Robbie or something like Robbie. Okay?"

Bart nodded firmly and snuggled into his father's chest while he watched the scene where Robbie brings one of the spaceship crew many bottles of liquor. It always made him giggle.

The following morning Dr. Heller called Tom to ask when their trip to Mars might take place.

"I am both anxious and nervous about such a flight, Tom, but more anxious. Plus, I must find a minder for my little cat, Shoemaker. Forgive me if I become a nuisance."

"Not at all. Most of the others I want to take will be ready in eight days, so a week from tomorrow, next Thursday, we'll all fly out to Fearing Island and take off in the *Challenger*. Between today and then you need to come down to Enterprises and see Doc Simpson for a physical and so he can determine just how fast we can safely travel and not do anything bad to any of the crew, including you."

The astrophysicist promised to make an appointment for the following morning. "I'll see him after I wake up from my night up here."

When the older astronomer walked into the Dispensary at Enterprises two days later, Doc took him by the arm and into one of the examination rooms.

"Tom asked that I attend to you myself," he explained before rebuffing the older man's suggestion Doc not take his valuable time out; someone else could look at him.

For a moment, Doc was a little wary the older man might be trying to hide or disguise something from him, but five minutes into the exam he could tell the man was outwardly in robust health.

"Well, I walk three miles every late morning after I rise, then have a little breakfast of some wheat toast and some sort of protein, and I also do some isometric exercises when I am sitting at the telescope at night to keep my joints from locking up on me," he explained.

"I see. Pending our taking a look inside you with one of Tom's little internal scanning machines,"—what was usually called a SimpsonScope—"and finding nothing horribly wrong inside there, I believe I can clear you for the flights and for the lower gravity and slightly lower oxygen levels up on Mars."

One of the medical technicians wheeled the SimpsonScope in and Doc slid the base plate under his patient's back. Seconds later a 3D image of what it could "see" inside the man's body was being projected right over his abdomen.

"Oh-oh," Doc said as he moved the field of focus to just above Heller's pelvis on the right side.

"If you are now looking at the terrible scaring where my

appendix used to be, that is the result of my having been operated on by someone with zero medical experience more that twenty years ago."

He told Doc about being stationed on the top of Mauna Kea on the big island of Hawaii at the Keck Observatory. During one of the worst winter storms spanning five days when absolutely nobody was driving or even flying helicopters up the mountain, his appendix decided that was the time it would become massively infected.

"Only because we had Internet connections was my colleague able to watch a video of a basic appendectomy. We had lidocaine to kill the pain but he cut into my large intestine, twice, before he got the offending little rascal. He stitched me up as good as he could, fed me massive amounts of antibiotics, and I lived, but that spot gives many doctors the willies!"

Doc though a moment before speaking.

"Doctor Heller, I can't let you go up with things looking like that in there. I see spots where the intestinal tissues are so stretched and thin they could easily tear or rupture under some of the space flight strains your body will be under. The good news is I know a man who, if you can make yourself available first thing in the morning, can go in through your navel, wrap that area in a sterile mesh of artificial tissue and suture it, and be out of you in under an hour. That, and a night's stay in the hospital, will see you good through the remainder of your life."

Heller agreed to the operation but only if he could find someone to watch his cat.

Doc smiled. "It so happens that my neighbor has a daughter just out of college who is rattling around their house. They would be more than pleased to have her stay at your place that evening and also for the four to five weeks the trip will take. I happen to know Meagan and she is of that rare totally responsible breed of kid you don't see a lot of these days."

Heller said he'd first like to meet her, but not until after the operation.

Doc agreed to have her at the hospital that late afternoon of the surgery for the meeting. She would take the cat care duties that evening and when the Doctor got home the next day she would leave them until the day of the flight.

Heller went away to arrange his absence from work, and Doc walked over to the shared office Tom and Damon occupied.

“He’ll be fine,” he assured them after reporting the intestine issue. “This mesh procedure will permanently bond with the other intestinal tissues and give that area more strength than it originally had. Other than that little item, Heller is about the most fit man in his early seventies I’ve seen in… well, ever.”

Everyone else was ready and eager to depart as soon as possible. Going would be Tom, Bud, Hank Sterling, Zimby Cox, Art Wiltessa, Dr. Heller, two women from the team that built the Attractatron mules used up there—Phoebe Yates and Belinda Wisdom—and Chow Winkler.

As Bud said to Tom, “We can’t go up there without taking the oldtimer. Heck, after all his weight loss he’ll practically float up there on his own. Besides, we can all use some really decent meals on this trip. I love it up on Mars, but the mostly vegetarian cuisine sort of wears me down. Chow ought to be good for the occasional bowl of chili or a roast beef sandwich.”

“You might be surprised what we’ve shipped up there recently,” Tom told him. “They now have one small dome, about the size of half a football field, filled with grasses and imported insects and, drum roll, please, chickens!”

“Chickens? As in, ‘Cluck, cluck?’”

“Yes, as in about one-hundred of them running free inside, eating as many insects as they can catch and getting fat, making lots of eggs, some hatching into chicks, and providing for the occasional roasted chicken dinner.”

“Jetz!” Bud exclaimed, suddenly finding that he was hungry.

CHAPTER 3 /

ON-SITE VISIT

BY THE TIME everyone was to climb aboard the *Sky Queen* for the flight to Fearing Island, the repelatron-propelled spaceship had already been outfitted with the acceleration couches that would help mitigate the extra G-forces they would experience.

"I am looking forward to coming closer than practically any of my peers to the very planets and stars we so casually take for granted," Dr. Heller mentioned to Art Wiltessa, normally Enterprises' chief production scheduler but also a trained pilot and astronaut.

Art grinned. "It is absolutely beautiful. And starkly different. Like the first clear pictures coming from the old Hubble telescope. No atmospheric disturbances and no surrounding light interfering with the pure vision of what is out there. It always looks as if things are closer to me when I'm up there."

Now, Dr. Heller grinned and rubbed his hands together. "I am giddy like a young boy discovering that girls are rather nice for the very first time in his life," he commented.

Tom had arranged for the special loading truck with a box-like structure on hydraulic lifts to get things up as high as the lowest floor of the *Challenger* so they might be rolled into the spacious hangar on that deck. He assisted Dr. Heller up the four steps at the back and into the box. They sat on a couple of the final equipment and supply crates and rode up the thirty feet.

"That, my young friend, is exciting in and of itself. I can hardly wait to see what else is coming."

Tom let the man walk across the loading ramp and pointed to the hatch to the right of the roll-up hangar door.

"Through there and into the corridor then we'll take the elevator up the rest of the way. And," Tom said hesitating a little at what his next might sound like, "I ask that you please keep me informed of anything that you might be feeing that doesn't seem to be right. I can't take any chances with your health."

Heller stopped and turned to face the young inventor. "My dear Tom. Firstly, and as Doctor Simpson will avow, I am in very good shape. Strong heart, great muscle tone and no known diseases. Second, I have arrived at this advanced age of mine through a determination to see it all the way until I am at least one-hundred

years old. If you believe for a second that I would jeopardize that by keeping secret anything going awry, please take another think out of petty cash." He winked at Tom and turned back to go into the elevator.

Nine seconds later they were stepping out into the very large control room two decks up. Dr. Heller took one look at the floor to ceiling view panes on one side of the cabin and reached out to Tom.

"Incredible," he whispered. "I imagine once we get into space that view will be all the more magnificent."

Tom laughed. "Magnificent doesn't half cover what I believe you will be seeing!"

While Hank Sterling helped the older man get situated in his couch and reminded him of the emergency procedures for the ship, Tom and Bud prepared the *Challenger* for takeoff, something that required less and less time as more and more improvements were made to the ship. Instead of the nearly fifteen minutes it had taken originally, the computers pre-checked nearly everything making it a very short check list to go through and even then, most checks were to ensure the proper lights were all green.

Turning his head a little to speak over his shoulder Bud informed everyone in the control room they would be lifting in under three minutes. Tom made radio contact to see that all non-flight personnel had left the ship and reported their presence on the ground.

"Hang on, Skipper. We don't show one of our men having exited and checked in. Brant Williams of the cargo team. Can you check the hanger?"

Tom obliged by switching to the intra-ship comms unit and energizing the cameras in the hold.

"Oh, no!" he gasped seeing a pair of legs sticking out from under one of the heavy crates they were supposed to deliver. Tearing at his restraining harness, Tom jumped up. "Come on, Bud, We've got an injured man in the hangar!" They raced to the emergency pole, much like those used by firefighters, and jumped to it letting gravity shoot them downward. It was about five times quicker than waiting for and taking the single elevator.

Tom put a hand on Bud's chest. "It looked like the crate is wedged against the door. I'm afraid if we try to barge in it might tip even farther over and crush him, if that hasn't happened already. Let's go out the hatch and open the outside hangar door manually."

His way took precious extra seconds, but once the big door had been rolled upward he was glad he'd taken the precaution.

The man's legs were moving—obviously a good sign—and a deep moan came from under the crate marked **HELLER**. Together, Tom and Bud lifted it carefully from the man and moved it to the side and on top of another crate, possibly the one it had meant to be on in the first place.

Without being asked, Bud touched his TeleVoc pin and requested medical assistance. Tom saw this and nodded.

"Thanks!"

One of Fearing Island's five ambulances could be heard in the distance as its siren was energized. It took a matter of seconds before they saw it streaking across the expanse of tarmac toward the ship.

Two attendants jumped from the back dragging out the roll-around gurney that already had four medical equipment and medications boxes loaded on top. They shoved it into the lift truck that had been ordered to return and rode it upward.

By the time they stepped onto the hangar's outside deck—often called "the porch"—Williams was moving his arms and legs and complaining about all the unnecessary attention.

"Honest, skipper. I just turned and lost my footing and grabbed the corner of the crate. Down I went and on top of me it came."

Tom grinned at the man more out of relief, but then he became concerned.

"Had everything been strapped down?"

Williams thought a moment then nodded. "Sure. Why-y-y… oh, nuts! If it was all cinched down, why did it topple over on me? Right?"

Tom agreed as the medical personnel moved him to the side so they could get to Williams.

"Who had responsibility for both the strap down and the final check?" Tom asked.

"Why, I did the strapping down and… hmmm… Johnson Jackman was the checker. Uhh, he'd already left when I did my little number."

Now, Tom tapped his TeleVoc and requested an open channel to Jackman. In his brain came the response, "*Johnson Jackman's pin is off line. It was deactivated seven minutes, nineteen seconds ago.*"

Tom knew it was mostly useless asking the computer much more, but he did inquire as to the most recent location of the pin before it was turned off.

"Oh, and computer, please tell me if it was physically turned off or if signal just suddenly disappeared."

"*Pin signal was cut off without notification and mid-send cycle of daily diagnostics. Location was Hangar Two, inside of main doorway to the right.*"

He went to the edge of the porch and yelled down to one of the mechanics who had come out to see why the ship wasn't in the air. A quick explanation of the missing man had the mechanic running to his jeep and racing for the indicated hangar.

Two minutes later Tom's TeleVoc pinged and he answered.

"Skipper? Bad news. Jackman evidently got nailed by a cargo bot. Looks like he came running into the hangar at the same second the bot was shoving a three palette load to the doors. He's alive but looks like he's pretty beaten up. I called for med assist before calling you."

"Good. Thanks. I'll be out and over there in a few."

With Brant Williams in good hands and evidently only with his breath knocked out, Tom climbed down and ran toward the hangars.

He got there right after ambulance number two arrived and disgorged its medics. He looked over their shoulders and could see that Williams had likely come running in and went face-to-wooden brace. There was a lot of blood but the man's eyes flickered open and he moaned from the pain. His shirt was torn which probably happened at the same time his pin was smashed.

One more time Tom activated his TeleVoc telling Bud to put the ship on hold; "It'll be at least thirty minutes before I'm satisfied these were both accidents. The last thing I want to do is take off if we're have injuries on purpose!"

Twenty-three minutes later a jeep dropped the inventor off at the base of the ship. He climbed up and headed in through the hatch. The hangar door was back in its closed position so he had to believe someone had strapped down the errant crate.

That is exactly what Bud reported as he entered the control room. "And, what about Jackman?"

"He's awake, going to need some dental work along with about

fifteen or sixteen stitches under his chin, and feeing stupid. The reason he was rushing in was he wanted to check the computer terminal regarding that loose crate. He couldn't recall if he'd checked it off or not. Wasn't watching where he was running and… well, the Doctor says a highly skilled dental surgeon specializing in industrial accidents resides over in Jacksonville, Florida, and they'll airlift him over there in about an hour."

The checks were performed a second time and the ship rose a few minutes later.

Doctor Heller had his couch swinging to face the giant view panes even before they left the upper atmosphere. Everyone heard his heavy sigh, a sigh of contentment and pure joy he assured them seconds later.

With a number of things to be accomplished before they passed the Moon, the accidents were mostly forgotten.

Dr. Heller continued to stare into the abyss of space only occasionally turning his gaze back toward the retreating Earth. He was a man whose attention had been outward most of his life; he let others look at the planet under his feet.

The trip was planned in fourteen acceleration segments with coasting periods between, and another fourteen decelerations. Everyone was required to be in their special couches when they were not coasting through space, which meant more than 70% of the time they were strapped in.

Heller and a few others with considerably more space experience passed the higher G times sleeping. It made the time pass more quickly and it relieved the mind of obligations to try to overcome what the body was feeling.

"I can see more stars and even discern galaxies with my naked eyes up here than I can with that incredible telescope your father outfitted our observatory with all those years ago." Heller sighed. "It… is… *magnificent*!"

His statements made Tom smile. He truly liked the older man and it was from such pronouncements he could tell the trip was not being a burden on the man.

When they neared the "Turnover" point—a misnomer as the *Challenger* simply swung her repelatrons around on the circular tracks pointing them at the distant Mars to begin the slowdown—Bud went over to tell him what to expect.

"I *suspect*," Dr. Heller told him, "that it will be no more or any

less than the first half of the trip. In other words, my dear young Mr. Barclay, it will be slow enough to satisfy Doctor Simpson and also to allow me more time to just observe our universe. Please promise me you will not spoil things by telling young Swift that I am holding up rather well," He winked at Bud. "I would hate for him to decide to move faster and shorten my moments in heaven!"

Bud made a cross-my-heart motion and said, "Promise!"

When he moved back to sit next to Tom, he leaned over and whispered, "Don't look now, but I'll bet it you gave the good Doctor a chance to just go out in a spacesuit and float around for an hour, he'd jump up and be through the airlock before you knew it!"

With a nod and a smile, Tom agreed. "Maybe on the trip back."

As they performed their ninth deceleration "burn" Tom swung the ship around so the view windows faced Mars. This drew a sharp intake of breath on the part of the Doctor.

He turned to face Tom. "You see before you a defeated man, my young friend. I have officially run out of adjectives and other positive things to utter on seeing the true and unadulterated vastness that stretches before me." He shrugged and looked back out the window.

Bud got up and wandered over to drape an arm over the man's shoulders. "Whenever I can't think of something to say about something that astounds me, I just say, 'Jetz!' That's with a Z and an exclamation mark, by the way. You can use it if you wish."

The doctor, who had now been up and awake the previous twenty hours yawned, but as his mouth nearly closed, he said, "Then, Jetz! it is. Thank you!... and that is also with an exclamation mark!"

As Bud walked back to take his seat, the doctor added, "Of course, when I was your age I thought the word, 'Shazam!' was the epitome of exclamation." He nodded as he thought something over. "I like your Jetz! better."

When the time came, Tom announced throughout the ship they were about to enter the Martian atmosphere. Because he knew there were occasional near-hurricane strength upper atmospheric storms he ordered all hands to their couches.

He need not have bothered. The descent was as smooth as could be and they touched down within a one-inch margin of error. Everyone headed down to the lower level to the spacesuit lockers and took out their suits. Once Tom and Bud had the ship shut mostly down—it would remain in a low power standby state—they

joined the rest of the men.

"Oh, Tom?"

"Yes, Doctor?"

"Forgive the ramblings of an old man, but in my youth I watched, many times, a movie called *Robinson Crusoe on Mars*. An interesting retelling of the DeFoe classic."

Grinning, Tom said he had seen the movie at least three times.

"Good, then you shall recall for very brief periods of time, the hero could breathe the thin atmosphere up here. I honestly do know of the rarity of oxygen and the incredible overabundance of carbon dioxide, but is there *any* chance I can at least take a sniff outside?"

It was far from an uncommon request. Tom and Bud had both tried it only to discover the air was so cold their noses ached within a single breath, and the CO2 made the lining of their nostrils sting. Neither had taken more that two breaths, and the record for the locals was less that thirty seconds without resorting to use of a face mask and an oxygen supply.

"Not this first time outside," Tom had to inform him, "but I will make a point of allowing you to take that sniff—perhaps two—before we leave."

Doctor Heller had a smile that did not leave his face until several minutes later. He had climbed to the surface savoring the lower gravity and turned to meet a man he knew only by reputation. When he looked at Haz Sampson he started by focusing straight across but that got him eye to chest with the man. He moved his gaze upward until he found the man's smiling face seemingly several feet above him.

Haz left Earth a man of about six-feet-three inches and had, courtesy of the same lower gravity, stretched another full inch in his time on Mars.

Everybody had grown and so it was only visitors who noticed the greater height of the residents.

"I now know how my younger, and considerably shorter, sister sees the world and has all these years. I must remember to call and apologize to her for being eight inches taller!"

When he asked Tom if he would also grow taller, Tom had to disappoint him by saying it took nearly a year for the current residents to reach their increased heights.

"Probably for the better," the doctor replied.

Inside the domes the attitude of the residents was reserved, but they continued with their daily duties as if nothing was happening. Only one woman, the base psychologist, wanted a private word with Tom.

In her combination apartment and office they sat sipping a hot beverage made from chicory and the dried leaves from another one of the crops designed to provide large amounts of oxygen. Every month a shipment came to the colony of caffeine powder that was added along with a leaf-based sweetener. The resulting drink was not quite like coffee but had many of the same stimulating effects.

"Like it?" she asked seeing the slight look of either surprise or distaste on his face.

"Not so much, but it'll do. So, you asked to see me and I asked to see you. Good thing we want this discussion. What is it *you* want?"

She pulled over her tablet computer. "I have been keeping tabs on every colonist over the years and even developed a program to plot individual attitudes and issues based on what is happening in the colony and here on Mars. What I am seeing startles me, and perhaps bothers me a little. I want you and everyone down on Earth to know about it, but not the folks up here. Not yet that is."

"Can you bottom line it for me?"

"Certainly. The bottom line is that people are less bothered about the possible destruction from that moon coming down on us, or at least in the neighborhood, than I would have thought. I would like to ascribe it to the heartiness of our spirits, but that doesn't feel right." She squinted at him and rubbed her eyes. "Not even the most… well, *nervous* of our colonists seems that concerned."

"Wow," Tom responded. "I'm no brain specialist like you but I'd think that would be much better than panic over something we still need to study and find a cause for."

Barbara Clack shook her head. "Think of it like sadness. It's long been known that the simple act of crying when we are sad releases a lot of the pent up emotions. Same with chronic fears. Talk about them and they lessen for most people; keep them bottled up and they fester. At some point, for some, they can explode!"

This made Tom quite curious. "Why wouldn't they be worried about this? Everybody back at Enterprises and Fearing who know about it are pretty antsy to find out what we can do about it."

The doctor shook her head. "That's the problem. The closest thing I could find by begging, borrowing and outright stealing

internet time back on Earth was what used to be called 'The Pioneer Spirit.' Women whose husbands or children or newborn babies died out on the trail, and they sublimated it and just got on with the business of living and trying to get to the end of the trail. Husbands as well who lost wives to disease or childbirth or even Indian attack and then became what the term 'stoic' barely scratches the surface of."

The looked at each other for a minutes before Tom spoke. "That isn't good, is it?"

She shook her head. "No. Eventually it caught up with many of them and there were a lot of women and men who ended up taking their own lives once the reached where they were going. I see the people around me putting all thoughts of danger so far in the back of their minds I worry if I can pull them out. I hope you have a lot of good and very difficult work for us all. Work to accomplish getting that horrible chunk of rock back where it belongs or shoved into the sun!"

He promised he'd do what he could, but first wanted to finish the current mission.

"Tomorrow I take my people plus a couple of yours up and we go all around Phobos. If there is anything to be seen that can tell us why this is happening, I want to find it. After that we see what can be done." He paused. "I don't suppose you could prescribe everyone have a six month rotation back on Earth until this is over?"

Her smirk told him it would be a useless gesture, but she told him, "These proud people are no longer citizens of your planet, Tom. They will not call themselves this, but they are Martians by desire. Order them to what *you* call home and they mutiny. Force them to go and you will have to take them back in cages. Do you want to do that?"

He looked horrified. "No! Absolutely not!"

She nodded. "Right. So, we work with your Earthers to find out what we all can do, and do it. Then we have one hell of a party! You bring the booze, and gallons of it. I am, by the way, dead serious."

With little else to discuss he excused himself to go find Haz.

In the Colony Manager's office he got down to the matter at hand.

"You've used the mules at your disposal to no avail. Everyone down on Earth says Phobos is light enough it ought to be able to be moved using those forces. Tomorrow, you and five of your best plus

all of mine will go up there, see what we can see, and try an experiment."

Haz smiled. "If you are suggesting getting between the moon and the planet, understand she moves over our surface really fast. Remember, she is orbiting at a rate of about five thousand miles per hour. Hard to get a lock on to both that and the surface at the same time."

Tom had to agree. "Yeah. The drones are designed to work at greater distances to come up with a solution and them implement it. They were never programmed for instant changes to plans or trajectories. It isn't any wonder you nearly burned them out. By the way, I brought a tech and spare part to give them a full going over and to replace anything that came close to failure."

When takeoff time came, Dr. Heller was the first man in his spacesuit. Tom had warned Haz of the older man's eagerness and of his desire to sniff real Mars air and the commander had laughed.

"So, Doctor, Tom tells me you want to give our atmosphere a little try. One breath or two?"

"Uhhh, I was hoping for a sniff at first and then one full breath, unless someone tells me that might be fatal."

"No, not fatal, but we'll need to have an oxygen tank and mask ready. The CO2 is powerful and painful. You may swoon."

Heller tilted his head to one side. "Swooning, my dear man, is for young girls and old matrons. We doctors and other old farts simply clear our throats, perhaps mumble to cover things, and move on."

As they exited the airlock on their way to the ship, Tom suggested Heller take his little sniff.

With his heart beating in anticipation of the unknown, Heller took a deep breath before he shut off his air circulation inside the helmet, and opened his visor. He took a small sniff, shoved the visor back into position and then turned his air back on. He exhaled.

"Well?" Bud radioed him.

After volubly clearing his throat, Dr. Heller replied, "Like sticking your nose inside a champagne flute and inhaling, but the champagne up here is so far from fresh it almost makes you sick. Still, this is somehow a little exhilarating."

They took off ten minutes later and fifty minutes after that had matched their speed with Phobos hovering over the outer area with the moon between them and the planet. Tom turned on all

measurement devices and moved them around the moon nine times until they had passed within sight of the entire surface.

With *Challenger* orbiting the planet and sitting one-hundred miles below the moon, he aimed the upper repelatrons at a deep crater area and the lower ones at the surface of the planet.

“All hands strap in. I’m going to try giving our adversary a little shove.”

On report of everyone being ready, he pressed a single button. The *Challenger* wiggled and bounced a little but soon settled down. He was about to smile when an alarm went off.

“Power overload to repelatrons five, six and eight!” Bud shouted over the noise. “Units one, three and four are heading into the danger range!”

Tom’s hand reached out and slammed down on the shutoff button. The ship stopped jostling them around and all repelatron indicators started to return to normal values.

“That wasn’t supposed to happen, was it?” Heller asked.

“No, and there is only one thing I can think of that could have that effect. Someone or some system in or on the moon was fighting us for control!”

CHAPTER 4 /
A FOOT OR TWO

BY THE TIME they landed, all repelatron systems on the *Challenger* had returned to absolutely normal. Nothing had burned out of been unduly strained. Systems were in place to specifically not let a human pilot or even an unskilled operator do things that would destroy the ship's operational integrity.

As a bonus, if such a thing could be considered, the instruments showed the moon, Phobos, had been moved farther away from the surface.

Everyone who could see his face knew Tom was far from pleased by the nearly complete lack of progress. Still, they tried to compliment him on some achievement.

"Okay, it might be a half dozen feet or so, but it's something!" Bud exclaimed as Tom sought to downplay it.

"Actually, flyboy," the inventor said with a little sigh, "we shoved it out nearly one-hundred-twenty-seven feet, but if we'd kept that up the ship would have gone into survival mode and we'd have moved off way too fast for most our comforts." He really meant Doctor Heller, but it would have been a rough exit for all.

They climbed down to the surface to find several expectant faces showing through the clear "fishbowl" helmets of the residents.

"Sorry to disappoint," Tom began—

"But, he got the moon to move a little!" Bud interrupted. He was better at reading faces than his best friend and so realized they needed some good news, however slight it might be, rather than negative or neutral news. The smiles his words brought to their faces proved he was right.

Inside, and as they hung back from the main group, Tom asked him about it.

"Face it, Professor. The students need to know there is a possible light out there and not an ever-descending sword of doom aimed at their heads. Obviously, don't lie to them, but give them anything positive whenever you can. Trust me on this, but go ahead and ask the Doctor up here what she thinks."

They broke off from the group heading for Haz's office where they climbed out of their protective suits leaving both young men in short and t-shirts.

Haz smiled at them, but then looked serious. “Okay. Word reached me about a tenth of a second after you arrived that you had some success, but I’m guessing by Tom’s face it was pretty small. What’s the real story?”

Tom told him about the encounter ending with just how little they affected the moon.

What he had not expected was to find Haz Sampson smiling at him.

“Well, that’s not a lot, but it is great news. It means that stupid conglomeration of rocks and who-knows-what *can* be moved, and that is the important thing!”

Tom was somewhat shocked. “Do you really think a hundred feet is enough to change people’s feeling? I find that hard—”

“Tom,” the big man interrupted, “you come up here a few times a year and we appreciate that, but you always bring *your* head up here. We think differently on Mars. Every little advance, every little win is big to us. We managed to increase oxygen production a year ago by half of one percent. No big deal until you look at it from our point of view. That is at least one new colonist we can support, or, and purely from a physical point of view, it means a bit more oxygen for each of us. That, in turn, makes us healthier and a little more productive. One little win, many possible advances.” He smiled at Tom and nodded to Bud who was looking like this was so evident to him he could not believe Tom didn’t catch on.

The inventor, who had been standing, took a seat.

“Have I been doing you all a disservice?” he asked.

Haz snorted. “*Dis*service? Heck, Tom. No! Absolutely not. It is just that you need to re-center your ideas of what is a positive when you step out of your ship. No need to tell anyone you’re doing it, just so you think on a slightly different track.”

Bud excused himself to go visit a friend working in the hydroponics habitat of the first dome while the other two remained to discuss possible tactics for working on the Phobos problem.

“My basic plan,” Tom said, “*was* to give it a gentle but powerful shove. My hope was *Challenger* could handle it. Now, I’m not so sure anything less than the power of *Goliath* might make a real difference.”

Haz nodded. “Sure, but what if it happens again? What if this wasn’t one of those ‘we didn’t see it but something collided with the backside of Phobos’ sort of things. What if something down here…”

He paused and scrunched his forehead in thought. “What if something up there has changed, or been changed? What if your Space Friends or their so-called Masters have done something?”

Tom’s forehead also creased. “As in something to drive all the colonist off Mars?”

“Stranger things have happened. Spaniards wanted the Central America area and all the gold it held so they brought death by bullet to the natives. American Indians were systematically infected with smallpox to get them away from desirable land. Perhaps these Masters are ticked off at us for moving in so close to their minions and this is their way to deal with it. I hope not because we all are planning to stay here.”

“Yeah, and dad and I and everyone back home—our home not yours until you decide otherwise—want you to be able to stay here as long as it isn’t an impossible situation. So, what the heck can we do?”

The more they spoke of the issues and possible steps to take, the more convinced Tom became that he would never be able to issue an evacuation notice and expect anybody to heed it.

He decided to take a couple more tries at pushing on the underside of the moon, but he wanted the ship completely checked out, safeties and extra circuits in top condition and ready to be used at a second’s notice, and the crew to get a full night’s rest.

As usual, and so they did not unduly tax the systems and supplies of the colony, the *Challenger* crew slept in the ship.

Chow Winkler had come along but had kept to the ship rather than coming into the colony. This was unusual, so Tom sought him out and asked what was going on.

“Got me a bad case o’ heartburn, Tom. Cain’t shift it even with some powerful anti-acids Doc Simpson give me. So, rather than be all belchin’ and sour-faced, I thought I’d stick ta the ship. Hope ya don’t mind. I ain’t been idle, neither. Made a real humdinger of a lasagna fer tonight.”

This made his young boss smile. “One of your specials?”

Chow beamed in spite of his stomach. “Yep! Meatless but nobody ever realizes it. It’s in the oven right now so I’ll be a-callin’ fer all hands in an hour. Hope yer hungry.”

Chow’s meatless lasagna was an offshoot of his meatless chili, a recipe he’d made up on the spot to win a cooking contest where the other contestant had purposely spoiled his meat and made certain

there was none to replace it.

It featured crumbled tofu that was browned like beef to give it some texture and chew, then layered between noodles and strips of zucchini with an incredible sauce, mushrooms, and several cheeses.

Tom thanked the westerner and headed for the small room off the control room he used as an office. When not used for that it doubled as the tiny sick bay for the ship as well as storage for a few mechanical instruments such as the ship's sextant.

It also contained a small, powerful radio set.

He made a connection back to Earth asking the duty radioman to connect him with his father.

"Hey, Son. Have you attempted to give Phobos a little shove?"

"Yeah. Not a rousing success but as Haz tells me, anything positive up here is considered a win. I wanted to ask you for advice."

He told his father of his desire to go back out at least two and possibly up to four times to push right up to the maximum the ship could stand.

"Any thoughts?"

Damon could be heard laughing lightly. "Thoughts? Why, sure. Let me begin with the easy ones: Bashalli, Bart and Mary. Then, there's your mother, your wife's parents and me. A couple thousand employees and something like ten dozen colonists up there. Any of those have meaning to you?"

If Damon had viewed his son he would see Tom's head hanging down on his chest. A moment later it snapped up and Tom spoke into the microphone.

"Message delivered and understood. I'll give it one more push to 90% of maximums and be happy with that. Uhhh, another subject, but how is this new project you started the week before this hit?"

"You mean the air ferry? Slow to no progress at all. Lots of politics. I've turned some notes over to Dianne Duquesne and her team in Propulsion Engineering for the time being to come up with the propulsion systems while I work on the political side of things. I'm still trying to get a handle on at least one tricky sticking point. And one very nasty politician who seems bound and determined to make this a 'No Americans wanted' situation."

"And, Senator Quintana can't help?"

"Pete may be a good friend and our DC angel, but since Uncle Sam isn't involved in this, it is all up to the government of New

Zealand. You read their Prime Minister's letter so you can guess he is not exactly a powerhouse down there and must tread carefully."

There was also the issue with one of Damon's old enemies from his previous project in Australia. Even though the man was in prison for the rest of his life, he still wielded power among a small group of followers who just would not give up and accept that their boss had been wrong and Damon had been correct.

Chow's dinner was a hit with the crew but Tom spotted Chow's face while he ate. Something didn't look right so as soon as possible he suggested as a reward for the meal, others in the group do the dishes and cleanup. He personally ushered he cook to one of the recliner couches near the big view panes, handed him a tall glass of ice cold water and suggested the older man take a rest.

While Chow complied Tom returned to his office and made another radio call.

"I'm not sure what to tell you, Doc, but he's a little pale, is complaining of heartburn, and seems unusually tired. It's certainly nothing like what Harlan went through when he had his heart attack, but it has me worried. Do you think we have anything onboard I can give him?"

There was a half-minute of silence before Doc spoke. "In the sickbay cabinets, probably third shelf from the bottom you ought to find the cardiac box. Tell me when you have that."

Tom swiveled his seat around and opened the indicated shelf. There, in the left front was the box marked with a red heart and the letter "C".

"Got it. And, I'm opening it."

"Good. Take out and set aside the defibrillator. It's very unlikely you will need it but it is best to have it right there. There will be nine or ten vials of meds. Pull out the fast-dissolve aspirin, the Retavase and the nitroglycerin tablets. Give Chow an aspirin now, let him put the nitro pills in his shirt pocket, but don't give the other unless he has an actual heart pains. I don't think you'll get to that point, but I want you prepared. Then, if he has an actual attack, but no heart stoppage, give him a Retavase before hooking him to the defibrillator. Call me before using that."

A minute later Tom was kneeling next to his cook.

"I know your chest is hurting, Chow, along with the indigestion. Doc says you're to take an aspirin right now and then," and he handed the small bottle over, "keep these in case of pain. Get a chest

twinge and put one, and only one, under your tongue and let it dissolve. If the pain isn't gone in a couple minutes, wait for a total of five and take one more. But, get word to me immediately once you've taken the first one."

"I don't want to be no pain in yer backside, son, and shore don't want ta hold nothin up," Chow argued.

Standing, Tom patted the older man on the shoulder. "You're not being a pain and not holding things up. It's your health and if you don't behave Wanda isn't going to let you come out and play with us any more."

Chow's wife, Wanda, was a strong-willed woman who had been the driving factor behind the cook losing over one-hundred pounds and getting into better shape in his late fifties than he'd been in when he was forty.

"Yeah, there's that. Okay, Tom. I'll behave. Gimme another cup 'o water ta wash this white choker down."

Tom complied and soon Chow was resting again in his couch.

By morning Chow felt much better and most of the symptoms had disappeared during the night. At Doc's suggestion he gave the cook another aspirin before allowing him to get out of his couch.

Tom asked Bud and Art Wiltessa to accompany him on the flight up to give the tiny moon another push. Everyone else transferred into the domes to wait and watch. The colony's doctor came out to bring Chow into the colony where she could check him about every half hour until she was satisfied he was in no danger.

Challenger raced skyward leaving behind a swirl of Martian dust in its wake.

They reached a point directly under the fast-moving moon and Tom matched their speed and orbit trajectory with it.

"We're six-point-five miles under Phobos," Bud reported. "When do we start shoving?"

"When we're 80% of the way back around Mars. If we shove too hard and it breaks up, everything will pass over the colony and scatter around another nine- or twelve-hundred miles, safely away from anyone.

That is exactly when the first shove came. Like the first time the little moon barely moved away from them, but unlike the first time Tom held the power and time to well within the safe zones.

Art, who'd kept an eye on the distance gauges called out, "We managed ninety-eight-point-seven feet outbound. Want to take a one-orbit break and give it another go?"

With a shake of his head, Tom suggested they head back down, but before Bud could change their course Tom had a thought.

"What makes rockets and satellites go farther out in orbit?"

"More powerful rockets?" Bud ventured.

"Speed," said Art.

"Right. The faster an object goes the farther out it ends up. It either finds a balance point between speed and gravity or escapes. What say we get directly behind our little foe and give it a shove to make it run away faster?"

Art looked as if he were contemplating something very important. "Umm, did the moon slow down and come in or did in come in and then slow down?"

"What do you mean, Art?" Bud inquired.

Tom answered for him. "You see, Bud, if the moon slowed down and naturally came, or is coming, closer that is one thing, but if it were forced down into the lessening orbit and then was slowed down to match those heights, that is something altogether more sinister."

"So, can we give it a shove anyway or does that also have layers of badness?"

Tom looked at his two-man crew. Both seemed eager to go ahead so he asked for a vote.

Both said, "Go ahead."

"Okay. Bud? Get us into position behind by five miles and below by... hmmmm. Below by three-hundred yards of the bottom of that rock. Art? Call out our position as we get nearer to the safety zone in this orbit."

A moment later, Art told them they would be back in position in six hours and nineteen minutes.

Until that time got much closer Tom decided to do a series of systems checks.

This time, the moon scooted forward ahead of the *Challenger* picking up about one-hundred miles per hour in speed and it began easing outward. It halted its rise at two-hundred and fifteen feet of increased height, but it was something for Tom to tell the colonists

about once they landed.

"So, that said I think it is time for us to head back to Earth and for me to come up with a more permanent solution for you all," he told a small gathering. "With luck, and a lot of watching on your parts, we might discover a new balance point or I'll have to come up with a way to shove Phobos a little harder."

With the lower Martian gravity it was relatively easy for Chow to get up the ladder, but once they landed at Fearing Island nine days later Tom called for the supply truck and its scissor-life back end which rose allowing the cook to stroll inside and ride it back down along with Doctor Heller.

"Mighty grateful fer the ride," he told the operator and Tom as he climbed down the four steps to the tarmac.

"You doing okay?" Tom asked him.

Chow nodded before taking off his ten-gallon hat and fanning himself. "Yeah. A bit tired nows we're back ta full gravity, but I'll make it. Any ideas what's next?"

"Sure. Like Harlan did, you'll go have a little and pretty fast procedure called an angiogram to look inside your chest, and if they find anything they don't like, like a cholesterol blockage, they'll pull that out and then outfit you with a little stent to keep things open. If you take to it like he did, you'll probably swear five minutes later you feel top of the world!" He grinned encouragingly at the man who had been a dear friend for over eleven years.

"Can I go out fer long walks with Wanda after that?"

"I'd bet on it!"

When Tom got back to the large office, and accepted some congratulations from Trent, he stepped inside and crossed to his desk. His father was not it at the moment, so the young inventor opened up a log file and started making notes on the trip and what had worked along with what had been accomplished.

He was about to perform a few calculations to see if he might determine how large of a repelatron might be necessary to shove the moon back into its correct position and speed when the door opened and Damon Swift entered.

"Welcome home, Son. I hear through the grapevine you managed to get the moon out more than just a little and not damage the ship in the process. Well done!"

Tom grinned. "I figured I'd spent enough over the years on

damaged and burnt out equipment, so I wanted to bring the ship back in good working order. Seriously, though, we did get the moon back out maybe three-quarters of the distance it had lost but we won't know if it wants to stay there or start back in for a few more days. I'm really hoping it likes the new orbit and is satisfied to stay there."

With a small chuckle, his father replied, "You're making Phobos sound like it has some sort of conscious capability and is making decisions on its own."

Tom had to shrug. "Until either our Space Friends can shed some light on things, or I mount an expedition right to the moon and see if we can spot something close up, anything might be possible."

"Okay, let's table that for now. What is this I hear about Chow? And, is it serious?"

Tom told him of the chef's chest pains, his shortness of breath and his supposed heartburn.

"Sounds like what Harlan told us about his problems. Just before he collapsed with that heart attack and had to undergo an emergency procedure." His right eyebrow rose.

"Yeah, but Doc thinks this is not that far along. Not an emergency situation and Chow isn't keeping things from him. Bud dropped our oldtimer off at the Dispensary once we landed. Maybe we should go over to see if he has any word on what he thinks, and to say hi to Chow if he's still there."

They left the office a few minutes later telling Trent where they were going. The stroll over three buildings was brisk and refreshing for them both, and they walked into the front doors happy for the little exercise.

A pretty nurse in her early twenties was looking over a tablet computer screen when they came in. She looked up.

"Oh. Hey, Mr. Swift. Hey, Tom," she greeted them with a big smile.

"Hello, Debbie," Tom returned. "You're back again?"

She nodded. "Yes. A two week school break and then back to the books. I'm zooming along on my Physician's Assistant studies and might earn the diploma in eight more months."

As a teenager, Debbie Bates had once patched Tom's heavily bleeding scalp when he got clobbered by an attacker using nothing other than instant glue. Her work was so good Doc Simpson had

hired her for after school work, sponsored her for an accelerated BS at nursing school right out of high school, and now had her on the road to a PA license and then, they both hoped, on to a modified version of Medical School.

She was that good.

“Are you two looking for Doc? I ask because Mr. Winkler came in and they went to the back, then Doc called for an ambulance and he and Mr. Winkler raced off for Shopton General.” She looked at them in anticipation of any questions.

His face blanching, Tom asked in a slightly choked voice, “Is Chow okay?”

Debbie shook her head. “I don’t know. I just came on duty when they were putting him in the ambulance and it left before I could go back outside. All I know is Doc said something about shoving a spring in there. I guess he means a stent.”

Tom and Damon left on the run.

CHAPTER 5 /
THE FIRST SERIOUS MEETINGS

SHOPTON GENERAL Hospital was experiencing a lull in medical cases and only Chow was currently checked into the Emergency Ward. The ER doctor was chatting with two nurses and their admin person was leaning back in her chair sipping a coffee.

Greg Simpson, clad in his Enterprises' physician's white coat, stethoscope draped over the back of his neck, was sitting on the edge of the bed in the cardiac suite occupied by the western chef. Chow was looking more than a little embarrassed at all the attention.

His expression changed on seeing the two Swifts and then again the moment his wife, Wanda, rushed in shoving Tom to one side in her haste to get to the side of the man she loved.

Doc had only a second to jump up and sidestep her as she nearly threw herself on the bed.

"Consarn it, Wanda!" Chow's baritone voice boomed. "Have a little care. Ya darn near knocked Tom there on his keister."

Startled, Wanda looked around and saw the others in the room for the first time. She turned bright red and had to sit down.

"I am so sorry," she declared. "When I heard Chow was heading here and was having a heart attack I—"

"Not a heart attack, Wanda," Chow told her, his voice softening on seeing her distress. "Just a little disagreement in there. Doc can explain it, but it looks like they got to send in the dig-em-out team ta get a little clog inside me, then put in one o' them…" he looked at Doc. "Whatcha call 'em?"

"A stent. Just a little wire mesh tube to hold things open once we pull out what I'm assuming is a tiny blood clot. Pretty mundane stuff, but it is the source of your discomfort, Chow. Forty-five or fifty minutes will do it. Oh, here comes your scrub nurse now." He pointed down the corridor at the approaching young man clad in operating scrub blues.

After introductions had been made and Doc assured Wanda and Chow he would be right in the operating room during the procedure, the nurse, Pete, unset the brake of Chow's bed and wheeled him away with Doc following.

"Don't worry, Wanda," Damon assured her. "Harlan Ames had this a couple years ago and he can now get back out and chase the

bad guys. Chow'll be fine."

And, he was. Less that fifty minutes later Doc came out to the waiting room to say they could go in and see the patient. Before they went it he warned then, "The Cardiologist went in through his right wrist. That means three things. First, a lot less recovery so once he gets through this afternoon's three-hour observation, he goes home. Two is he absolutely has to keep that wrist straight for the next four to five hours so no shaking his hand, and," he looked at Wanda, "no grabbing it and holding on."

Damon raised a finger. "And, three?"

"Number three is he can't pick up or hold anything heavier than about three pounds for a full week. After that, he's pretty much cleared for anything other than handstands and arm wrestling."

Wanda had tears running down her face, but she was smiling. "Does that mean I get to tell him he can't cook for a week? That I finally get to treat him to my own home cooking?"

Doc nodded and she turned, running through the double doors and to the small recovery cubicle.

"Doc here tells me I got ta behave and keep my hand out o' business fer a bit. Someone's got ta remind me 'cause I already got the riot act read by one nurse fer trying ta pull my carcass up a little in this bed thing."

Ten minutes later after assuring Chow they expected him to stay home for at least a week, Tom and Damon left to go back to work.

As they approached the final country lane leading to Enterprises, Tom asked, "Is there any time you can give me in the next couple days? I need some help to try to figure out what to do about that moon around Mars, and could use your help or advice."

Damon had to shake his head. "Sorry, Son, but I'm heading down to New Zealand in a couple hours on that replacement ferry service project their Prime Minister has been trying to get approvals to move on. We got the contract and it has actually started; now there are suddenly five hundred things to be attended to all at once."

Tom had to grin. "Yeah. You have fun with that."

After parking his sports car, Tom headed for his underground office and lab while his father walked into the side doors of the Administration building.

Once he settled down on the sofa in the office space, he pulled out his tablet computer and began reviewing all the data from the *Challenger* and her several attempts at shoving the moon, Phobos,

back into position. It was, he already knew, nearly an effort in futility as the root cause still needed to be discovered. Until that happened, he might go out there, or send a crew, and shove the moon three times a day only to have it slip back that same amount, or more or less, before the next Martian day came.

The data did show all had not been in vain. Phobos' orbital altitude had been moved several feet back out and it had only slipped downward toward the planet a dozen feet in the past week.

He picked up his phone and made a call to the department involved in all things repelatron. Once part of Propulsion Engineering, the new department was still unnamed but had a team of fifteen professionals who had all been involved in the original development of the amazing repelling technology along with some who had helped Tom turn the tables one-hundred-eighty degrees with the development of the Attractatron.

"Marylynn Dick," the person a the other end answered.

"Marylynn, it's Tom. I need to come over in a little, so I hope you have some time for me. Perhaps a couple hours."

"Hmmm? Well, can I get a hint what this will cover? I am supposed to get my teeth cleaned in three hours and, like everyone I know, would hate to miss that… oh, wait. No, I misspoke. I would treasure missing that so come over and take up as much time as you need. I'll change the appointment."

Marylynn had come to Enterprises from a key position in a German firm where she had been involved in everything from ion propulsion experiments to efforts to fine tune a technology known as QVPT, or Quantum Vacuum Plasma Thrust, something that could provide propulsive power with no fuel, just electricity. A deep space probe had been launched a year earlier atop a repelatron-powered rocket taking the probe, its nuclear power supply and the small quantum engine out well past the moon and releasing it at a speed of over ninety-thousand miles per hour.

So far it was keeping up that speed even against the constant pull of the sun.

"Oh, and I dearly hope this is some real brain twister. I have the need to stretch a few ganglia."

Tom chuckled. "I think I can promise this will not be a slam dunk situation."

He realized some foreigners might need a reference such as that explained, but Marylynn Dick had been born in Maryland to a mother and father who both had played several years of

professional basketball. She had inherited their drive and athletic capabilities, just not their height. At five-foot-seven, she was still a presence in any room.

She agreed to a small team meeting in half an hour.

When he arrived it was to find she'd arranged to have the cafeteria bring them lunch and so the first twenty minutes were spent more in chewing than in conversing.

Once they finished he brought up screen after screen and several videos of the action taking place on and above Mars. The team was in absolute awe at the amount of details he was sharing. Often, they found themselves with product requests and suggestions, but nothing as stunningly shocking as what they were seeing and hearing about to help them tie everything together.

"Gee!" one of the young women of the group stated. "I've got goosebumps that don't seem to want to go away after all that. We have to do something."

Tom nodded. "Right. The question is what can we, all of us, do? You've seen the *Challenger* making those pushes and know the power of her repelatrons. *Goliath* obviously has nine times that power and can carry more than enough power pods for the work, but she would need to be reconfigured. That costs both money as well as time. Money we can find but time we might not have in abundance." He looked around at the group. "Any initial thoughts?"

Three of the attendees raised their hands.

With a small grin Tom reminded them that Enterprises wasn't a school and anyone could speak up.

The first to do so was a man formerly with NASA. "I once read a book, well, actually I read it three times over the years, about how the Moon suddenly starts to get nearer to Earth and the world finally comes together to try to build a giant machine on the lunar surface to force it away and back where it is supposed to be. The title character helps a gravely ill scientist whose idea it originally was to fix things at the very last second only to die from his efforts. Well," he looked around a little embarrassed, "not a happy ending for him, but the Earth is saved."

One other of them remembered the book and nodded.

Tom asked, "So, this thing they built on the Moon did what? Was it a giant rocket engine or something like that?"

The first man, Alan, shook his head. "Believe it or not, it was a sort of repelatron. They called it a shield, but the effects were that it repelled the larger Earth and pushed itself back into position where

they shut it down."

Tom sat in thought a moment, undisturbed. Finally he looked up. "So, I'd have to believe this wasn't just a single unit. The thing had to be spread out over a great distance to be effective and not punch a hole backward through the Moon."

Alan admitted it was more of a giant array running more than a thousand mile.

"Well," the inventor told them all, "that is definitely something to think about. For us it would need to be a line of such shields along the path of Phobos. Each time it passes over the array they push out in order keeping pressure on the surface and shoving everything."

"What about the nature of their moon? Isn't it more a conglomeration of rocks, solar dust and other things that have just enough attraction to hold together?" This came from one young woman recently acquired from Stanford.

Tom looked at her long enough to make her feel self-conscious. "Actually, that is a popular notion but we don't know for certain. It could be Phobos has a solid core and just a dusty coat gathered throughout the millennia. It might even have been a comet at one point that was in just the right, or wrong, place at the correct moment to be captured by Mars."

Now, he scanned the team. All seemed eager to come up with a solution but just about everyone also looked as if they were lacking enough information to continue.

"That," Tom said, rising from his seat, "tells me it is time to plan and execute an actual visit to Phobos. I'll do that, but in the meantime can this team work up a possible design, or even a couple as alternates, for what such a repelling system might entail? I'll also need costing and production time estimates. Thank you all for coming and for your contributions today."

On his way out Tom stopped Alan and asked the name of the book.

"It is part of a British series about a character named Chris Godfrey. That book is near the end of the series and is called *The Last Disaster*. It gives a very dim view of how man can barely be bothered to work together in spite of the impending end of everything. Petty jealousies, money-grubbing industrialists, religious zealotry, the whole sordid lot."

"Well, if I can find a copy I intend to read it!"

"If you want it, I can ask my parents to pack it up and send it."

Tom patted the man on the shoulder. “That, Alan, would be wonderful. Thanks!”

His next stop was to the Communications department and their teleconference center. The duty operator set up a call out to Fearing Island and to the lead of the construction team.

“Hello, skipper. What can we do for you?”

“Hello, Jerry. I have a real headache and I need your input to see if something we have can be reconfigured in time to be of any help.” He gave a brief description of the Phobos problem. “Obviously with the repelatrons on the *Challenger* not being adequate my thoughts went to *Goliath*. But, since I designed her to have the central spire and high-sitting control center she can’t exactly be used to press up into the moon.”

Jerry’s face showed recognition of what his young boss likely was going to ask about. “So, can we move the control and living quarters to below the cargo deck? Is that your question?”

Tom shrugged but also nodded. “Right. I guess it is pretty obvious. So, can it be done and if yes, how long a job? I’m afraid we’re up against a bit of a short timeline.”

“Can I have five minutes to get a few of my top people in on this call?”

Tom agreed to stand by and Jerry disappeared from the camera’s view.

It took nine minutes but four other people joined the Fearing man.

Tom repeated his brief description of the Martian problem and his interest in *Goliath*. All were bright and caught onto the issues immediately.

One man, Malcolm Service, cleared his throat. “Not sure I ought to mention this, but I’ve spent more than a few days trying to figure out how to reconfigure our giant and still keep structural integrity as well as providing for the same crew space.” His face said a lot but Tom let him continue.

“It would require everything from the cargo deck on up be removed, a new sort of cage of braces be constructed to not only hold the command levels but to give back strength that would need to be removed to give the necessary space. Then, the current giant power pod would need to be moved from on top of the dish and probably replaced by a trio or quad of smaller pods arranged around the outer perimeter.”

Tom had to snort. “So, the only easy part would be welding a plate to cover the hole in the deck, right?”

Malcolm’s eyes lowered but he nodded. “I might be wrong about some of that, like if you wanted a smaller command and crew area so we have less bracing to put in, but the work would take at least four months and probably closer to six, Sorry, skipper. I know that’s not the news you wanted.”

Tom shrugged. “Malcolm. You have likely saved us weeks trying to come up with a suitability plan and then devising a schedule for something we’d likely not do. That is time we just don’t have, so I thank you for having taken that time already. That leaves me with what to do. Do any of you believe we might create a new *Goliath*-like ship build around one giant repelatron? Something with perhaps a crew of five and sensors embedded on the deck to replace what would be covered?”

They talked the matter over and the only thing they came up with was it would be slightly shorter but possibly still in the three to four month range assuming enough people were assigned to allow for twenty-four hour a day and at least six days a week work.

“Okay. I’ll ask you to keep your thinking caps on, and also to not spread around word about what is going on out there. We really need to keep this out of public view for the time being. Thanks you, everyone.”

Trent transferred the call.

“Tom? This is Admiral Greg Sawyer, United States Navy. Have I caught you at a good time to discuss a possible aircraft purchase?”

“Well, I have the next half hour free, but if this is just to place or check on an order, I will probably need to transfer you to the correct department.”

“Oh, no. This is to talk, albeit briefly, about a need we have that you’ve previously addressed, only now we need and want more.”

When Tom suggested the man tell him what is was, the Navy man laughed. “Quite possibly the impossible. You see, your Wasp helicopter is such a hit that the men and women out in the fleet want more. Submariners want one that folds down so small it can be shoved down the same hatch our torpedoes do—which, by the way is just one-inch less wide than the current model—and our surface ships are asking for one that carries two or three people and can carry a thousand pounds with a single pilot.”

Tom had to chuckle. “You aren’t half asking for that impossible

thing, sir. Without studying your exact needs list I'd have to say there are a couple things going against that happening. First, the rotor would need to be widened to the point it never could be tilted to the side for storage. Second, I suppose a pilot in the front, centered, with two seats behind might be possible, but they would need to be very close together. As in, shoulders jammed against one another."

"Ahh. And the third?"

"The physical dynamics and limitations of that single large disc overhead. I'm not saying it is completely impossible, but I have doubts."

"If I sent you a little sketch right now, something one of my Petty Officers did, that looks good to me, can you shoot the appropriate holes in it?"

Tom said he'd be glad, and gave the Navy man his email address. One minute later it came through.

Giving a whistle, Tom had to admit, "That is a really great sketch, sir. Compliments to your artist."

What he was looking at appeared to be part dragonfly with a large canopy over the cockpit and an open tail boom along with a pair of small but more traditional rotors of propellers, one on each side. He decided to not mention the torpedo hanging below the cockpit, but knew if that was the primary reason for this larger helo, Enterprises would refuse to produce it.

On top sat a machine gun on a swivel turret and he had to laugh to himself on seeing that the artist had the gun pointing straight back at the small vertical fin at the end of the boom. It was another reason why this would not be built.

After a few minutes, the Admiral asked, "Well? Thoughts? And, I mean other that the far-too-small mini-rotors on the sides we would want to change to your amazing solid discs."

With a sigh, Tom had to tell him it was not a feasible design.

"To begin with, even with two rotor discs, unless they were, oh, about one-point-three times wider than the current single one they could not lift the aircraft and passengers much less any external ummm, *cargo*. While the cockpit could easily work, I can't see a reason for that tail. And, as you should already know, Swift Enterprises does not do weapons, or products that are ready to have weapons added."

They talked about the design a few more moments before the Admiral admitted it had been a long shot.

“But,” he added at the end of the conversation, “if you do find a way to make something like that happen, I’d appreciate hearing about it.”

“Sure,” Tom told him, “but I just thought of another reason this might not work. Visibility. Nobody would be able to see below them where the discs are, and putting them overhead will not work. We tried that and the thing gets very hard to handle. Sorry to disappoint you.”

However, even as he hung up the receiver, Tom’s mind was racing through several possibilities. He made a quick note to follow up on a few ideas and then turned his attention back to the Mars problem.

CHAPTER 6 /

SANDY SHINES

THE WEATHER REPORTS all spoke of incredible dangers from a pair of hurricanes coming aground on the Baja Peninsula of Mexico. In only a few more hours the first would race over La Paz in the lower peninsula where estimations said half the small city could be devastated.

From there its projected path would see it passing across the Gulf of California on its way to an encounter with the mainland and a cluster of towns including Culicán and at least a half dozen small towns surrounding it.

Estimates said to expect deaths in the hundreds and possibly in excess of one-thousand people might perish.

"This isn't fair!" Sandy Swift-Barclay wailed to her best friend and sister-in-law, Bashalli. "Why can't Tom move one of his weather thingies from the Caribbean and just stop the storms?"

The beautiful former Pakistani sadly shook her head. "I asked Tom about that this morning and he said it would take more than a week to move one, and even then this dual storm is too large. He would have to find a way to get all three of the cyclonic eradicating satellites out there, and needed to have done it five days ago. And, even *you* must admit there was no news about this until two days ago." She looked at Sandy and could see the combination of anger and hopelessness in her face.

Sandy could find no words to express her frustrations and so she began to cry. Softly at first and then the torrent came. The two women sat on Tom and Bashalli's sofa hugging and both crying over the horrible damage that was about to be visited upon the people in the affected areas.

After ten minutes both were effectively cried out but they sat, still hugging for another three minutes before Sandy pulled away.

Bashalli could see determination suddenly flare up in the blond's eyes. It was such a powerful transformation it made her shudder. "What?"

"I'm going to mount a rescue and compassionate visit the moment that nasty wind passes."

She seemed so determined Bashalli didn't want to remind her that there were plenty of international organizations poised to move in as quickly as possible. That news might have been accepted had it

come from Sandy's father, Damon, or at least from her husband, Bud. She made a mental note to call Tom the moment Sandy raced off.

She didn't have to wait long as the somewhat impetuous blond jumped up from the sofa and raced out the front door without another word.

Bashalli sat a moment thinking what she ought to do. Finally she sighed and reached over to pick up the telephone.

"Hello, Tom? It's me and I have one of those things going on you ought to know about." She told him of the hurricanes and the probable destruction, and about his sister's declaration she wanted to do something.

"I really can't blame her, and it would be wonderful for her to experience helping people, but I fear she might get in over her head. What can I do?"

With so much on his plate at the moment dealing with the Mars situation about the last thing Tom wanted was to have to try to talk his sister out of doing good. But, he knew her about as well as even their parents and understood she could be bull-headed and race headlong into something she wasn't prepared for.

"Let me talk to dad and then mom. They probably need to get her and Bud over for dinner and have a serious discussion."

After he hung up he turned to his father. "What would you say if your daughter wanted to run to the airport and fly straight down into the aftermath of a hurricane in Mexico?"

Damon looked at him with a bemused look until it hit him this was exactly the sort of thing Sandy might do.

"I believe I heard you mention a dinner and conversation. Want to be invited?"

Tom sighed. "I've got so much going on, but it is family…"

"I feel the same way. This air ferry project for New Zealand is stretching me almost to the breaking point, but she is family as you said. Let's call your mother and figure this out."

Anne laughed when they explained what was going on, or about to. "She called me from her car and is on her way over here to enlist me into her forthcoming battle against you men. I've been sitting here waiting for the screech of her tires out front and the beating of her feet up the walk. I've already come to a decision if you are willing to hear about it and back me up. I think it is darned near

time our daughter got the dose of reality she desperately needs to finally grow up. She's made some great strides in the past year or so, but I think, and as long as we can come up with ways to make her safe, she needs this trip as much as the people down there will need her help."

Dinner was arranged for that evening and Anne had to hang up as Sandy had indeed come to a screeching halt outside.

When they all congregated at the Swift home at six-thirty that evening everyone could see the gleam in Sandy's eyes. It was almost as if she were possessed by the idea.

"Okay. I know you all have been talking behind my back, and believe it or not, that's okay. But, no matter what you have decided, I have made up my mind and I want you all to listen!"

Before Anne went to the kitchen with Bashalli to bring dinner to the table, Sandy had outlined the sort of terrible destruction that would happen—real and imagined—and the need for people to come help. She had also told them at least four times she was going whether anyone approved or not.

"Bud won't tell me no because he is worried I'll get angry with him and make his life a living hell," she explained as they sat down, "but I wouldn't do that to you Bud. Promise. I really, really, really want you behind me on this."

Damon, who had been keeping silent throughout the previous twenty minutes, spoke.

"I need for you to give us all a list of the things you can do. Not the things you imagine you might do but real things and practical things. So?"

She bit her lip and Bashalli found that she was shaking in anticipation of Sandy having an outburst and not being able to answer the question.

But, her sister-in-law surprised her.

"Five things come immediately to mind. First, they will need pilots to fly supplies in and injured people out. If I take one of the large flying ducks down, perhaps with another pilot, filled with medical supplies we can drop that off and start evacuating. Second," and she ticked it off on her right middle finger, "I have, like Tomonomo, a rare blood type and can give blood at least three times in two weeks as long as I take along that liquid Doc Simpson devised to act as a blood replacement. In fact, I called him and he said he can package up enough of the stuff to give to at least fifty

people the ability to donate for those in need of one or two pints of blood."

She looked carefully at her father and then her mother. Both were contemplating unknown things, but neither looked outright against the plan… so far.

Now, she looked at her brother. "If someone else can take the *Sky Queen* down, we can pack it with supplies like food and clean water plus one of those cadaver cars to search for bodies." To her surprise he looked at her with a level of admiration she'd never seen before. He smiled and nodded making her heart rate soar with glee.

"Okay, third is I can teach a few people to fly. At least enough to take off and land in places where they can get some passengers to medical help. Well, maybe not that one, but it's in my pocket." She detailed the fourth and fifth things, both having to do with her organizational skills and ability to communicate precisely with the people back in Shopton to arrange for things that could be flown in by others. "And, I speak passable high school Spanish," she concluded.

Anne Swift looked at her daughter. "You do realize that the typhoid you'll likely encounter can be cured in you, but could harm your ability to have children at some point, don't you?"

A tear cascaded down Sandy's left cheek. "Yeah. Doc did tell me about that." She turned to Bud. "What do you think? We've been trying and trying and trying to have a baby and there are a lot of things in our way, medically speaking. If I come back and Doc says absolutely no way, do you think we could love a baby we adopt?"

It was a true shock to her mother. Never, ever, had Sandy Swift or Sandy Swift-Barclay *ever* spoken of any baby other than one she and Bud conceived. Adoption had been mentioned several times by others once it became clear they were likely destined to not have one of their own, and Sandy had just shaken her head.

Now, something was going on with her daughter. Something potentially wonderful. It was something to nurture.

"Sandra Swift? If you really mean that then you will find no more grateful and happy grandmother for your baby than me. However you have a child, I am one-thousand percent behind you and love you!"

Now, all three women began crying tears of happiness and relief.

Tom looked at Bud and then his father. Both men were rolling their eyes but Bud had a grin on his face.

The truth was he and Tom had talked about the possibility of adoption and the inventor knew his brother-in-law was quite happy with the possibility.

The older Swift got up to retrieve a box of tissues from which they each handed several of to their wives. Tears soon degenerated into giggles as Anne, Sandy and Bashalli realized what they must look like.

“Okay. It won’t have us eating too cold, as it is a thick and gooey, chicken and noodle casserole, so let’s get this dished up and eaten,” she told them all.

Conversation turned back to the proposed humanitarian mission and all were surprised at how much Sandy had already thought out, and how well she’d planned.

As they took their first bites of dessert Damon came to a conclusion.

“Sandra? I am going to authorize the trip. I will call Senator Quintana to see if the Feds will kick in for the medicines and food you may deliver in a large cargo jet and at least one other cargo jet will take down. My bet is the vertical landing and take-off capabilities will allow you to get very close to the actual need and not have to trust that trucks will get to their destinations.” He made an “ahem” sound before continuing.

“I am also going to ask that Harlan assign a few of his people to go down with you both for your safety and to protect our jets, but also will authorize them to carry e-guns to ensure there are no attacks. Far too many unscrupulous people are out there who might try to take advantage of the situation. And, a woman.” His look said there would be no arguing with that.

Sandy popped up from her seat and into her father’s lap, hugging him around the neck and planting several kisses on his forehead and cheek.

“Thank you, thank, you, thank you, Daddy!”

By the following afternoon plans for Sandy’s trip was well on the way to being finalized, Damon received a message requiring him to head back to New Zealand, and Tom and Bud found themselves sitting in the big office having lunch.

Speaking around a mouthful of Texas-style chili now Chow was back at work, Bud asked, “So, what do you think of Sandy and her sudden ‘It’s not all about me’ change?”

Tom swallowed his latest bite before answering. “I would have to

say that my sister continues to surprise me. Heck, Bud. Both our wives surprise me. First Bash decides she wants to learn to fly and now can handle anything we make and even is an FAA flight away from qualifying on anything up to four engines the airlines fly. Then, Sandy goes and gets all 'gotta help them' with that undersea hydrofarm we built and now this."

Bud nodded but it was obvious the trip wasn't the only thing on his mind.

"And," Tom continued, "if you mean the baby thing and not feeling like she has to prove everything works, I have to tell you she started stating with complete surety back when she was fifteen that you and she would have at least two babies. Oh, and get married and I believe she meant that part first." He smiled at the flyer.

"I'd like to have a boy, like little Bart, but that part has never been as consuming for me as it is for San. I hope this change is forever with her because I want her to be happy, and that needs to include a baby at some point."

Tom wanted to ask if Bud and Sandy had talked about this, but the dark haired man beat him to it.

"Sandy and I have been looking into options for the past five months or so. She will admit her first preference is to have a baby herself, but is coming more and more to the realization that if you have enough love for a baby it shouldn't matter. My feeling as well."

They dropped the matter for the time being as they discussed their forthcoming trip back to Mars.

"At least with Sandy down in Mexico I won't have to parry any 'Why can't I come with you?' questions," Bud said with a little grin. "Although, she didn't say a word about it when we went up the other week. Hmmm? Do you think she's also giving up on her wanderlust?"

Tom nodded. "Perhaps, but for now we have a trip to plan, and I have to come up with something more to do out there than park the *Challenger* next to Phobos and poke at it with the repelatrons. I'm thinking that we have to go up again and land on Phobos to take a close look."

Eagerly, Bud asked, "And get out and walk around and be the first people to ever set foot on it? Sort of like Armstrong and Aldrin? You and me; intrepid space explorers planting a flag and golfing and everything?"

Tom found himself rolling his eyes. "Sure, flyboy. All except for

the golfing and doing anything more than possibly planting a flag to claim that moon in the name of the Mars colony and taking a good look around. I can't bring myself to believe this sudden inward motion is a natural phenomena. There ought to be some sign of what caused it. Or, is still causing it as the last thing I heard it has begun coming closer again."

For eleven days Tom worked on a list of all the equipment he might need for the exploration of the tiny moon.

For five of those North America watched as first Hurricane Oswaldo and then Hurricane Persiphone battered their way across the lower Baja peninsula and then into the western portion of Mexico. Most attentive of anyone in Shopton was Sandy Swift-Barclay.

Damon's call to Senator Quintana had paid off with the promise that as soon as it was safe, Sandy and her two cargo jets could come down to Andrews Joint Air Base to take on ninety-two tons of food, water and medical supplies. The only stipulation was they also had to provide transportation for a 50-person medical emergency response team.

That was going to require a third jet, or to get permission to take Enterprises' two largest cargo jets and not just one large and one medium-sized aircraft.

Trent made nearly a dozen phone calls to reschedule or reroute materials and finished goods that would normally use both of the largest jets, but by the end of day four he had performed a miracle and Sandy had her two big jets.

When she appeared in front of his desk, a certain determined look in her eyes, he gulped before finding her stepping around the desk, taking both of his hands and pulling him up and into a tight hug. That was followed by a warm kiss on his right cheek that made him blush and flustered the normally stoic man for the next hour.

"Thank you, Trent! You are a marvel and a treasure and I'll bet your work will end up saving a lot of lives!"

The next morning clearance to proceed was received along with a special Federal designation for both jets that would see them allowed anywhere they wished to fly and land. Fifteen minutes later Sandy kissed Bud for the twentieth time before running, tears streaming down her face, for the lead jet.

She and Zimby Cox would pilot it with Red Jones and Deke

Bodack traveling off their right wing. In one, one-hundred tons of food, water and medicines while in the other the supply helo, CadaverCar, the fifty-person humanitarian team and another twenty-three tons of food along with a portable desalination plant to continuing the supply of drinking water.

It was the start of the hardest and best ten days of Sandy's life.

Tom's list soon became a collection of pallets that would be loaded into *Challenger* once she flew over from Fearing and landed at Enterprises.

He made a stop in with the team trying to decide how to either adapt *Goliath* or come up with a fast but as powerful alternative.

"Any movement?" he asked Malcolm Service.

The man shrugged and shook his head slowly. "Not really. I suppose we could put together a giant repelatron and power supply with a something above it to rest against that moon, but it would be so unstable that just taking off from the Earth would be more than any one pilot could manage, even with computer assist. The best we've come up with is one of two possibilities."

"Go ahead," Tom urged seeing the man biting his lower lip.

"First, we do the cut down version but mount about a dozen smaller repelatrons around the perimeter angled out about forty degrees to provide stability until it gets out of the atmosphere. We did the costing at that would take about thirty-five million dollars and fifteen weeks."

It wasn't very good news but Tom accepted it for what it was.

"What's the other idea?"

"Take *Goliath* up there with a special crew, put her in orbit near the moon and take everything from the cargo deck up off and tow it into higher orbit for safekeeping."

A gleam of understanding came to the inventor's eyes and he smiled. "Tell me more, please."

Encouraged, Malcolm continued. "We put a remote control module under the deck and control it from the *Challenger*, or even one of your flying saucers. It will require a lot of computer power, but we have that available. It is a two-million dollar solution that can be ready to go—we have to do a few things while the ship is still down here to get it ready—in less than four weeks."

Tom looked at Malcolm and the other four in the room. All of

them were nodding as if this was their preferred solution.

He asked more questions over the next fifty minutes before standing up, placing his hands back on the table and leaning toward them.

"I like it. I want a full rundown and report on what the fast and cheap solution will entail, who will do it, and even a crew list by the time I come back from my latest trip out to see what there is to see. I ought to be back in twenty-four days from tomorrow. If it is a go I want it to begin the next day after I get back." He looked each of them in their eyes. "Thank you, one and all."

With that he stood up straight and left the room.

Malcolm looked at his manager.

"I honestly thought he'd hit the ceiling over that suggestion. It's quite radical and will mean a lot of repair work once the ship gets home."

"But, the good thing is we all know it is workable even if it is a bit messy."

Four heads nodded in unison. What they hadn't told Tom was the disassembly concept had only come to them the day before, and their first option—one they debated for a full week—had been to blow the little Martian moon apart *with a nuclear warhead!*

CHAPTER 7 /

AN INITIAL LANDING

BUD JOINED Tom at the Barn, the open-sided hangar situated closest to the Administration building, at noon the following day. They were waiting for Peter Bannock, Art Wiltessa and their back-up pilot/crewman Duanne Dimmock, to bring the *Challenger* in for a landing.

Situated in five piles were nineteen collections of equipment and parts the inventor hoped would be sufficient to cover anything they ran into or wished to do once they arrived at Phobos. There were many questions in the back of Tom's mind as he checked his master list and visually identified in which pile each item could be located.

Peter called over the radio and it was relayed to Tom's TeleVoc pin.

"Just passing over Rhode Island. We got vectored wide to avoid one of those giant double-decked Euro-jets that blew an engine out over the Atlantic. They'll make it to JFK okay, but we'll be six minutes late."

Bud looked at Tom and shook his head. "One of these days they'll lose one of them to those faulty engines. What's this make? Eleven mayday situations and still they refuse to do a complete engine swap out?"

Tom could only shrug. When asked five years earlier what his thoughts were after the sixth such incident he'd stated that even the best engines could have hidden problems, and the only way to get rid of them was to re-engineer the areas that seemed prone to explosive blowout and then change out all engines. What he didn't mention at that time was that Swift Enterprises had bid on those engines and were undercut by only a few thousand dollars so the airline manufacturer went with the lower bid.

In the case of these engines it was almost exclusively in the front compressor components of the engines where the problems occurred.

Obviously, this engineering and swapping had not happened throughout the fleets using the aircraft. About 30% of the carriers had insisted on getting replacement engines, but few of those were different from the originals.

He went back to his list while Bud tried to calm down.

Some fifteen minutes later, *Challenger* came in over the eastern

hills on the other side of Lake Carlopa, made a half-circle around the area and settled down on the old heat-resistant tiles the *Sky Queen* used during its first four years in service.

Tom tapped his TeleVoc. "Peter Bannock," he silently intoned.

"Yeah, skipper? What can we do for you?"

"Well, for one you can lift back off a few feet and side-slip closer to the Barn. It'll keep us from having to haul everything over there. I've made sure nobody is going to need to use the area for the next few hours."

"Will do, Tom. Facing you and what I believe to be a Bud Barclay?"

Tom grinned. "Yes. Go ahead and stop when the outer rails are even with that particular Barclay."

A minute later the ship came to rest and Tom could hear the whine of the ventilation fans as their outer covers opened allowing fresh air to get inside and to force out the old air.

Duanne was first out the door next to the hangar on the lowest deck followed by Peter. As the two men climbed down the ladder to the ground Tom called out, "Where's Art?"

Peter called over his left shoulder, "He's gonna stay in the hangar and direct the insertion of all that fun stuff you've got over there."

Hands clutching the outer rails of the ladder, he slid the last five rungs in a single jump and quickly joined Duanne in standing in front of Tom and Bud.

"Everything is shipshape and ready for the cargo," Peter reported. He gave them a sort of sloppy salute and then reached out to shake hands. "Seriously, we pulled out everything we knew we could do without so there ought to be almost enough room for your gear. Uhh, is there any of it that can stay outside?"

Knowing the man meant could some things withstand being strapped outside the cube of the habitable ship for the trip out to Mars, the inventor nodded.

"Pile one," Tom told him. "Just spare parts we might need to configure a push spot on the top of the ship. Glad to see the cargo carrier rack got removed. I forgot to ask for that."

A team of fifteen men and women were approaching along with a small boom crane that would be used to lift things up to the lowest access point, some thirty feet above the ground.

Tom asked if Fearing had installed enough of the high-

acceleration couches so the crew of six could withstand the high-G forces they would undergo on the fast trip out.

"Sure. Even added two extra in case Chow wants to come along. Where is he, by the way? I was sort of looking forward to some of his home cooking on this trip."

Tom told the pilot about Chow's brush with a heart problem.

"He's still taking it easy but will be back to full days this time day after tomorrow. Doc says he can't go on fast and heavy-G trips for at least one more month." He mentioned that the cook—heavily chaperoned by Wanda—had come in the day before and prepared enough frozen meals for the entire trip.

Peter and Duanne both smiled on hearing that information.

Forty-two minutes later the last of the gear was in the air heading for the porch outside the now closed hangar door. It only took two minutes to use the pop-up connectors to cinch that load down before a protective durastress tarp was added to protect things from air friction on take-off and landing.

Damon meandered over from the Administration building to watch the last of the packing, standing just behind Tom. With a small clearing of his throat he said, "Looks like you are ready to go. Wish I could join you but we've received the go-ahead to start hammering stakes in the dirt for the two air ferry terminal locations in New Zealand one of which I've never even seen. By the time you get back we might even be constructing the actual aircraft."

Tom smiled and shook his father's outstretched hand. "I hope to be home in just over three weeks. Try to not get everything finished while we're gone. I'd sort of like to go down for a day or two to see what's going on."

Bud nodded. "Me, too. Maybe even Sandy, if, that is, she gets finished with this mission to Mexico."

"Heard anything from her, Bud?" Damon asked. "She's been mum as far as her mother and I are concerned."

"Only that they had distributed most of the medicines to legitimate hospitals and about two-thirds the food. Phil Radnor and Armando Vatelli are down there from Security and had to stun a couple would-be thieves the other afternoon. Got 'em turned over to the local gendarmes who took a very dim view of such activities. The stealing, not the stunning. I think they might have asked why our people didn't use deadly force."

"Let's all be glad they didn't and hope that puts an end to such

foolishness. I'll try to keep in daily contact with her and suggest that once they are out of supplies they come home. Might not work as I have heard she's been piloting around the CadaverCar about non-stop and has already found thirty or so people still alive but buried under rubble and, sadly, maybe three times that number who did not survive."

Tom now spoke up. "At least getting those bodies out and not deteriorating ought to cut down on the spread of disease."

A few minutes later the men climbed the ladder and disappeared through the side door which was also the ship's main airlock.

Since Peter hadn't fully shut down the systems all Tom needed to do was run the computerized systems checks. Five minutes after sitting down he moved the indicator for the throttle up and they lifted from the ground.

The full load of nine tons of extra materials put a small strain on the ship's power pod and so Tom made the decision to park up near the old Outpost in Space and unfurl his Solartron panels to replace as much power as they had used before heading to Mars. It would be a delay of only an hour but it would allow them to travel at top speed all the way to the Red Planet before they had to even think about recharging.

While they waited, Tom and Bud suited up and headed over to the outpost which now boasted two complete rings of spokes. Just two months earlier it had been turned over to NASA and a private investment concern for use as a permanent space station and tourist hotel.

It continued to act as a stationary relay station for television and radio broadcasts and still hosted a variety of scientists who came up to conduct experiments, use the high-powered telescope and Megascope for observations, and to work in microgravity on general and medical projects.

Five of the spokes had been turned into a high-flying space hotel where the ultra-rich could vacation for a week at a time producing enough revenue to operate the two weekly supply rockets—that had gone with the deal—and also the entire station.

Now that Tom's specialty repelatron artificial gravity system had been installed throughout the station, anyone could decide to take advantage of it through the use of an undergarment with special woven metallic fibers in it that reacted to the downward pressing of the emitters. Some chose no gravity while others needed it to keep from experiencing space sickness.

It made a somewhat comical sight to see people standing upright and walking around while others around them soared past at a ninety-degree angle.

They entered through the new central airlock on the top of the station. Gone were the days when all access had to be from the ends of spokes via airlocks barely large enough for two men.

"Jetz!" Bud said under his breath as they entered the main hub area. It might still be the same diameter, but the newer, high ceiling made it feel cavernous.

"Right, and remember this is just the top area. There's the new lower area with everything from the exercise facility, larger sick bay and the launching stations for their five evac balls."

"May I assist you gentlemen?" came a lovely female voice from behind them.

Both men turned to face the woman, probably only in her early twenties.

"Well," Tom told her. "Yes and no. You see, I'm Tom Swift and this is Bud Barclay. We sort of built this station and wanted to see what all changes had gone into it since we gave it to NASA. I hope you don't mind us snooping around."

As he had identified himself and Bud, her mouth had gaped open at the recognition of both the names and their faces. She was speechless as he finished.

"Are you okay?" Bud asked. He grinned as he added, "It's just that with your mouth open like that we can see you've never had your tonsils out."

Her mouth snapped shut and she turned beet red.

"Forgive my friend. He does not mean to sound insulting," the inventor explained.

"Oh, no. No. I just sort of get flustered around really famous people." She lowered her voice as a man and woman drifted past them taking advantage of the nearly zero gravity. "Not like them. They're just rich and snobby, and he once did half a season on some bad TV show, but you two are… well… wow! You're *seriously famous*!"

She offered to escort them around and so they took off their outer suits and hung them next to the airlock's inner door.

They toured several of the upper spokes and about the same number of lower ones. As they poked their heads into the

observatory spoke Tom let out a laugh.

"Professor Brandon," he called over to a rumpled-haired man sitting at a desk.

The man, startled, whipped his head around and the momentum caused his body to shift and spun slightly in that same direction even with the partial gravity in the spoke.

"Thomas! Budworth!" he called out happily as he rose, a bit too forcefully, and headed a foot into the air. He settled down and shuffled over to see them. "My goodness! It is wonderful to see the two of you. I would have thought the newer Queen of All Space would occupy all of your orbital efforts. My, but it has been a long time. Perhaps a year or more?"

Tom and Bud grinned. The professor had arranged and managed to get his university to pay for five separate trips up to the Outpost over the previous five years. In all he'd spent some sixty days in orbit and was treated by the normal station crew as an accomplished astronaut.

"Well," the inventor replied, "if you mean the new *Space Queen*, then I have to admit to being inside her more times this past two years than this workhorse, but nothing can compare with your first space station! So, what's new with you?"

Making a small "come with me" motion, the researcher took them to the far end of the spoke and the small office he kept his papers and special tools in.

"I imagine you already know about the Phobos anomaly?" He said quietly and raised his eyebrow giving them both a little nod.

Tom admitted they did know about it. "We're on our way out to Mars in a few hours to try to land on that moon to see what could be causing it to drift inward. Do you have any insights we need to know about?"

Brandon shook his head. "No. Sorry to report but, as a famous television sergeant used to say, *I know nothing*! Other than a few observations telling me it decided to make this closer approach beginning nine weeks ago and there were no viewable factors involved."

"That's what the skipper, here, tells me he knows," Bud offered.

After discussing a couple possibilities Tom promised to let the professor know of anything he discovered.

"I wish I could be going with you. It would beat the dickens out of

repeating and repeating observations I've been making of the liquid geysers on Ganymede. Some cockamamie numbskull in Albania published a paper on how his observations show they are reducing in intensity and will, or so he claims, cease in just over eleven month's time as a possible precursor to a huge volcanic eruption." He shrugged as if to say, 'What can a scientist do?'

"Are you free to come and go as you choose?" the inventor asked.

"Pretty much. My research benefactors have obtained a five month stint up here to be divided into no fewer than three deployments. I am here on number one."

"Come with us!"

Professor Brandon looked Tom in the eyes and could find nothing other than a genuine invitation.

"I accept. I can be packed and ready to go in thirty minutes. I never fully unpack when I come up here."

The *Challenger* drew in her Solartron panel arrays, which automatically folded and tightly rolled and stowed themselves in the two special pods mounted atop the command cube. All this was possible through the use of special bi- and tri-layer metal strips embedded in the seams. When power was added they unfurled and when it was shut off everything ran in reverse.

The best equivalent of how that worked anyone ever came up with was Bud's, "Think of a blow-tickler…" explanation.

Art had taken the outside duty to make certain things went smoothly, and three minutes after the pods snapped shut he re-entered the ship, took off his spacesuit and climbed the ladder to the upper level.

"All set, skipper. Didn't even have to take the mid-point pause. It must be because the panels got warm enough this close to the sun. They folded and tightened down like champs!"

A quick radio call to the Outpost and another to notify Fearing Island they were about to depart were made and the ship used a light push at an acute angle to the Earth to move away before the repelatrons shoved her outward on a trip that would see them passing the Moon's orbit in a couple hours on their way to Mars.

On day five Tom suggested Duanne take a stint at the controls. The man was not a trained pilot but had taken on whatever responsibilities Tom handed him with enthusiasm. This was no

different. He had already spent many hours observing both the instruments as well as what the different pilots did with them.

Tom even had him calculate and make a course correction that would allow them to approach the planet from the trailing edge to give them more space to make their orbit insertion two days later.

With the Martian orbital position leading that of Earth, they would play a little game of catch up on the way out and take nine days at nearly constant acceleration or deceleration. Tom had no reservations about using the higher-G speeds as he knew Brandon, even at the age of sixty-two, was an Ironman marathoner taking part in at least two major events each year. He was in better shape than most twenty-seven years olds.

As they swung around and into an orbit some five-thousand-four-hundred miles above the planet's surface, Tom was already calculating his maneuvers to align them with Phobos and to come down from above for a soft landing. They would need to come down closer by about fourteen-hundred miles and that would take place over a three orbit timeframe.

His fingers flew over the controls making minute corrections as they became necessary. He was so busy with these tiny maneuvers he had no time to contemplate the fact there should not have been so many of them.

Tom had taken over for Peter just after reaching their initial orbit. The other pilot had spent more than nine hours in the command seat as they finished their slowdown and through the series of maneuvers to place them where they needed to be.

With each orbit the rocky yet smoothed, over millennia, surface came into sharper and sharper view. Almost too soon it stood just five miles away

"Are we setting down in Stickney?" Brandon asked. The large crater featuring its own inner impact crater was a favorite of his. It also was one of the most notable and easy-to-locate features of the little moon from Earth observatories, so it was frequently used as the main point of reference for anyone looking at Phobos.

"We are. Lower edge of the crater away from the smaller Limtoc crater. And," Tom said checking his instruments, "in just fifteen minutes. Everyone," he now called out to the man in the command room, "climb in and strap down. We maneuver in two minutes."

The touchdown was very smooth, and the ship held firm to the surface with no rocking or tilting.

“That doesn’t seem right,” Bud stated. “Shouldn’t we have bounced a little bit? I mean, not much gravity and all that?”

Tom’s face was in a scowl as he considered the truth in those questions. He had noticed their braking thrust had been triple what he’d anticipated.

“You’re right, flyboy. Do me a favor and turn off our artificial gravity.” Once the flyer turned their series of tiny specialty repelatrons, the scowl grew deeper.

“Professor? Any thoughts on this higher than expected gravity?”

Unstrapping himself and coming over to glance at the monitors, Brandon shook his head.

“No. In fact I would say that unless all observations from the past hundred or so years have been terribly off, this is not anything I would classified as being normal. Martian moons should have about four or five percent Earth normal. This feels more like quarter gravity. In other words, it just ain’t right!”

CHAPTER 8 /

IT'S ALL A MYSTERY

IF TOM had expected to use the hand winch to lower large portions of the test equipment to the surface, he had to adjust those thoughts and use the power winch to move nearly twice as many smaller loads. The gravity had risen to nearly one-third Earth normal and was holding at that point.

There was more gravity than he'd anticipated by at least a factor of nine as he now had that mystery to investigate and that extra downward pull for everyone to work against.

It would have no real impact on the lunar visit other than to extend it from a planned seven hours to possibly as many as fourteen hours or about two full orbits.

"At least we had a few days planned to be around here," Bud said as he opened the case with their gravity measurement device. This gravimeter was the smallest one Swift Enterprises had in inventory at barely a ten-inch cube. Its three sharply-pointed feet extended when the handle was twisted to the left, which is what Bud did before setting in on the most level piece of ground he could find. The contact by those feet with the surface turned the instrument into the ON condition where it went through a self-check before giving a green condition a few seconds later.

"What's it indicating?" Tom asked after it had been on the ground a full minute.

Bud checked the screen on the top. "Point-two-nine-seven-six EG Normal." He watched the screen for a full minute. "That's about ten percent higher than on our own moon. That can't be right except I feel the pull. Jetz! No variation so far. I'll go place it by that small boulder in the ship's shadow. It'll be safe for the long duration checks."

Tom nodded as he worked to set up a portable environment tent with the help of Duanne and Art. The basic design had not changed over the years since he designed the first one. Only the materials were newer/stronger it featured the addition of a shaded roof.

After staking down the corners of the fifteen-foot by fifteen-foot floor he opened a small flap near the ground and pulled a handle. The enclosed compressed air made the tent puff out. It would never have the pressure of an Earth-based tent but would have sufficient air, and oxygen, to allow the team to enter, remove their helmets,

and enjoy a break. A second cylinder in the small airlock would refill that as many as six times before needing replacement.

A small air purifier plus a supplemental O2 tank would make things useable for up to fifteen hours for three men, or forty-eight hours for one. Duanne went to the ship to pull those tanks out and get them installed while Tom turned to other instruments.

Peter was setting out a small, flat device that looked more like an old-fashioned robot vacuum cleaner than anything else. It would check for any indication of atmosphere starting fifty micrometers up from the surface and out to a distance of ten millimeters. Tom expected nothing to register, but with the unexpected higher gravity anything might be possible.

The tent now inflated and most of the instruments working or ready to be energized, the inventor turned his attention to their surroundings. Phobos was rougher than Earth's moon, but still showed signs of wearing down. The few rocks sticking up from the surface were smoothed with time and collisions with micro-sized bits of space debris plus anything the solar winds could pick up and send out.

Not surprisingly, it also showed stress lines running in near parallel formations primarily north to south. These had been theorized a few decades earlier and observed finally once space telescopes had been launched, but they were stark and startling to see up close.

To his right were two of the nearest, forty feet apart, they were about a foot wide and indented by a couple inches.

At some point they would likely be the lines along which Phobos broke apart. If things were allowed to proceed as they had *before* the moon began to come lower they might shred the moon into small enough bits to create a small ring or two around Mars.

There was no telling what they could do given a lower and faster orbit.

"Professor? You can get into the airlock and come on out," Tom radioed back into the ship. "I would like your impressions on some of the things you will see up close when you get here."

"Coming. Just have to get the helmet clicked into place. See you in three minutes."

When the older man was standing next to Tom he began making "hmmmm" and "tsskkk" sounds as he first looked down on then stooped down to more closely examine the first stress line.

When he stood up, he turned to face Tom. “The good news is they do exist. Scientists have not been wrong all these years. You do know one theory was these are scars from something that exploded just above the surface and left scorch marks. But, no. These are definitely stress fractures deep under the surface.”

“Are they any danger to us?” Bud asked as he approached them.

He watched as the professor shook his head. “I do not believe so unless there are any sizable voids in the makeup of this moon. Then…” and he shrugged. “Anybody’s guess. I think I need to take the ground penetrating **RADAR** unit and make some circles around our location.”

He, Bud and Art opened that crate and assembled the unit. Looking more like a small fertilizer spreader than the huge boxes on wheeled platforms of days gone by, this unit featured two tall rear wheels, like those on a child’s bicycle, and two smaller front wheels that could swivel for steering and could be pushed along by just about anybody. It wirelessly connected to the heads-up monitor inside the visor of the astronaut operating it and also recorded everything it found.

“Need help pushing the pram, Prof?” Bud asked. “I feel the need to stretch my legs if you do.”

His voice spoke of his great hope and so their researcher stated he would be glad to be “only the eyes” if the flyer was willing to be his “wheel man.”

They headed off after setting down a laser distance beacon that would allow them to keep to concentric circles of equal distance all the way around.

The first circle was only twenty feet across and was entirely within the shadow of the ship. The next once was thirty feet farther out and meant they would need to swerve around a few points where the landing gear was touching. Plans were to move out in thirty foot increments until they were past one-hundred and fifty feet out before switching to fifty foot extensions.

Nothing of note—meaning no voids of any size greater than about a yard-wide bubble—was detected by the time they were nearly four-hundred and fifty feet out. Of course this only was accurate information down to about the twenty-five feet the **RADAR** could penetrate.

“I, for one, could use a break and possibly a cool beverage and about a half-hour rest,” the professor admitted as he halted the detector.

“If that’s an official motion, I second it, vote ‘Aye’ and say it is unanimous. We can turn the gear to standby and head back.”

He called out their intent over the radio and Tom suggested it was a good time for them all to return to the ship for a break.

“We’ll have five more hours before I’d like to lift off, so we break for thirty minutes, work for three hours and then pack things up,” the inventor told them all as they sat in their couches sipping ice cold beverages and nibbling on some of Chow’s special energy bars.

“Other than the unexpected gravity situation, and I’m thinking I want to land in at least a half dozen other spots and see what the local gravity is at each one. Has anybody anything out of the ordinary to report?”

There was little of consequence. The atmosphere detector found a very thin film of nitrogen and carbon dioxide atoms clinging to the surface, perhaps two millimeters thick, but nothing else. The proximity to Mars and also to the Sun meant the actual surface was too warm for them to freeze and so they did constitute a type of rudimentary atmosphere.

Six coring samples had been taken and examined inside the tent but other than suggesting the moon might be a little sturdier than previously believed, down to twenty feet, they simply pointed to Phobos being a conglomeration of hundreds or even thousands of solar object that had all come together a few million years in the past with enough force to stick together. Eons had fused much of the materials near the surface into a solid mass.

When the time came to pack things back into the ship, Bud and the professor were already inside looking over the final results of their **RADAR** examination.

“I see dozens of small voids, perhaps less than golf ball size on average,” Brandon said as he sat back and rubbed his eyes. “Bubbles of gases frozen on their way outward to escape no doubt.”

“At least down to the twenty-five feet we can look,” Bud suggested. “Let’s compare things with the Damonscope sweeps the skipper wants to make when we lift off.”

In their haste to land Tom had completely forgotten that a good and deep scan of the moon’s makeup down to at least two-hundred feet should be made. It would be their first order of duty on liftoff.

The crew came back with anything they’d taken out of the ship’s shadow and packed things up.

As usual, nothing unpacked ever goes back into exactly the same

area as it came out of, but they managed to get everything inside by simply leaving the environment tent on the surface.

“It might come in handy for a more detailed study in the coming weeks.”

The ship’s Damonscope—now a high-definition digital version of the original film-based system—was energized when they reached an average altitude of two-hundred feet. The ship swept back and forth over a total area greater than five football fields with nothing spotted indicating a source of radioactivity other than a small blip that would have been located “south” of their first landing if that area were considered to be the North pole. The size of the blip was insignificant and was nowhere close to any of the professor’s and Bud’s tiny voids so that comparison turned out to be a dead end.

Tom set them down five more times and personally took the gravimeter outside to get a reading.

The only difference, as they headed to the polar opposite of the first landing location—and it was along the lines of half of a single percent of Earth gravity lower—was a gentle change. The farther away from landing point one the lower the gravity. Fractionally but measurable.

“That,” Professor Brandon stated as they headed down to the Mars colony, “says two things to me. The density of the moon is greater the higher away from the planet you travel—but that plus gravity from Mars would have caused it to rotate the moon so that was pointing downward—or… well, this is an uncomfortable thing to say, but whatever is causing that unusual gravity is located nearer the lower part of the moon and not equal to the equator or south of it.”

That proclamation caused all side conversations to cease immediately as the potential meaning of it reached their brains.

Slowly, Tom sought to find appropriate words to ask, “Do you mean you think the gravity could be artificial?”

If the scholar and researcher was afraid his statement might anger the younger man or be met with resistance, he was stunned to see Tom, and pretty much everyone else in the control room, grinning.

“What?” he meekly asked.

Bud, the closest of them, draped his right arm over the professor’s shoulders.

“Did I ever tell you the tale of the small, gray creatures who

launched a friendly missile attack on Swift Enterprises?"

As everyone else prepared for landing he told the man the true—not the press release version—tale about the Space Friends and how they had a little thing known as a gravity stone.

"If this is not a natural thing, then perhaps *they* have some responsibility?"

Bud grinned again and nodded his head. "Could be…"

Haz met them just outside the main habitat dome. "Know any more than before?" he inquired.

Tom suggested they head for the main office where he would reveal what they had discovered and what they now had as a working theory.

On hearing the findings Haz sat back, his head only slightly nodding in understanding of what the inventor was telling him.

He finally leaned forward. "So, is there a chance that the Space Friends are holed up inside Phobos and their gravity stone is causing all this trouble?"

Tom rubbed his chin in deep thought. "While it is possible my guess is they are not inside the moon. The gravity stone idea is fairly sound, but that leads to even more questions. Why did it get inserted inside the moon? Who did it and when? If they used Phobos as a base at one time, why didn't they take the stone with them when they moved along? And," he said refocusing his gaze on the Mars colony leader, "if it *is* the cause of the movement, can either we or they shut it off or do we have to move the moon away and blow it up to keep you all safe?"

The man across the desk from him let out a rueful chuckle. "I'm guessing you can't come to any conclusion up here. So, next moves?"

"Next, I let some people back home know to start working on what I hope to be the solution, or at least the heavy moving gear. Then the *Challenger* goes back up and gives Phobos several good shoves to push her back out four or five hundred miles. At her rate of orbital decline that ought to keep her from getting any closer than she is today for the next month plus a few days. I should be back by then and we'll do it all over as many times as necessary until I come up with a solution." He looked at Haz and could see a question forming. "If you're about to asked when do we leave, tomorrow. If you are going to ask what I think the overall solution is, or whether

there even is one, I have to say that I don't know but I won't give up. Not even if I have to come up here and attach a giant repelatron to that thing that gives it a shove each and every morning until your people decide to head back to Earth."

What he left unsaid were the words, "…if that time ever comes."

This time out at the moon, Tom took the time to carefully roll it around a little so the lowest gravity area was pointing down to the surface of Mars.

"Color me as dense as a stump, skipper, but why?" Duanne asked as they prepared to get the ship into position for their shoves.

Tom ceased what he was doing with the controls and swiveled his seat around so he could see everyone in the room.

"I have no idea if this is going to make any difference, and it is more likely than not to have zero impact because the overall gravity of Phobos will remain constant, but I'm hoping that having the side I'll call the light one closest may mean it takes a little longer to start heading downward again. If anyone were to ask me the percentage chance of that I'd have to admit to it being so close to zero it might as well *be* zero, but it makes me feel better to try something."

Everyone returned to their tasks and the ship was in position for the first shove of the day eleven minutes later.

"My unaided and highly uneducated eye says we're farther underneath than we've been on previous pushes," Bud said out of the corner of his mouth so only Tom could hear it.

"And, your eye would be correct, Bud. I want to try a first shove or even two just as if we are trying to lift the thing up and away. Then we'll reposition and give it more momentum to get it wanting to fly higher, and then we'll repeat those two. It is a combination we haven't yet tried and I am curious if it makes any difference."

It made a small level of difference, but Tom was now willing to take anything as a success. Before they left Mars, the moon had been pushed out more than four-hundred miles and was within about two hundred of its rightful location.

They dropped Professor Brandon back off at the old Outpost before landing at Fearing. It had been a long and tiring flight home so everyone spent the night on the island getting a good night's rest before heading for Shopton.

That flight, made in the *Sky Queen* that had been shuttled out by

Red Jones and Zimby Cox, was mostly spent hearing about the trip to Mexico.

"You two would have been mighty proud of your sister and wife. Sandy took command of things, had a plan of action that even included some contingencies we actually needed to put into action, and she spent about sixteen hours a day for the nine days we were there in that CadaverCar. She helped them rescue fifty-seven live human bodies, twelve dogs, about twenty sheep or goats and a horse."

Zimby added, "And, she found more than a hundred bodies they dug out and properly placed in containment bags for later burial. She even called Senator Quintana's office directly and cajoled him into a second load of food we had to fly back for. But, get this… she told him to arrange for it to be picked up in Los Angeles and not all the way back in DC."

Red laughed. "Yeah. I was in the cockpit when she made that call. Quintana was really taken aback by her commanding tone and I could picture him making a sarcastic salute at his end, but he came through. In other words, Sandy Swift-Barclay was a hurricane force herself, and all for good."

Bud was beaming at the news and couldn't wait to hold onto his wife and tell her how proud he was.

They touched down and debarked near the underground hangar where the *Queen* would be put away by the ground crew.

Tom stood still while he used his TeleVoc to check for important messages. One came from his father and intrigued him. After it ended he turned to Bud.

"Hey, flyboy. Want to come over and see the preliminary wind tunnel tests of something Dad tells me he's working on?"

"Well, my massive schedule book seems to have a small blank spot in it, and just about… hmmmm… now! As long as I can get over to see Sandy in the next hour I'm fine. What's this all about?"

Tom shook his head. "He has been sort of hush hush about the fine details, but I know it has to do with a letter he received when we first came back from Mars. A really strange letter beginning with the way the man spelled this state. New *Yrok*. And, how his secretary included every word he said as he dictated the note, including when he asked to see what she was writing and told her to stop it." Tom grinned. The letter had been a bit scattered.

However, it was from the Prime Minister of New Zealand and the

four or five visits Damon had made down there seemed to be bearing fruit. The two terminals were underway and the preliminary airship design due to be tested.

They hiked the mile to the test building to the west of the main building cluster and the site of the first—of two—wind tunnels built at Enterprises.

Once inside, and after hushing Bud who was about to pronounce a pun name for the somewhat flat, wide and squat airship that was inside the test chamber, they watched as first it was tested to the point where massive vibrations were being registered and Damon declared it unfit for people to ride in. Once Arv Hanson added four corner pieces to the passenger-carrying lower portion, it smoothed out and exceeded the needed speed with ease. Even so far as having negligible vibrations when moderate-speed side winds were introduced.

"I still think it ought to have a good name," Bud said as they left the test building. "I mean, it sort of looks like a wide whale, so why not call it an AirWhale, capitals A and W?"

Tom stopped and turned to face his best friend.

"Bud, dad really wants to make this contract a success. Mostly because he wants to prove to himself and the people down there his previous problems with some angry Aussies was only so much blown smoke. And," he scrunched up his mouth a moment, "I think he wants mom to see how he can go down there and not always go see Lady Penny Schott. She thinks it's funny that he gets flustered when Penny gives him a little kiss, but dad is worried she might think it is something more."

They resumed their walk changing the subject back to the Martian troubles.

CHAPTER 9 /
JUST GET RID OF IT, PLEASE!

AS GENERALLY happened, the United Nations heard about the situation with Phobos and decided to poke its unwanted nose into things.

"Do I really have to respond to this, Dad?" Tom asked on a day when the two of them were at Enterprises and in the office at the same time.

Damon came over to his son's desk and perched on the corner.

"There is absolutely nothing to compel you to appear. Mars, by virtue of it being properly and permanently colonized, has all final say about who comes up and whether they want to involve any entity other than Swift Enterprises. You know that. Our legal eagle, Jackson Rimmer knows that. My guess is even Bud and your sister know it, but sometime that august body known in abbreviated form as the U.N.—standing to my way of thinking for Unwanted Nosiness—fails to remember that. So, while I cannot do this myself, and would if I could, I think you ought to answer that summons with a, 'Sorry but I will be out of town and/or off planet for the next two weeks,' and then see if the request disappears or you need to make a brief appearance."

A grimace crossing his face, Tom asked, "Just how brief?"

Damon pondered this a moment. "How about you offer to provide them with a video update of what is going on? Perhaps a ten-minute piece you can shoot up in orbit at the *Space Queen*. The open central area makes a heck of a backdrop and will remind them about sovereign territories outside of Earth's atmosphere."

Tom nodded and smiled at his father. "Thanks. I believe I'll have Jackson help me with the wording and then head up tomorrow morning. Wish I'd thought of that before my stomach got all gooey feeling."

Damon smiled mischievously. "You think along the lines of attacking a problem. I'm getting to the age where dodging and weaving around a problem while still seeming to want to make it all work looks better and better with each passing day."

They shared a laugh before Tom walked over to his father and gave him a hug.

"Thanks for being a teacher and a guide to me in just about everything. If I don't say it often enough, I love you Dad, and

appreciate the heck out of you!"

Jackson's response to Damon's suggestion was to slap his desk, slap his knee and let out a guffaw. Tom had no idea the lawyer was capable of guffawing and it made him laugh as well.

"Can you help me word things so we all think they'll just back off?"

Jackson nodded and indicated he would like to see the letter that had been received. He scanned it once and then re-read it more slowly, looking for any nuances they might wish to pay particular attention to.

When he set it down, he looked at Tom. "I would say they are more trying to pretend they exert any sort of power outside our atmosphere than they are truly interested in what the heck is going on up on a planet most of them couldn't pick out of a line-up or tell you where in the line from the Sun out it sits. So, let's have a little fun with this while giving them basically nothing."

It only required a half hour to craft the seven-minute message and two more to fine tune a couple small items. Both of them were satisfied so Tom got up to leave, but Jackson had one more suggestion.

"You mentioned you want to do this in space. Fine. Be sure to turn off all gravity so you and… well, perhaps seven or eight crew persons are floating around in, perhaps, the *Challenger*. I wouldn't go so far as to pretend there is any emergency cutting things short, but if someone off camera could call out to get your attention with…" he had to think what would be a good excuse. Having only been in space one time for the christening of the giant *Space Queen* station he had little to go to for ideas.

"How about if Bud or someone else calls me to report we're approaching," and he made finger quotes, "that rogue satellite we need to stabilize, pronto!"

"I like it! Be sure to save me a copy. I'd love to add it to our files. But say, can you send it directly to them? It'd be more effective in real time."

"I can. It just so happens they gave me the download frequency for their huge server farm. I'll send it there after I precede it with a short text message from our radioman telling them it is coming."

Tom left the lawyer's office, his script clutched in his right hand, and headed back to his office. There, he showed it to his father who nodded his approval.

"My only suggestion is that you memorize this and not try to read it or paraphrase it. What you and Jackson came up with is exactly what they need to hear."

The younger man agreed and said he was heading home for the rest of the day.

"I'll arrange for the *Challenger* to be readied for an afternoon flight tomorrow," he promised before leaving for home.

As he walked in his front door his legs were attacked by a young boy with a huge smile on his little face. Fortunately, Tom was used to this and kept his balance.

The boy, his son, Bart, turned his head and shouted toward the kitchen door, "Momma! Daddy's home and he's gotta piece of paper!" Now, Bart's face turned up to look at his father's face. "Is da paper for me?"

Tom reached down and pulled his son up into his arms.

"Well, not exactly for you, but I can use your help with it. It's something I have to read to some people who are being very snoopy and is supposed to make them stop. There is one little line I'd like to have you read. Want to do that?"

"Do what?" came Bashalli's voice as she entered the room.

"Daddy wants me to read a line, Momma. It is important, so I want to do it."

Bashalli laughed. "Well, then, by all means you should do it." She shifted her gaze from their son to her husband. "What is it?"

He set Bart down and explained the U.N. issue.

"Goodness. Can I help at all?" she asked.

Tom chuckled. "Ever wanted to be the United Nations?" When her wide-eyed stare told him it had *never* crossed her mind, he patted her shoulder. "Well, this whole thing is going to be about my addressing the U.N. from up in orbit and having my able assistant, Bart, break in at the right moment to tell me his line. What I need is the initial prompting from the U.N., which is you."

They ran through the entire scenario three times before Bashalli set her small script down and informed her two men that dinner would be in ten minutes.

"Would you please get Mary up from her crib in the family room? She should be awake and probably needs to have her diaper changed before she gets her dinner.

For the previous three months their daughter had been graduating from milk to the sort of foods that come in pureed form that have, for the average adult, almost no flavor worth mentioning. For Mary the carrots, beets and chicken jars seemed to be favorites with applesauce and green bean slurry coming in a close second.

Tom got her up and she grinned at him as he took her to the bathroom and gave her a clean diaper.

Once in the kitchen he played a little game with her by holding up the various jars watching for her facial expressions to tell him what her approved menu ought to be. Tonight she wanted the applesauce, beef and corn jars. So, those went into the pot of warm water Bashalli had on the stove to warm up a little.

Everyone enjoyed dinner with only one of them requiring some fairly major cleanup afterwards.

Bart, who had been showing more interest in his sister's welfare lately offered to wield the damp washcloth to get the major splotches of food on her face, arms, hands and neck. His mother did the fine cleaning while Tom cleared the table and soon they were all in the living room where Tom and Bart went over the script one more time.

The next morning Tom called to Fearing to tell them he needed the *Challenger* for a four to five hour trip.

"Please have a seven person crew ready to go at noon when Bud and I get there. If she is available please ask Cassie Monroe to join us."

Although a qualified astronaut, Cassie was rarely a crew member as her normal duties on Fearing kept her very busy. But, she had one thing Tom really needed for this trip; Cassie Monroe was also an actress having appeared in several plays and as an extra in a half dozen television programs.

"If anyone can pull of the reading of the ' Tom? I need you to take a look at this right now… it might be dangerous,' line, it'll be her."

Takeoff happened at exactly noon the next day and the repelatron-powered ship headed skyward with Bud and Zimby Cox at the control stations.

Tom and Cassie were sitting in acceleration couches over by the large view windows practicing their lines.

"For a non-professional you certainly nailed your lines," she

complimented him. “Now, all I have to do is find the motivation for getting just hint of panic into mine. Do you think we could talk Bud into threatening to tickle me?” she asked just loud enough for the pilot to hear.

“Gimme a pointed stick and I’ll stand just behind you ready to poke,” he called back over his shoulder.

The pair practiced a few more times before Tom was satisfied, and that was mostly in his “performance.”

At 1:47 the inventor indicated to the communications operator to open the channel to the United Nations, and for Bud to shut off all the artificial gravity inside the ship.

Four of the crew had been tasked with drifting across the scene behind Tom every minute or so armed with clipboards and electronic devices, all to look very serious about their “jobs.”

The man at the comms board gave Tom and everyone a signal.

“Hello? Is this the United Nations tele-link channel?” Tom inquired knowing full well it was.

The startled young woman gawked at her monitor. “My god!” she said, breathlessly.

“I’m sorry…”

“What’s the matter with you?”

Tom chuckled. He’d expected to make some impression on whoever answered, just not this much of one.

“Oh. I’m Tom Swift and I am calling you from up in space.” He looked around him before staring back a the camera. “As for what is going on, I am floating. As in there is no gravity in space. Perfectly normal but I suppose it takes some people a little time to get used to. Anyway, can you please record this call. I have received a special request via my company and I need to get your folks in the General Council an answer. Please tell me when you are ready.”

He had to wait four minutes while the woman went to get someone to help her understand what to do.

“Go ahead, Mr. Swift,” he said into his microphone speaking quite loudly as if he believed the distance into space might make hearing him difficult.

“Okay. This is in response to…” and he looked down at a piece of paper he held in his right hand, “…U.N. communique dated Monday of this week regarding the, quote, Martian Damage Situation, end quote. Also, I feel it necessary to address your ‘Just get rid of it’

request or demand. Now, I must tell you that there is no damage happening on Mars so this took me a little aback, but in reading it in its entirety I assume this is a language barrier and the author meant you need a report on the situation up around Mars, vis a vis the moon, Phobos, and the reports that it has dropped lower in its orbit. Well, and I have to tell you I only have a couple minutes for this, but here goes.

"FIrst it is true that the moon, Phobos, and I *really* have to stress it is the *Mars* moon and *not our own*, has come several hundred miles closer to the surface of *Mars*. While this is faster than it previously has decreased its altitude it is within margins where we have been able to periodically reposition it as we work on a long lasting strategy to address the root cause or causes, if there are any, and to ensure the moon, Phobos, is eventually placed back where it belongs. It would do more potential harm than good to try to give it a great shove into space which could simply cause it to crumble apart. There is no way to tell what might happen if it, or parts of it, were to come crashing back into Mars… or even worse, the Earth!

"Oh, and at no time will the Martian colony—placed on and sponsored by Swift Enterprises—be in jeopardy. So, please assure your… uhhh… people that—"

"Mr. Swift!" came an urgent voice from his left. As his head turned the face and upper body of Cassie drifted into position just above his head. "We have an incoming object at Delta seven, Epsilon thirty-decimal-nine. Can you break off and come give your opinion? It may be *that* satellite!"

Tom's head whipped around to his camera. "Sorry. Got to go. I hope that's enough, but as I said I have to go!" He made a cut motion with his right hand and the comms operator hit the **OFF** switch.

Taking a deep breath, Tom grinned. "Okay, people. I think we'll know how well that went over by this time tomorrow. So, I do want to go pull in an old GPS satellite in geosynchronous orbit over the mid-Atlantic before we head home."

He gave Bud the position and asked that gravity be slowly returned. A minute later they were shooting to the east.

The satellite was one of the last of the original NAVSTAR system and had been decommissioned back in 1995 and moved from its original 20,000 mile orbital altitude up to the current 22,308 mile position keeping from being any bother to any other object in space.

The issue was its position was soon to become an issue for a new

series of single-position satellites being launched by England, and so they had asked that—when practical to keep costs to a minimum—the Swifts either retrieve it or at least knock it far into space where it might be captured by the Sun's gravity.

"Coming up on target," Zimby called out. "I'm getting the Attractatron ready to pull in up to the porch."

Twelve minutes later it was done. Two of the crew had donned their suits and were outside strapping the rather badly damaged solar panels to the side of the main box and then everything to the deck of the ship.

As soon as they came inside, the ship dropped from orbit and headed back to Fearing Island.

Tom walked into the office first thing the next morning to find his father reading a letter and laughing out loud. He looked up to see Tom looking quizzically at him.

"Just a note from out United Nations friends. You are welcome to read it." He handed the single sheet over.

Tom skipped the heading and got right to the first paragraph.

> We were distressed to watch the video you managed to send down during what seems to have been an emergency situation. I say distressed but we were also grateful. We are all honored that you were willing to take valuable time to address our concerns. To that, we hope the situation that was developing was handled easily and that all is well with you and your crew.
>
> The information you were able to impart is sufficient for us to better understand the difference between what is actually occurring up there versus what a few individuals given into easy panic have attempted to put forth.
>
> Please accept out thanks for this "above and beyond" response. I believe that all our curiosities have been more than satisfied. Many thanks.

He looked at his father. "Well, I think that took care of any interference or nosiness for now."

"I think it was possibly one of the very best things you might have done. Now, at least one group should understand that we are working for everyone's good and not for selfish reasons." He sighed.

"Of course, we'll see how this shakes out with time. Different subject, I hear the DC and NASA folks may not wish to take delivery of that old satellite. Something in there that used to be of interest—"

"Meaning highly classified?"

Damon nodded. "Something is no longer of any interest to them whatsoever and we will be receiving permission to destroy it all. Certainly we can detoxify the monopropellant tank and get rid of the atomic battery, but it might be an interesting addition to hang up somewhere."

"Where?" Tom asked, startled at the suggestion.

"How about overhead in the civilian terminal? Would make an impressive piece of art."

That terminal, located toward the southeast of the main building cluster, was used to host any incoming aircraft that was not directly associated with Enterprises or any other Swift company. Government visitors as well as international visitors and even some press visitors were asked to park their aircraft out there and use the comfortable terminal for many of the meetings that took place.

The entry to the building was sixty feet wide with a ceiling sitting some thirty-nine feet above.

"I can see it hanging up there now," Tom stated. "So, with your permission I'll have the Fearing folks get it ready for display, including a lot of golden mylar to make it all shiny, and then ship it over here."

His father smiled. "Are you going to have a plaque made telling folks what it is?"

"I'm not sure. Maybe just let them be awed by it."

"Odd what?" came a question from just inside the office door.

"Hey, Bud. Awed as in surprised and not odd as in you. Dad was just saying we ought to fix up that old GPS NAVSTAR satellite and hang it in the civilian terminal.

"Neat! It gets my vote. But, I hope you can get a lot of that shiny gold mylar stuff they wrap these things in. It'd make it really stand out!"

Damon, stifling a grin, responded, "Why, Bud, that is a wonderful and original idea. I think it is exactly what we need to do."

The flyer looked from Damon to Tom before his shoulders slumped. "You both already thought of that, didn't you?"

“Perhaps a little, but it is nice to have your vote on it. Actually, if you had said that sounded a bit over the top we might have just put the thing up there without it. So, it’s unanimous. I’ll have a bolt of it pulled from stores and shipped to Fearing.”

The talk turned back to the elephant in the room, Mars and Phobos.

“I have the team working on the final design for what amounts to a giant space tug. Except that it will be more a tug-and-shove.”

Tom described how the new ship, if ever built, would be able to be run autonomously or with a small crew of three, would maneuver to a point behind and slightly under Phobos and attach to the moon with the largest and most powerful Attractatron to be constructed. Then using special maneuvering jets, everything would be spun to the best orientation so the giant repelatron underneath could be used to shove down against the planet.

It was his attempt to not gut *Goliath* for the job.

“It’ll look something like an old fashioned hour glass with the top and bottom cut off. Two cupped antenna almost connected at their bottoms. Around them will be a trio of our giant power pods—the same ones we had mounted on *Goliath* when we were running the anti-matter ring on her cargo deck—and the command pod. The rest will be superstructure holding everything tightly together.”

“Do your computations show that it will do the trick?” Damon asked.

He notice that his son, usually so sure of himself and his inventions, was looking decidedly uneasy about answering that question. Finally, Tom spoke.

“The absolute truth is I wish it were easy to say yes or even no, but it is not. The Attractatron is going to be really large so I can spread the forces out over a wide area and not run the risk of ripping a chunk off the moon. Then, once it is attached and we have stability in the target area the repelatron at the other end will have enough power to shove Phobos up into its rightful position, but things get blurry at that point. Will it stay out there? Do we need to park the ship next to it and let it run on auto for… *ever*? I just don’t know, and that is certainly the product on not understanding what actually caused the thing to move in the first place!”

Tom sagged in his seat. He was frustrated by the fact he was so unsure of things, and it almost hurt.

CHAPTER 10 /
THE GREATER GOOD… OR NOT

"ISN'T ABOUT TIME you or I got conked on the head, kidnapped or otherwise inconvenienced?" Bud quipped as he entered Tom's underground office across from the floor where the *Sky Queen* was hangared.

Tom looked up from the notes he'd been making for more than the past hour. "Sorry?"

The dark haired flyer walked over and sat down on the sofa across from Tom's desk.

"I was simply stating that about at this point or even earlier in whatever project you seem to get into, one or both of us runs afoul of someone, or in the more painful cases, some*ones*, who have ill intentions toward us. This time… nada. Nothing. I'm not complaining, mind you," he said earnestly, "it is just that I worry that Doc Simpson will forget all about us if he goes six months without stitching or bandaging or at least straightening some of our parts."

"Well," Tom said setting his notes to one side, "I for one don't mind it a bit. And, I'm positive that Bash and even Sandy appreciate not having to pretend it is all part of the job. The truth is, we've both been incredibly lucky that none of our injuries have been the sort that will come back to haunt us later in life. That said, I prefer to not experience the lightning flash of pain and that feeling of, 'Not again!' that comes with a good walloping."

"Agreed! Change of subject," Bud announced. "I've arranged for our favorite western chef to bring us some lunch down here. It is, after all, about two in the afternoon, he is back at work full time or longer from his heart operation, and neither of us bothered to eat anything at the appropriate hour. I'm not sure what he's bringing but—"

He was interrupted by the *DING!* sound of the elevator announcing it had just arrived at the lower floor. The door soon opened to expose Chow's lunch cart—the one with the slightly wobbly wheel that had been "fixed" at least twice only to set back to wobbling a day or so later—followed by the sight of Chow.

And, what a sight. Ever since his weight loss of about a hundred pounds and his renewed energy from that *and* being married to Wanda, he had returned to his love of wild and outlandish shirts.

This one was definitely not one of his typical western motif shirts. This almost defied description. It was cut in the tails-out style of what are generally known as Hawaiian shirts but didn't have anything like hula girls, palm trees or fish.

This shirt had three surfboards racing along tall waves with… well, *non-typical* riders. On each board stood cows. Most assuredly girl cows and *not* steers. One was on all fours and the other two stood up on their hind legs. Each one wore a swimming cap on her head and four smaller ones on their other "coverable" parts.

Across the top of the pocket was the motto, "Aloha Moo!"

Bud burst out laughing while Tom tried to see if there was any sensitivity in the face of his oldtimer friend. There was only a smile and twinkling eyes so he joined in the laughter.

"Like it?" the chef's baritone voice boomed. "Found a little shop in a place called Makawao on the island o' Maui that'll weave just about anything but 'specially if'n it has anything ta do with Hawaii. I couldn't think o' anything myself so I asked 'em if they had anythin' yooo-nique and anywheres western and they got back ta me with this design. They weren't certain it'd go over out on their islands so I said I'd buy a couple shirts from it. They charged me fer two and sent three. It made Wanda fall on the floor she laughed so hard."

He turned around slowly so they could see that the back had four such surfers, only the extra one was a very startled-looking human.

"Do you have some time to visit, Chow?" Tom asked.

"While ya eat? Sure. Whatcha got on yer mind?" He began uncovering their plates laden with a mound of mashed red potatoes with gravy, succulent meatloaf and buttered corn.

After a few bites the inventor turned to the subject. "So, first tell us how you're feeling? And, I want the truth, Chow. I intend to get you back on anything I can like space flights and undersea adventures and even roping zebras in Africa, but I need to know how you really feel."

Chow had already removed his ten-gallon hat and left it on the cart. He seemed to be thinking the matter over before speaking.

"Ya want the truth, so I'll give it to ya'. Now'as the blood is flowin' nice and smooth all over my chest, I feel better than I had in maybe five years. But, I'm still slightly sore around the ribs and Doc plus the Cardiologist lady tell me I got ta stay out o' high-acceleration situations fer another couple weeks, then Doc wants me ta retake the astronaut tests. After that you'll be hard pressed ta

keep me from attachin' myself to yer hip when ya go back ta Mars or wherever!"

Tom's huge smile told the older man everything he needed to know. He was still considered to be a valuable member of whatever adventure team the inventor put together.

"Glad to hear it," Tom told him. "So, we are going to be heading back out there in exactly three weeks. You do what Doc tells you and then pass those tests and we'll be seeing you right up in the control room of the *Challenger* when we go!"

The chef left a minute later whistling and clicking his boot heels almost as if he were dancing across the floor.

"There goes one happy cowpoke," Bud said around a bite of the cherry pie Chow had uncovered before he took his cart away.

"That he is," his friend replied. "He most definitely is. And, the added bonus is everyone is happier when he comes along as our cook. That, plus…" and there was a slight catch in Tom's voice, "I really like Chow. The day he decides to hang up his pots and pans here at Enterprises is going to be one of the saddest days I can think of outside of losing someone to death."

Bud, similarly feeling a little emotional, nodded his agreement. He quickly changed the subject.

"I want to take Sandy out to a really nice dinner as a reward for her hard work down in Mexico. When I suggested it she insisted we ask you and Bash along. Up for it tonight?"

"Well, sure but I…"

"Do not need to ask your lovely wife as my lovely wife has already cleared it with her. We are all just waiting for you to realize it is going to happen and that your attendance is mandatory." He smiled sweetly at his friend.

"If that's the case, I graciously accept and will even slip home a few minutes early to get cleaned and dressed for the occasion. Uhhh, where are we going?"

"Sandy wants to go to the Yacht Club because it is surf-n-turf night and she is really in the mood for the surf part."

Tom snorted. "She ought to see Chow's latest shirt! Both parts on a couple yards of fabric." They laughed at that thought.

Dinner was a warm and wonderful evening for the two couples.

As they ate Tom picked up his glass of wine and raised it to eye level.

“I want to propose a toast to my sister and her rather selfless trip down to help the people of Mexico recently. She did something some people talk about but few follow through on.” He turned to Sandy. “You make me incredibly proud to be your brother. Cheers to you, Sis!”

They all raised their glasses, clinked them together and sipped.

“To my wife and the greater good she has begun to embrace!” Bud said. Sandy, a small tear forming in her left eye, wiped it away by giving a small cough and bringing her napkin up. It fooled none of the other three but they didn’t give her a bad time about the show of emotions.

“Thank you, Tom, and also you two other incredible people in my life. I just want you all to know that I came to a decision a year ago that I had to finally grow up. It has taken some time, and thank you all for staying with me, but I really feel I’ve jumped a hurdle. I’m kind of embarrassed by how I was before and hope you help keep me in line.” She looked at them all.

“Okay,” Bud said leaning over and giving her a kiss on her cheek, “but don’t go all super adult on us. We still want the fun and young Sandy.”

“Deal!” she exclaimed with a big smile. “What’s for dessert?”

They decided to share a Baked Alaska and waited until it was constructed and brought to the table to be covered with warm brandy and lit afire. They and many of the couples around them gave appreciative “ooohs” and ”ahhhs” as the lights overhead were dimmed and the flames licked upward blue and orange.

Their waiter served them equal portions on icy cold plates to keep the ice cream from melting.

Sandy took the first bite and nodded a few times as she chewed and swallowed before Bashalli tried hers. Tom and Bud followed suit and soon their plates were mostly empty.

“Well,” Sandy said as she dabbed the corners of her mouth. “Not exactly as great as I imagined it. Not even as spectacular once you see it is just sweet meringue over vanilla ice cream. Hmmm? I can easily see that being my once and only time ordering that.”

She was not really disappointed but more underwhelmed and did not let that little setback spoil the rest of the evening where the four of them spent over an hour on the dance floor.

When the combo took a break at about ten, the two couples decided to call it a night.

“We have to rescue Bash’s mom from babysitting duty and I know that Bud has a seven a.m. test flight so let’s head on out,” Tom suggested.

Warm hugs and kisses were shared before they parted ways in the parking lot.

When they walked into the Swift house, Mrs. Prandit looked up from the book she was reading and smiled. Then, as she stood, she tutted and came over to Tom taking a handkerchief from her pocket and wiping gently at the smear of her daughter’s lipstick that had been administered on the dance floor and never wiped away.

“If your father saw that he would have a fit my daughter,” she said to Bashalli with a sly smile. Tom blushed and Bashalli smiled knowing she easily could have wiped it away but preferred to mark her man once she spotted a younger woman eyeing him at the club.

“And a pleasant good night to you mother. And, thank you for watching Bart and Mary. We appreciate it.” She went to her mother and gave her a kiss on the cheek.

After she left, Tom and Bashalli tiptoed upstairs to check on the children. Both were sound asleep in their bed (Bart) and cradle (Mary).

As Bashi closed the door to the nursery she leaned into Tom’s chest. “We’re going to need to buy her a real bed very soon,” she stated as she took his hand and led him to their bedroom. Once inside she turned to face him and asked, “When do you need to go back to Mars?”

He could see she was tentatively biting her lower lip, a sign she really didn’t want him to go.

“Not in the next couple of days, but we have to go give that little moon another push to keep ahead of any problems. I’m hoping to find a more permanent solution.” He paused, then added, “Want to come?”

She smiled at her husband and nodded. “I do, but I think I need to stay home with Bart and Mary. He’s about to have his birthday and I don’t want us both away for that.” Then, seeing him flinch at the thought he’d be missing that special day in his son’s life, she placed a hand on his shoulder. “It’s okay, Tom. He is so advanced in his maturity that he actually understands daddy has to be away sometimes. Even on special days. He’ll forgive you if you tell him the good reason.”

The following morning Tom took Bart by his little hand and led

him to the living room where they sat down in Tom's easy chair with the boy in his lap.

"Whatsa want, daddy?"

Tom laughed. "I guess I'm not being very sly about this, but now that you ask, I need to tell you something that makes me very sad. You turn four years old in three weeks. Do you know that?" The boy nodded and grinned. "Well, daddy has to be away when that special day happens."

He tried to explain the Mars situation. Little Bart listened and looked like he was trying to decide if not having his daddy around was worth what needed to be done out in space.

"Will you be here before that?"

"Sure I will. Why?"

"Can we have my birthday before, just you and me and mommy and Mary?"

The young inventor—who had bravely faced death many times, faced the dangers of the deep oceans, deep space and the worst conditions in between—felt a lump coming to his throat. He cleared it and replied, "I'd really love that, Bart. I think your mommy would as well. But, you have to tell me what you want as your birthday gift. Okay?"

Bart had already picked up the Swift men's habit of rubbing his jaw when he was deep in thought. After nearly a minute his face brightened.

"A helicopiter," he announced. "One that flies and comes back when I tell it to."

Tom laughed. He also had pronounced the flying machine with and extra "i" when he was very young. "Heli*copter*, Bart. And, I think we might be able to do something about that for you.

When he arrived at work he called Arv Hanson into the big office to explain what he hoped to have the model maker build for him.

"Piece of cake, skipper. I'll assume this needs a safety ring around the blade ends."

"Sure, and breakaway blades that'll detach before any skin is endangered."

With a nod Arv agreed to have something based on the Whirling Duck design ready in two days. "I'll rig up a transmitter Bart can wear so the thing goes out, oh… maybe fifty or even a hundred feet before it does a controlled bank and comes back to him either on

auto or when he vocalizes the command. Want it to be able to grow with him and someday let him program or directly control everything?"

His young boss' smile told him the answer he needed.

After Arv left and he had handled his morning correspondence, Tom headed for the Communications department and a ten a.m. call he'd arranged with the Mars colony commander.

"Well, a precisely-timed good morning to you, Tom. The only thing on my agenda is our friend, little wayward Phobos. I won't press you for a solution… that is unless you have one for us?" When Tom did not answer in the affirmative, Haz continued. "We have a slew of new data for you and some of it is encouraging."

"I'll take anything you have, but the encouraging news sounds like a great place to begin."

"Well, to start with Phobos has not come back in as quickly as before. That has the experts up here pulling their hair out. Words like, 'Impossible,' and 'Flummery,' have been bandied around. Frankly, we're stumped. I've had everybody keeping such a close watch on the darned thing I doubt a rock the size of a golf ball could have impacted it and your last push seems to be holding. People come wake me up at night to tell me it isn't any closer. The heck if I can figure this out!"

Tom had to admit he was at a loss for any ideas.

"I think I might put off my next trip by a week or so while I run this past a bunch of people down here," he told Haz. "I'm still coming up because I want to make another and more detailed landing on Phobos to see if we can spot anything new, but the trip will be delayed at least five days and maybe seven."

"Well, don't wait too long because we're about to be passed by the Earth and that will make your trip home a very long one."

Tom well knew that each day he delayed the trip—the travel time to Mars, and the accompanying trip back home—meant at least five hours of additional time spent at acceleration or deceleration. If he could not get there and come home within a three-month window then the trip might need to be postponed—if it could be!

"Let me see if I can cut that in half, Haz. I may have a few things to try once we get up there. I'll keep you posted. Uhh…" he hesitated, "how are the rest of the colonists feeling about this?"

"You really ready to hear this? Well then, the consensus, and by a very large margin, is to get rid of the thing. Actually, only a single

dissenter." He held up his hand and grinned. "It serves no purpose we can find, and the small gravity influence is barely felt or even registered on its direct overflights. Water in the hydroponic tanks only rises by a half millimeter for about fifteen seconds on those occasions. So, and as one woman said, 'For the greater good of the Mars colony, can we just shove it into the sun?' "

Tom chuckled before explaining that the "greater good" phrase was something he'd heard just a day earlier.

"It makes me wonder if doing anything really is for the greater good or just expediency. But, I agree that we can't just let it come down on you, so let's see what might have gone on to keep it farther out this time and not the other times. See you in a couple weeks!"

When the inventor reported the status of both Phobos and his forthcoming trip to his father, the older Swift nodded and looked thoughtful.

"Have you or anybody else done the computations to see if removing Phobos, even as small as it is, will make any difference? By that I mean even minuscule differences in the planet or its orbit or anything?"

"Professor Brandon has. He says as far as he can tell, Phobos is a useless chunk of rocks that strayed into the Martian gravitational influence a dozen million or so years ago and has nothing to offer other than an impending show in another twenty-million or so years. He believes, as many other do, that it would be a great loss if we removed and destroyed it, but if it comes to that very thing to save lives, he sees nothing negative other than the loss of some other moon to investigate besides out own."

Damon grinned, He knew his son, so he barely had to ask, "And you believe a more thorough exploration is called for before you do anything. Right?"

"Yes. The first touchdown we did was in what might have been an interesting place, only it wasn't very. I want to make a slow multi-orbital pass around Phobos using all the sensors we have including the Damonscope and a new multi-phase laser measuring device that I should have finished in a few days."

"Tell me more," his father requested.

"Well, there have been laser-based temperature measurement devices and even vibration sensors, but mine uses a trio of lasers to act as the carrier of a vibration wave that will give us a good indication of what lies up to five hundred feet below the surface. It will map out solids and differentiate them from voids, and is going

to be precise enough to show the shapes of rocks and other objects inside a void to about an inch in accuracy."

Astonished, Damon asked for verification. "Five hundred feet deep? In the void of space?"

Now, Tom's face dropped. "To tell you the truth, I'm not certain about the vacuum effect. But, even if I can only peer a hundred feet or fifty feet inside Phobos, think of what we might discover."

"Well," his father said picking up a short stack of folders and heading for the door, "I will be most interested in that. I have a wonderful probe instrument package meant to give the best ever look at the surface and subsurface of Venus and that could be a real boon." With that, he left Tom alone.

Tom now felt some small level of doubt setting in regarding the new invention, something Bud had dubbed the Deep Peek, he called up the files and looked through everything. It turned out to be a good thing. Part of the way in which the Deep Peek operated was based on an equilibrium between the power of the output and the sensitivity of the input.

He spotted the problem about an hour later.

Right there, in the scanner hardware that worked to keep itself centered on the returning laser reflections, was a drop-off. A place where the numbers ought to have been in the range of 50 ms to 127 ms, but were sitting at 22 ms - 29 ms.

He called up the scans of his original notes and let our a groan.

Right there were the correct numbers, numbers that should have been—and as far as he could recall were—identical on the keyboard-entered data.

Tom sat back slowly shaking his head.

Could this be some sort of *sabotage*?

CHAPTER 11 /
THE SECOND LANDING

THE EXPEDITION took off five days after Tom had asked Arv to build the model helicopter for little Bart. The machine, complete with shiny chrome effects on the blades and body parts, had been an absolute hit with the boy who had spent the rest of the afternoon first studying the instruction booklet the model maker had put together, took the removable parts off and replaced them with minimal help from Tom, and then had flown it for more than an hour before telling his father he had some ideas for improvements.

The *Challenger* took off accompanied by three of Tom's flying saucer spaceships each with a crew of three plus an enormous range of supplies. They headed for the *Space Queen* where Tom's light speed ship, the *TranSpace Dart*, was kept along with the very small black hole—parked at a safe distance—that powered the ship by dragging it forward at faster and faster speeds all the while the ship's repelatrons kept the anomaly in a fixed and safe position in front.

The saucers would be mounted at the bottoms of three of the fast ship's fins. It would go ahead and be in orbit days before the repelatron ship arrived. *Challenger* would fly only on robotic control so it would arrive just three days after the *Dart* travelling much faster when a human crew was not involve.

With the exception of a core team consisting of Bud, Chow, Hank Sterling and Professor Brandon—all of whom could travel back home in the fast ship whenever they needed to—everyone else had no family or other reasons they could not travel around the sun with the rest of the colonists out on Mars, waiting for a better window to come home.

Tom's new invention, the Deep Peek, had been rebuilt to the correct specs and was sitting down in the hangar of the ship. It would need to be pulled out and mounted to the lower, outer rail of the ship for use, but he'd ensured that would require only five or six minutes to accomplish.

The other addition to the ship was a three-emitter Attractatron array installed on one of the arcing rails to the left of the command cube. Knowing there would not be enough solid matter to push against for most of each orbit, Tom felt this was the only way to hold onto and maneuver around the small moon.

The possible sabotage had been corrected and nearly forgotten

by all… except for Harlan Ames. As Tom headed for Fearing with his team for the trek to Mars, he was spreading a net all around the company in the hope of catching nobody! He truly wished it had been an oversight or a mistake in the data entry, but he knew he needed to fully investigate the matter.

It was his job, and Harlan Ames took his job seriously!

The first orbit of Phobos at an altitude of just five miles was more like driving a racecar around a tight-cornered short track. The *Challenger* had to heel over at a sharp angle and it was only because of the Attractatrons they could manage the maneuver.

All sensors and instruments were focused on an area just three-hundred feet across.

This orbit was along what might be considered the equator of the moon. Orbit two would start with a slight course change to have them passing three degrees "higher" by the time they got to the opposite side.

Succeeding orbits would hold to this small angle change, and by the time they made fifteen orbits Tom believed they would need to reset and start the process again running directly over the poles.

Since one orbit took them only about an hour, he called a halt to their work after the first fifteen orbits and ordered everyone to get a good night's rest. Ten hours later they resumed the orbits and by the end of the third full set of orbits had covered all but about one percent of the surface.

"I think we've done enough," he declared as he set the ship for a landing course a the colony. "Now comes all the review and number crunching."

Bud turned in his seat nest to the inventor. "And, what can your faithful sidekick do to assist?"

Hank, who had been passing behind the pair piped up with, "Coffee, doughnuts and lots of them both. Midnight oil by the gallon and kind and compassionate words when needed. Oh, wait. We *are* talking about Barclay, *aren't* we." He grinned at the flyer who was looking not at all happy. "Sorry, Bud. Three long days and I get a little snippy. I'm sure whatever the skipper needs we all will be chipping in."

"Forgiven, but since you mentioned coffee…" Bud said glancing innocently at the engineer.

Hank laughed but he headed for the small galley where Chow helped him dispense a piping hot cup of coffee in a sippy bag which he gladly took to the copilot.

To ease stress on the food supplies and the air within the colony, all three of the saucer ships had been crammed full of food and large oxygen cylinders. These had all been offloaded during the time Tom and the *Challenger* crew had been surveying Phobos. Most of the food could be considered luxuries such as ice cream and some types of fresh fruits that the colony could just not grow themselves.

Tom walked into Haz's office and sat down.

"Thanks for all the goodies, skipper. So, what is the news from Phobos?"

"I need a twenty hour sleep and then I intend to dig into all the data we brought back, but I wanted to tell you I took a sneak peak at what was coming in at various times and believe we have something quite unique with your little moon. So much so I want to ask you to try to swing the colonists' ideas of shoving the thing into the sun. I'm not at all certain what will become of this but one thing is certain. Scientists all over the world and up here will be begging for the chance to go see for themselves."

Haz looked at his visitor, a bemused look on his face. "And, you're not going to tell me what this all is about?"

Tom shook his head but smiled. "Not quite yet because once I get everything together I want to go back up and take a close look at one particular spot before announcing anything."

"Can you at least give me a heads up before the grand announcement?"

"Exactly my plan. You and dad will be in on the same conversation."

"I think I'm looking forward to that, only I can't be certain it isn't from the same perspective of the death row prisoner who is anxious to get to the gallows to see what sort of workmanship went into it."

The comment made Tom chuckle, but inwardly he was hoping it would never come to a "gallows" situation. He fully intended to get a grip on the Phobos situation and put things back to what they once were.

Nineteen hours later Tom had been awake from his rest nearly nine hours and had begun to develop a map of both the surface and, in most locations, the interior one-to-two hundred feet. Bud found him in the control room of the *Challenger* studying the resulting 3D

map six hours later.

“Color decode that for me, please,” he requested.

“Sure. The light gray is the surface with all of the features. We can zoom in to a point where we can see everything more than six-inches across. Red is anything other than solid rock down to fifty feet, blue is between that and one-hundred feet, and the green is the few spots lower than that the Deep Peek managed to give us some data.”

Bud looked at the map as Tom slowly rotated it around several possible axis points.

“Well, and forgive me if I can’t grasp simple things, but I’m seeing a lot of hazy yellow. Are those the places where there are pockets of air or whatever?” When Tom nodded, Bud’s face scrunched up in concentration “Go back about a quarter of the way around on this same trajectory.”

Tom complied asking, “Think you saw something?”

“Yep, but it might just be something where a couple of the colors overlapped. Stop!” He pointed at a spot on the image that was slightly in the purple range. “What’s that?”

Tom leaned forward. After more than five non-stop hours of looking at more than a a thousand features he had evidently missed that.

“Not certain, but let me zoom in.”

The image began to change as he brought things in so the surface of the moon was no longer visible.

“We’re at about twenty feet inside the moon,” he told Bud. As he continued the slow zoom in he announced their approximate depths.

At one-hundred fifteen feet he stopped.

“That’s odd,” he stated. “Now that I’m in close it appears we have a void that did not appear in the longer shots. Hmmmm.” He sat back studying the image. A minute later he took the control joystick and moved the image to the left, right and up and down. Then he zoomed in and out until he felt he was at the very top of the void. He placed a “marker” at that location and zoomed steadily in until he hit solid rock again

“Jetz!” Bud exclaimed looking at the depth indicator. “That’s nearly two-hundred feet down. How the heck are we supposed to get in there to explore, and don’t tell me that isn’t exactly what you

intend to do, Tom Swift!"

Bud knew his friend and brother-in-law better than anybody and he could see on Tom's face that this was exactly what he now wanted to do.

Bud made an "I give up" shrug before asking, "So, do we get out the colony's earth blaster and dig down to one side of the cave?"

With a shake of his head, Tom said he did not believe that was prudent.

"You see, Phobos is a tenuous arrangement of stones and dust held together with a little gravity and a lot of determination by Mother Nature. I'd be afraid of breaking too many bonds and causing a chunk to detach, Then, all hell would break loose and we could have an uncontrolled disintegration of the moon. That could spell trouble for the colony, so no. Not the earth blaster… for now."

They sat in silent contemplation for five minutes before Bud noticed that Tom's mind had slipped elsewhere. He rose and left the control deck and even the ship.

Ten minutes later he wandered past the doorway to Haz's office and paused. The big man looked up, smiled and indicated the flyer should come in and take a seat.

"Tom finished with his data dump?"

"Yeah, and we found a pretty good sized void a couple hundred feet inside the moon. Maybe fifty feet tall and I think three times that wide in all directions."

"Wouldn't that lack of mass cause the moon to spin?"

Bud shrugged. "Do I look the sort to understand that level of physics, much less *planetary* physics?"

"Sorry, Bud. Sometimes I associate you and Tom so closely I think you are like twins who have never left each other's side. I guess he'll let us all know what he believes all in his own good time."

Half an hour later Tom joined Bud and Haz in the commander's office. His face was flush with excitement.

"I think I have found the reason for Phobos' wanting to come down and play with Mars," he announced as he took the other visitor's seat. "Phobos has, and I'm guessing Bud already spilled these beans, a void of some size located about fifteen degrees below the current equator. It is maybe four acres in size, at what could be thought of as the floor, and has a mostly domed top. Something was there that turned to gas or water and that finally evaporated or

escaped leaving the void. Probably a passing comet that really wasn't interested in going any farther."

"Neat!" Bud said but his grin turned serious as he saw the inventor had more to tell them.

"It isn't so much the void because that can be explained. It is what I believe is down in there. As in sitting on the floor. Smack dab in the exact center."

"What?" Bud and Haz chorused.

Tom grinned. "A gravity stone!"

Plans were made for a landing on Phobos to look for any way to get into the cavern under the surface.

"We're taking the three saucers but not the *Challenger*?" Hank questioned Tom. "Why not the big girl?"

Tom smiled. "I'd like to set down lightly and in a triangle formation. If we then get out and walk a three-sided search pattern inward and then back outward we can cover about as much area as I'd like in just a few hours. While we're out there, Professor Brandon is going to try to come up with a plan for digging into the cavern without damaging Phobos."

When another member of the team questioned why not use an earth blaster, Tom explained the potential for damage to the moon. The man blushed but Tom told him it was a good question that everybody needed to understand.

The three spacecraft took off at ten second intervals before flying in formation to the point where Phobos would be in twenty more minutes. Five minutes prior to the intersection Tom ordered them to begin flying forward along the same orbital plane as the moon but about 10% slower. As the time approached for the moon to catch up to them he ordered them to rise about five miles and speed up slightly so little Phobos would pass below them. A minute later they all slowed to match the speed of the moon.

"You each have your set down points, so I see no reason for me to micromanage the landings. At your own readiness, go ahead and land. We'll be in constant communication so call out if anything untoward happens," Tom told the other two pilots.

Hank in saucer two and Bud in saucer three radioed their acknowledgement.

With a precision due more to excellent piloting than any automated systems, the three saucer-shaped craft touched down on Phobos within two seconds of each other.

"Please get everything into standby and team members suited up. We'll report once we are outside and then get this little walk underway," Tom radioed the others. His own team, three strong, were already in their suits with just the helmets left to seal up, and Tom assumed the other two ships would be in the same state of readiness.

Once outside, the teams began their walk in a clockwise rotation, team members about twenty feet apart. In each team one member carried a portable gravimeter which they paused and set down about every fifty feet. With the three devices connected electronically, they were building a fairly precise picture of the potential for the gravity stone Tom believed was below them.

Each team walked about five kilometers in total on the inward route before they headed back to Tom's saucer for a rest and reports of any findings.

"If this were back home I'd say it was a very rough desert walk," Bud stated. "Lots of dust and rocks of all sizes, but I'm sure you all ran into that same stuff. We did think we spotted a dip in the surface like something might have caved in below, so I'd love to get the *Challenger* out here to fly right over that with the Deep Peek."

Duanne Dimmock, one of Hank's team, asked, "Why?"

Tom thought he knew. "Well, Duanne, if that is a cave in or any sort of subsidence, that means a void was down there at some point. And, if there is one point like that it might indicate a path of escape for water or air at one time and *that* might still be viable for digging out and getting us into that cavern. Good job, Bud, and your team!"

Tom made the radio call and was promised that the large ship would be there the next time the moon passed over the colony.

"We need to go mark that spot," Tom began but saw Bud's smirking face and continued, "but our Bud will have already taken care of that. Am I right?"

The flyer nodded and smiled. "Dropped a marker beacon. When the ship gets here I'll send them the channel to home in on."

As it would take another three hours for their position to be easiest for the rendezvous Tom suggested they take a shot at the search routes farther out from their positions.

"I think we'll limit it to one path clockwise and one counter to that a little farther out before we come back and get ready for *Challenger* to get here."

As the last of them trudged back to the lead saucer Tom received

a call from *Challenger*.

"Be there in twenty minutes, skipper. Do you have the location we're to scan marked?"

"It is, but hang on while I get Bud in on this, He dropped a beacon and knows the exact frequency."

Bud was brought in moments later.

"Look for one-zero-seven-nine-point-five," he called out. "I tossed it right into the center of the depression. If you get visual you will see it is only about three feet deep and maybe six feet wide, but very noticeable, at least from ground level."

Everyone on the surface crowded around the large monitor at the "front" of the saucer's one and only circular room to watch the results of the Deep Peek scan.

Ten minutes later the results were in.

"Sorry to tell you, skipper, but we're seeing a pretty solid plug below that. Not exactly like the surrounding rocks, but darned dense. I suppose we can ask the geologists at the colony to review this data to tell us if digging through that would be safe. Can we do anything more for you?"

"No, and thanks, Red. Take her back and get the colony experts and Doctor Brandon reviewing things. We'll finish our surface search in another three or four hours and head down."

"Will do. Take care down there. Oh, and your father called Haz a few hours ago asking that you come back as soon as you can. Not an emergency, but he needs you to take over the big office while he heads down to finish his New Zealand project. See you on the ground!"

Tom remained behind in his saucer while the others finished the two farthest search lines.

He needed to think things over.

If there was a gravity stone down there, it was either being used by someone to turn the moon into a sort of weapon, or it was malfunctioning and was the likely cause of the moon coming closer to the surface at one point and then seeming to be perfectly happy to remain it its standard orbit within a short period.

"I've really got to get the Space Friends to answer me," he said out loud to nobody other than himself. *If, that is, they are still anywhere around here*, he added inside his own head.

He walked back to the small kitchenette hidden behind a panel at

the rear of the saucer and dispensed a coffee packet. Even with the artificial gravity pressing down on his inner body suit making him and the others feel as if they were under three-quarters Earth gravity, liquids and other things were only subject to the minuscule gravity of Phobos, hence needing to contain the hot beverage in a squeezy pack.

He sat down at the central control station and brought down the communications instrumentation of the wraparound glass panel. The selector was quickly set to the frequency over which he and his father sent and received messages with the strange space beings.

It also included a keyboard which he ran his gently fingers over as he decided what to write.

Once, he would have needed to develop a message of nothing more than mathematical symbols and equations, but a breakthrough a few years earlier meant he could type the message in English, although in a stilted sort of English.

He thought for nearly five minutes before he began typing.

After creating the message he sat back sucking the last of his now tepid coffee before leaning forward and making several changes.

Finally, he was satisfied.

I only wish I could take the time to pass this by dad, he thought. But, he felt that time was an important factor and so he gave the message on final scan. He chuckled as he spotted a typo that might have confused the space beings—assuming they read the message—and made the necessary correction before pressing **SEND**.

To Space Friends from Later Swift.
I understand your hesitance to communicate, but have found a gravity stone inside the smaller Mars moon, Phobos. It is fluctuating between a very weak or no output up to a very powerful level and is causing moon to fall from orbit.

It appears to be in a large cavern which we cannot safely explore because stability of the moon might become compromised.

If you have anything you can tell me

or do to change this unnatural gravity or anything about gaining access, please contact me as soon as possible.

If I cannot find a solution to this unnatural gravity, the entire moon will need to be removed from its orbit and destroyed.

Tom knew that only time and a change in the Space Friends' situation—if they were still anywhere in the vicinity of Mars, that was—would tell if they had an insight into why one of the gravity stones, like the ones on Nestria and the smaller one he had parked on the Moon from their one and only successful visit to the Earth, had been installed inside Phobos.

Only then might he understand the real story.

CHAPTER 12 /
EARTHBOUND... FOR A BIT

TOM AND BUD took off from the colony in one of the saucers and met up with the orbiting *TranSpace Dart* for the fast trip back to Earth. Just about everything was ready for them; Tom decided to spend a little time ensuring all their data and other evidence was on board and backed up. An hour later they left orbit turning the ship and its driving black hole toward the point of rendezvous where they would meet their home planet two days later.

"I kind of wish you could develop some sort of artificial black hole so we could always travel this fast and smooth," Bud said as they neared the orbit of Earth's Moon. "You have to admit that once you found that balance point between distance and the attraction of the hole, and how that cancels out the forces of acceleration, it sure made fast travel comfortable."

"Maybe someday, flyboy. For now we have to be satisfied with our one little natural black hole and this ship. I don't have any solid idea how to come up with something like that, but," Tom said with a thoughtful look on his face, "nothing is beyond possibility."

He knew it was probably a physical impossibility as the black hole had been created when a very small star—or more likely a small piece of an exploding star—had burned out and collapsed in on itself becoming impossibly small and dense. It had meandered through the galaxy finally finding itself captured between two large pieces of asteroid in the belt between Mars and Jupiter. Nothing on Earth could recreate those conditions, so light speed flight would need to rely on something else.

For a split second Tom wondered whether the gravity stone he now believed was a probability down under the surface of Phobos might be utilized like a black hole. *Probably not*, he thought briefly.

After transferring to another saucer at the *Space Queen*, they landed right at Enterprises. This particular saucer was scheduled for some additional equipment that was best installed at Enterprises so Tom was able to bypass Fearing Island.

"It's coming on lunch time," Bud said rubbing his stomach. "Care to join me in the cafeteria? I know we could ask Chow to run and fix something for us, but he's looking a little tired after the trip, and I wanted to give him a break."

"Hold on right there, hombre!" Chow's booming baritone

sounded behind them as he exited the saucer. “The day hasn’t come when old Chow cain’t rustle up grub fer you two. Gimme fifteen minutes and I’ll whip up something.”

Tom shook his head. “No. While we both appreciate the offer, you do look tired and I promised Wanda to let you come home the minute we touched down. So, we appreciate your offer and love your cooking, but you go see your wife and get a good night’s sleep and Bud and I will go choke down something from the regular food lines.”

Looking thankful but too prideful to say he actually was feeling exhausted, Chow nodded, clasped both young men on their shoulders and headed for his car.

“Gotta give the man his dues,” Bud stated. “He’s bone tired and yet willing to cook for you.”

“And, you as well, Bud.”

“Yeah. Glad you sent him home. So, cheeseburgers before we do the same to see our ladies?”

Tom shook his head. “No. The more I think about it, the more I realize it needs to be wives before burgers, Bud. Always and forever!”

When he got home Bashalli threw herself into his arms giving him kisses all over his face and neck.

Finally, she eased herself to the floor and hugged him with her face against his chest.

“I am so glad you are home, and when Bart and Mary get up from their naps they will also be thrilled.” She backed up and looked into his face. “Did you solve the little moon problem up there?” She glanced toward the ceiling.

“Not really. We discovered several new things and a few more mysteries that make it vital, in my mind, that we get it to stay put back in the proper orbit rather than to drag it into space and push it toward the sun.”

He told her about what they had found regarding the gravity stone.

“Can’t your Space Friends take care of it?”

He reminded her that they had been out of communication for the most part for over two years. She responded that it wasn’t fair, and that made him laugh.

“Fair or not, if their Masters won’t let them call us, or worse yet if they have been recalled to their home planet, there is not a lot we

can do about it."

"Don't you have those super fast radios they gave you? Can't you call them on those?"

Tom explained that he and his father did use the faster-than-light transmitter/receivers, but even those elicited no answers.

They continued discussing possibilities for Phobos while the children were awakened, cleaned up and brought to the living room to play.

Several times Bart asked questions, mostly astute and well thought out which Tom tried to answer as best he could. Finally, getting a little frustrated at the lack of complete answers, the boy crossed his arms over his chest and shook his head.

"Daddy? Why don't you want to answer me?" he asked sounding a little peeved.

Tom laughed. "Bart. It isn't that I don't want to answer your very clever questions, it is that I just don't have the answers. At least, not right now. But, I promise that after Grampa Damon you will be the next person to know once I do have answers. Okay?"

Bart brightened and ran over to hug his father around the neck. "Okay, daddy. I won't ask any more until you tell me it is okay."

Bashalli left Tom with the two children and went to start their dinner. As she walked into the kitchen, she called back, "I hope roast pork loin with that sour cherry sauce you like is okay."

Before Tom could utter a sound, Bart piped up. "Okay, momma!"

"Ditto what my son just said," his father added.

After dinner Tom called his parents' house and spoke with his father.

"I'm sorry to take some of your mind share away from the Mars issue, but I'm going back down to New Zealand for up to three weeks, and as much as I know that this company runs smoothly because of Munford Trent, I really want one of us here to make the important decisions."

Tom understood and said so before asking if there was anything in particular needing his attention.

"Yes, and one of them is that design sabotage you spotted in your Deep Peek. Go talk to Harlan tomorrow. He believes he knows what has happened."

It was enough of a tease that Tom found it difficult to sleep

soundly that night so he rose at five and headed in to work. He walked past the alcove where their secretary normally sat. Even Trent didn't come in this early so Tom continued down the hall to the large lab and apartment next door where he took a shower and shaved.

By the time he got back to the office, Trent was sitting at his desk, something almost like a smirk on his face as he handed Tom a cup of coffee.

"I shouldn't ask, should I?" the inventor stated.

"With your father leaving this morning and you taking over I have so many things to attend to that I just came in. Imagine my surprise that you are here this early, Tom."

"Ignoring, of course, that you just happened to have a coffee waiting for me?"

"Yes. That," came the deadpan answer.

He followed Tom into the office and spent ten minutes filling the young inventor in on what was happening at the company and what things were on the schedule for the day.

On hearing about the five meetings spread throughout the day, Tom groaned.

"All are company critical and only one is scheduled to run more than a half hour," Trent said. He then inquired about the Mars problem.

Tom gave him the condensed five-minute version of what had been going on and what he believed might be behind the problems.

"And, your Space Friends no longer answer any of yours or your father's call, right?" Tom nodded. "Then, I would say you are pretty free to do whatever you think best, all the time tempering it with the desires of the colonists. At times like this I wish I could offer some help, but it is way beyond my understanding." He paused, then remembered what he wanted to say. "I'll hold off on the mail until after your nine-thirty meeting with the Propulsion Engineering folks. They will come over here."

After handing Tom a folder with the notes Damon had made in preparation for the meeting, the secretary left Tom alone. By the time Dianne Duquesne, Artie Johnson and Olivia DeKolb came into the office he knew exactly where his father believed thing stood and what needed to be hammered out.

"Hey, Dianne. Hey, Artie and also to you, Olivia. Welcome, and I

hope it is okay that dad can't be here. I'm fairly sure I understand the issues and am prepared to make any decisions necessary."

Dianne, whom Tom had known for about eight years, smiled. She knew what a dynamo of a man he was and had no doubt he could handle the small situation that had prompted the meeting.

"Fine," she said. "All we really need to do is fill you in on the status of the new all-electric solar motor and get your approval to spend about fifty-thousand dollars to build the prototype."

She asked Artie to start with the basics of the engine.

"Fundamentally, it turns electricity into another form of energy that has mass, therefore it can be aimed out the back of a nozzle and then everything follows Newton's Third Law. The trick is either in carrying enough electrical power, as in several nuclear power pods, or creating power on the fly using something like your solartron, only this is more like a solar sail that is nothing more than that incredible cloth your cousin over in England and her partner came up with."

Tom's cousin, Tommy Swift, had been both a shock and a pleasant surprise. A brief affair between Tommy's grandmother and Tom's grandfather had resulted in her mother who turned around and brought a daughter into the world a couple years before Tom was born. She became an engineer and along with her best friend and business partner, Betty, had created a solar cloth that used heat rather than light to generate electricity.

And, because of genetics, was a dead ringer for the inventor if only an inch taller, female, and very beautiful.

"You believe the black of the cloth, even in the icy depths of space, will generate enough power?" Tom inquired.

Two of his visitors looked at the young woman with them.

"Oh, it's my turn to speak," Olivia stated. "Well, Mr Swift authorized sending up a three-square-meter test cloth to the *Space Queen* on a supply rocket a month ago. Commander Horton had a few of his people take it outside and run a lead into the station. It is less than down here on Earth, but it does generate an incredible level of power up there. Enough so that we believe a fifty meter circle of the material outfitted with a hoop frame to keep it mostly spread out flat and tethers to keep it attached to the spacecraft will give us enough electricity to run the Quantum Electric Force Engine with enough thrust to escape the Sun's gravity pull."

Tom looked thoughtful before asking, "Is there a limit to the top

speed or does it just keep speeding up until it gets far enough out to drop the electrical power below what is needed to run the engine?"

His three visitors nodded.

Dianne took up the conversation. "At that point it can be swung around so it traverses parallel to our orbital plane, or any other plane for that matter, or it can come back in until it has enough sunlight to power the engine again."

Artie smiled as he added, "It could do that forever… theoretically, that is."

They discussed the payload for such a prototype. It would have a full array of sensors to record and transmit back to Enterprises all data from the operation of both the power cloth and the engine.

Ten minutes later Tom stood up and shook their hands.

"You have your money to build that prototype. I assume it goes up like your test piece and launches from high orbit?"

They nodded. "And," Olivia told him, "in case you want to know, we can have everything ready to go in about eleven weeks, assuming we can get the cloth."

Tom promised to have the ladies from Uniforms—who operated the giant loom turning out the cloth these days—make it a priority.

After they departed he made a call to England to tell Tommy and Betty about the new project. Both women were thrilled and asked to be kept "in the loop" as far as the success of the project.

Tom asked if they had anything in the works. Tommy laughed.

"When don't we have something at some stage of either development or stagnation? Unfortunately, this week it is mostly stagnant. Betty has been working on developing a monofilament version of our nanotube technology. If she can perfect it things will be able to be made with incredible speed and there will be no places where structural failure might happen. Could be incredible for high-power transmission lines. But," she sighed, "that is for the future."

The remainder of Tom's day went about the same with only one meeting where he had to disappoint. It really wasn't that much a disappointment for an internal department or division as it was for a small potential customer.

Jake Aturian, manager of the older Swift Construction Company, had a midwest client with a desire to start an air service using six of Tom's flying saucers outfitted to carry fifty people each. It wasn't that they needed the speed as their destinations were rarely more

than three-hundred miles apart. They wanted flying with them to be a unique experience.

Jake was saying, “We have the capacity right now to turn them out inside of two months, but I just get the feeling they might be trying to play us a little.” He went on to say they rarely would commit to a solid answer to anything, including financing—which had to come from outside as the Swift companies did not provide such services to anyone.

“Okay, then I say we tell them we are not interested unless they have solid, guaranteed financing they can bring to the table. Even then I’d rather tell them it will take at least a year to fulfill any order once we get the monies.”

Jake agreed and went away happy he had not been forced to make the decision alone.

Day two finally had Tom with enough time to go see Harlan.

“Glad you could come over, Tom. We’ve had a little movement in that possible data sabotage. I put our forensic computer specialist, Meagan Blake, on the case. She sifted through that file and files alphabetically close to it.” His face told Tom there was more to tell.

“I’m getting the sense this isn’t good.”

“Not so much, but not as bad as it might be. Our saboteur was, luckily, not a spy. Turns out Meagan traced nearly all the file fiddlings back to a single computer and single sign in name over in the back offices of the main cafeteria. Obviously not a real genius.”

Tom held up a hand. “Surely it wasn’t Chow’s nemesis, the man he calls the mad Russian!”

“No, not him. But, someone who has been with Enterprises about a year. I had him brought in and he admitted to it all. His father was a cook on Loonaui when we had the rocket base out there and he was told that it was the Swifts who suddenly closed up shop and made his family destitute. The idea it might have been the local government making us close things down never took root in his mind.”

Tom sat there, saddened by having yet another employee turn on him or his father.

“How bad is it,” he eventually asked. “Did we lose anything to the outside?”

“He claims he was doing a file a week to avoid suspicion and had been at it about three months. His only intent was to get back at you

personally and not the company. So, and with his cooperation once I showed him the video from the 'Get off my island' speech the local Governor made plus the official eviction notice we received, we traced down twelve files he recalls tampering with. All little things you should be able to fix, and he has agreed to my terms."

"Being?"

"He turned himself into Chief Slater at the PD nine days ago to serve fourteen days in jail after which he comes back to make a direct apology to you, and Damon if he is back, and then agrees to pay damages. After that, we shall see. He'll be on probation with us for at least a year if he decides to stay around, but I get the feeling he misses island life and might just leave."

Tom said he believed actual damages would be only in the time it took to trace and verify his activity and to fix the files.

When Tom met up with Bud for an afternoon coffee in the cafeteria, Chow's "Mad Russian," Dimitri Krashnov, came out full of apologies for his employee.

"I beg you forgive me, Mr. Swift, for this terrible thing I have brought on the company. I should never have hired him. The man is bad and he will be dismissed immediately once he gets out of jail!"

"I wouldn't be so fast on that," Tom suggested and told him of the agreement the man had with Harlan.

"Ah, then I shall not make a move against him. But, I cannot say that anyone wants to work with a man who would bring shame to his family and damage to you and your father." He sighed and wandered away, muttering something in Russian to himself.

Bud grinned at Tom. "I suppose that if you or Harlan won't hold a good grudge, at least our Russian chef will do it for you."

They talked about the next Mars trip and what was going on in the mean time.

"The giant repelatron dish is taking shape over at the Construction Company. Next week they'll make the attendant Attractatron dish and then all the electronics for them both get built. By this time in five weeks we ought to have something to take to Mars."

Bud pursed his lips. "How long will that trip take? I mean Earth has zoomed past their position, and we don't exactly have a speedy way to haul freight there unless you plan to drag it behind the *TranSpace Dart*."

Tom's look told him everything. The inventor did believe he could use the last ship to pull the array behind it.

"It may not be as fast as the ship can travel, but it ought to be our quickest way to get back to Mars and then use the *Challenger* and a couple of the mule drones to get it attached to Phobos. After that, we will see if a computerized approach of shoving Phobos a little each orbit or two but only away from the colony will do the trick. I hesitate to say it will be the permanent solution, because it really can't be as long as the gravity stone is in there, but it could give us some breathing room."

For the next several weeks Tom kept tabs on the build of the combination repelatron/Attractatron and he wasn't encouraged when it became obvious they could not add enough power pods of the medium size he hoped to run the dual array.

With his father finally back at Enterprises for a week before the dedication and first run of the Air Ferry in New Zealand a few days away, he and Anne Swift, Tom and Bashalli along with Bud and Sandy headed down there for a two-day mini vacation before Tom had to leave for Mars.

The event was a success and the people down there finally agreed it was a great thing and not some American effort to take over their islands. And, though one of Damon's noisiest political foes had died when she led a sabotage attack on the Wellington terminal, even her rather fanatical party supporters had agreed she'd taken things too far. Now, the people of both islands would benefit from having fast and frequent transportation between their two major islands.

The entire Swift contingent arrived home tired, but Tom and Bud only took one night off before final plans were completed for the trip back to try to fix Phobos.

There was so much to do and still so many unknowns.

Not for the first time Tom sat in his easy chair pondering whether he would ever get to the bottom of what was going on above Mars.

CHAPTER 13 /
A VICIOUS CICATRIX

IN SPITE OF his earlier fears and some serious reservations, Tom decided to take a small atomic earth blaster up on his next visit. By now the orbital position of Mars was about 20% behind that of Earth as they moved around the sun and so all future trips needing to be accomplished in under three weeks, at least for the following ten months, would need to utilize the speed of the *TranSpace Dart*, so that was his spacecraft of choice.

Two days before he, Bud, Hank and Chow headed up to rendezvous with the arrow-sharp ship, Tom spent the entire day in his underground office and lab trying to make refinements to his Deep Peek device.

He had been nearly satisfied with its performance on the most recent visit to Phobos but felt it could be better. Perhaps even much better.

For seven hours he worked uninterrupted except when Chow brought him a sandwich, which he insisted the inventor eat while he stood there to watch. During his work time Tom increased the capacity and strength of many of the sensors they would want to use, especially making refinements to the Deep Peek he believed would allow it to be more accurate and selective. Tests in the hills around Shopton showed it now could tell the difference between wet soil, dry soil, water and air pockets.

It also detected what he believed could be a fifteen acre oil shale field just to the south of the Swift MotorCar Company grounds with about sixty percent of it under Swift-owned property. That would have to wait, but it was interesting to the inventor that the device could be that selective with just a few tweaks and a slightly redesigned antenna array.

He hoped it could provide additional information once used to look more closely beneath the surface of Phobos.

The trip to the Red Planet was uneventful and fast. Without the once-anticipated repelatron/Attractatron tagging along they made top speed for the short nineteen hours time they accelerated.

As with previous visits, Haz Samson met them outside the main habitat dome. His face was a mix of eagerness and caution.

“Greetings from some of the most puzzled colonists since the Pilgrims were introduced to the cockroaches of the sea, lobsters. I

have to tell you, skipper, that Phobos is acting really strange, almost as if it is purposely trying to fool with us."

He described how the moon would come in closer for a few days and the gravity level would grow, and then it would wane and a simple push by the drones sufficed to get it back near its proper position.

"Well, don't look at me, not just yet, but I intend to try to dig into the moon and try to get to the cavern where the gravity stone seems to be. We ought to know more in about five days," Tom told him.

"Five days? Why so long?"

Tom laughed. "Ever heard the adage, 'Softy, softly, catchee monkey?'" he asked.

Now Haz joined him in chuckling. "Okay. Message received. You go nice and slow and you don't get into trouble or let things get away from you."

"That is the hope."

Chow, who had now fully recovered and had a renewed level of energy came out of the elevator in the lower fin of the hip hauling a cooler filled with things he intended to cook for the day's lunch.

"Gotta get a few o' yer folks, Haz, ta help haul this grub inta the cookin' dome. I'm gonna fix ya all some o' the most tender pork loin with fresh green beans and smash 'taters ya tasted in a month o' Sundays!"

"In that case, I'll even lend a hand," the big man offered heading to take Chow's load. "You go get things staged up in the ship and I'll have a detail meet you there in five minutes."

Haz and Tom headed into the airlock and took off their suits. Before continuing on, the colony manager made the promised call and as they made their way to his office they were passed by four men on their way, more eagerly than Tom might have anticipated, to help the chef with his food boxes.

The early dinner was attended by all of the colonists with some of Tom's people manning the sensors in the small control room of the main habitat. They only needed to monitor the air and keep an eye on the hydroponics growing lines in all but the small "chicken" dome.

The Earthers returned to their ships for the night and all rose before four in the morning.

During the night the new Deep Peek had been installed on the

lower rails of the *Challenger* by the colony's technical crew so when Tom and Bud entered the ship the only sign anything had been done was a note on the control panel advising them of the change.

They took off accompanied by two of the saucers at six getting into rendezvous orientation fifty minutes later.

"Where're we going to set down?" Hank asked.

"Over close to that subsidence point next to our gravity stone's cavern. We'll set up the earth blaster and start the slow drill down. And, before Bud or anyone asks, I think I mean really, really slow as in getting down the hundred-fifty feet might take a full day. I want no surprises if we can avoid them."

Once on the surface Tom made a measurement of the gravity and announced it was currently "...nineteen percent Earth normal. That ought to be enough to keep us and the equipment on the surface and not flying off, but everyone go slow and be careful," he cautioned in time to turn and see Bud landing from having taken a leap to see just how high he could jump.

Inside his helmet the flyer looked sheepish at having been caught.

Along with the blaster and its collapsible launch stand, Tom had brought along three small self-drilling anchors to hold things down. These he and Bud poked into the rocky and dusty surface, holding them in place long enough to get a grip on the soil when activated and begin to dig themselves in.

Setting the digging to proceed at a torturously slow pace took the inventor the best part of an hour of balancing the blaster's abilities against the relatively softness of the soil and rock it was going to be digging through. He also had to take into consideration the gentle angle needed to actually pierce into the cavern below. It required one additional hop into space and a good sweep with the Deep Peek to satisfy him he had things right.

He hoped that nine degree slope was some indication he would be traversing the original shaft dug down in order to place the stone. With no spin to the moon it was most likely any escaping gases would have left behind a shaft straight up.

At its lowest power setting the blaster barely stirred up a steady stream of dust as most of the materials were vaporized before they could travel much more than the length of the device.

"Talk about slow," Bud commented to Hank.

"Sure, but the skipper has a method behind that. You wouldn't

want him to push things and find that we have another planetary body like Eris to reassemble, only this time we have hours rather than weeks to do it."

It was true. On the *TranSpace Dart's* first trip outside the solar system they encountered a small planet with a moon and both were directly in the path of Halley's Comet as it swung back in for another visit. The comet hit the planet's moon and the moon plowed into the planet in slow motion but with enough force to break the surface crust and let most of the gigantic chunks begin to drift apart.

It required a near-Herculean effort and an equal amount of luck to put Eris back together and keep all that debris from eventually entering the solar system and potentially crashing into Saturn, Mars and the Earth.

"I get your point," the flyer admitted with a sheepish grin.

It took more than half an hour for the rear end of the blaster to disappear and get about a foot under the surface, and all that time the inventor kept a very close look at several instruments including a seismograph that would be their first indication that something was breaking apart down there.

With the orientation of Phobos meaning everybody's heads were pointed toward the planet and most of the crew stood transfixed at the incredible and almost too close geographical features of the planet below—or above—them.

Bud straightened up from where he had been crouching next to Tom and stretched. As comfortable as Tom had managed to design their spacesuits, they still had a tendency to pinch and tighten a bit as you moved. He took a quick look straight up—or down—to the surface of Mars.

Little Phobos was just coming up on an area of the Red Planet some believed had been the impact site of an even smaller moon—perhaps only a mile across—eons earlier. An incredible gash had been made showing the destructive power and the scar that survived possibly hundreds of thousands of years.

"Will you look at that? What a nasty big gouge that is!"

They were just passing high over a deep set of canyons dug deep into the surface.

"Those are known as the *Valles Marineris*, and some scientist believe they are yet more proof of water having once been a part of the Martian surface. Personally, I believe with the large minority who think that is the crash site of a third moon this planet once had.

Some have even named it as Thlipsi, the Greek word for sadness. It is as if whatever that moon, or even an incoming asteroid coming in at a fairly acute angle, broke up as it hit the atmosphere and more than a half dozen chunks of various sizes hit."

Bud made a hmmmm sound. "I think I'm with you. It is too… too… Uhh, too *gougy* to be something that came straight in from deep space. That would have made a crater. As for the water thing, could it have collected water?"

Tom nodded inside his helmet. "It likely did if it happened far enough back in the planet's history. It is stark but sort of beautiful."

"Sort of in the same way the Grand Canyon is, huh?"

Tom agreed. "Reminds me of a line in some novel I read years ago, something along the lines of, 'What a vicious cicatrix!' "

"Sick-a-what?" Bud asked.

"Cicatrix, with a couple c's in there and an x at the end. Basically, a nasty scar."

"Oh," Bud responded looking at the feature disappear around the planet as their moon ride raced on. "Now I give it some thought, *that* one that looks like a spaceship out of an old TV show! I wonder what size it was?"

Tom had also noticed the similarity from their recent orientation. He chuckled. "Yes, and you are correct except you can tell whatever made that had been fairly large, but not as big as Phobos, and that gives us an indication of what sort of damage might happen if this moon crashed onto surface."

Bud gulped. "And Phobos does or does not pass right over the colony?"

"Almost directly over every ninth orbit and not much more than nineteen degrees off at its farthest point, although there is the short set of hills behind the habitat domes that could provide enough protection, but I, for one, don't want to put that to the test!"

"I'll bet Haz and the colonist don't want to try that either. But, if we can't find a way to get to that gravity stone and either take it away or somehow get the Space Friends to help turn it off or fix it, our choices for keeping this little fellow up here are pretty slim."

"No truer words, Bud. But, I'd like Duanne and Red to stand guard here while the rest of us go up and I take another pass over the area with the sensors and Deep Peek."

The team members trooped back to the ladder and climbed into the airlock and then up to the command center.

Their much slower flyover this time gave them an incredible insight into what they might encounter if they could get down to the cavern. Not only did the readout show the floor was mostly flat—something that spoke of a constructed empty space rather than natural cave caused by a bubble—it showed exactly where the object likely to be a gravity stone could be found.

Tom wasn't surprised to see it was almost exactly in the center of the cavern.

The unfortunate thing was they now could see the stone was encased in something the Deep Peek could detect, but not identify. It almost seemed as if some sort of protective field encased the gravity stone. It could be semi-solid or even invisible; only time and standing in front of it would tell. Nor could it tell how thick this covering might be.

It was going to depend on them getting into the cavern and seeing for themselves.

Tom decided to continue their survey from above and out an additional one-thousand yards. He hoped there would be some indication of a more gentle-sloped access shaft down to the cavern. How else would the beings responsible for the gravity stone have been capable of getting it down there?

Almost as if reading his friend's mind, Bud asked, "Do you believe that place we're digging is the only access spot to the space below?"

"That's what I hope to find, Bud, but it isn't looking too good. I could almost believe the stone was placed inside the cavern and the access shaft was backfilled. If the spot we're digging is that access shaft, then I believe we will be safe to widen our own little access hole to let people inside." He sighed. "We'll see."

Their wide survey complete with no additional pockets or shafts to be found, Tom set the ship back on the surface.

When they arrived at the hole, Red announced the earth blaster was just passing thirty-six feet.

"It's been nearly all solid materials," he told the two younger men. "Nothing out of the ordinary like fabulous riches in diamonds or gold. Just the same uninteresting grey and light brown rocks we've found all around us."

"Don't worry, Red," Bud told him. "Someday Tom is going to take us all back to the asteroid belt and let us each lay claim to a chunk out there to mine for all those riches you're hoping for."

Red looked at Tom expecting the inventor to be shaking his head,

but was surprised to see the younger man grinning.

"It could easily happen, Red," he said. "You will recall that we mined several billions in precious metals from the asteroid chunk we used as the anchor for building the *Space Queen*."

They stood in silence looking around them and over at the small fountain of particles being blown back out of the blaster's hole.

"Fifty feet," Tom announced a quarter hour later. He pressed a button on his small remote and the blaster paused its digging. "I want to look over the materials coming up."

They walked the one-hundred feet to the tripod rack and the hole. There was a ring of debris about five feet away from the bore hole rising only a few inches. Tom stepped over it and got down on his knees to shine a powerful light down the hole.

"Smooth and solid-looking," he announced. "Although, I can only see down about twenty feet. Could someone go back to the ship and bring a tethered camera and light set?"

Bud hustled back to their ship, returning three minutes later. "I was going to look for a portable monitor when it hit me we can just send the images to our helmet screens."

Tom smiled and agreed it was his thought as well.

"I'll send the video to the ship to be recorded so we can show it to Haz and the geologists and sent it down to dad."

As the camera probe was played out, and headed down slowly due to the reduced gravity, the images it sent back were uniformly smooth with only the tiniest of lines showing where one rock ended and the next one had smashed tightly against it. By the time they reached five feet above the rear end of the blaster—the lowest safe point according to Tom—there was nothing telling either of them they were in danger of causing troubles with this dig.

They retrieved the probe and Tom started the blaster up again.

Over the next hour it traveled just another fifty-three feet as the inventor was running it on its lowest setting to ensure they didn't get things out of control.

Again, Tom paused the dig and the video probe was lowered.

This time the results were different.

At about eighty-nine feet the sides of the six-inch tube were seen to be crumbling. It was in such slow motion from the low gravity that it did not appear to be real, but both young men knew it was not a good sign.

“So, some eighty feet of solids and then powdery mush?” Bud asked.

“I’m not sure about that. We would not be detecting the several large voids if the entire moon was like that. Let’s mark and temporarily cap this hole. I’m going to retrieve the blaster and while Red and Hank get a coating of plastic down the hole to stabilize things you and I will move a quarter way around the moon to about where there is a house-size void just down only seventy feet. We’ll see.”

Two hours later everything was set up in the new location and Tom let Bud take the control box for the launch.

“Want me to keep to the same foot-per-minute rate?” he asked.

“Yes. At least until we get to about twenty feet and can take a quick look. Then we’ll go for about double that until the blaster reaches sixty feet and then we go nice and slow until we get breakthrough.” A though hit him. “No, check that. Once we get to sixty-five we pull back out and make a check. Then, I want to use the electric drill to punch into the void and capture any gas coming back out. And, to do that we’ll need to cap this hole once the blaster is back.”

“I’ll go bring out one of the small two-man emergency tents and enough sealant to plaster it to the surface. We can capture anything that comes up. Well, within reason, that is.”

“Great idea, Bud. Thanks.”

The materials under them proved to be mostly what they had encountered in the first hole and the digging speed was increased as Tom had suggested. As they approached what would be the top of a cavern the vibration patterns registering in the blaster changed, and Tom stated this was because they were close to breakthrough.

“Now we inch down until we are about two feet from entering the cavern,” he told them.

Twenty minutes later he called a halt to their digging and had the blaster withdrawn. Once it was back in its launch rack he called for the special breakthrough kit consisting of a high torque drill that featured self-expanding armatures to hold it in position so the bit could do its job.

The drilling took just four minutes before the tip of the bit hit… emptiness.

Tom detached the drill bit from his remote drill leaving it to partially plug the hole while he could put in a more permanent solution to keep anything inside from leaking out. The drill was

withdrawn and checked to see if it had picked up anything such as a liquid; it was absolutely dry. He next sent down a special plastic plug and a capsule of a self-expanding foam that would quickly harden and close the shaft around the plug forming an airtight blockage while allowing him to insert instruments through the plug.

Once hardened and ready, down went a small instrument package. It contained both a needle-like probe to get past the plug as well as a camera with its own light source.

"Move the needle to our left, Bud," Tom requested as he watched the monitor. "About an inch more… and…there. Okay. Set it to insert and let's see what might be down there."

The needle typically used gravity, but with that being as low as it was currently, Bud had to pull it up several feet and let it drop. On the second try it displaced the drill bit and entered the cavern below.

An LED camera light on the end of the probe began glowing, but the light shed by it was insufficient to see anything inside other than a ghostly image of the nearby walls.

"Well, visuals will have to wait," Tom said as he shut that portion of the probe down. Shortly thereafter he announced there was some pressure inside the cavern, "…and that means we have some sort of gas or mixture of them. Let's draw some off for testing."

With Bud's assistance, he drew off a large sample of the gas that filled the cavern. That there had been anything under any sort of pressure inside the ancient void was a surprise, but nothing as shocking as what he saw when he fed the sample into the spectra-analyzer in the spacecraft.

He turned to face Bud, his face a mask of shock.

"What is it, Tom? You okay?"

The inventor nodded. "Yeah," he said, softly. "It is just what that gas we took out tells me."

"And…"

"Bud. That gas wasn't some ancient methane or something like that. In fact it isn't a single gas at all. It is a mix of mostly carbon dioxide, less than one percent oxygen, two percent nitrogen and a few other gases thrown in." He looked expectantly at his friend.

Then, the import of those gases hit Bud.

"But… that's *the atmosphere of Mars*!"

CHAPTER 14 /
PRINCESS STEFANIE OF MARS

ALL TOM could do was nod. He was shocked and his mind was racing for any explanation other than the one he had immediately registered.

Finally, he managed to gather his thoughts and speak. “You’re right, of course, and I have zero idea why that should be unless astrophysicists have been wrong all these years and at least Phobos was once part of Mars, perhaps the top of a mountain with caves, that was hit by something, broke off and was flung into space. The heat of such a collision and fast exit might have melted the surface and sealed in those caves.”

Bud looked at his friend. “And, the likelihood of that scenario?”

The inventor shrugged. “As good a guess as any in the absence of some type of proof.”

“Come on, professor. Take the thinking cap off and tell me what you really believe. Could that be at all likely, or could this be or have been our Space Friends’ base of operations?”

After letting out a deep breath between his tightly pressed lips, Tom responded with, “I have to believe that is a real jump in logic. First, if the gravity stone was placed inside Phobos by them, why part way around the moon and not here. Of course that means this might have been something else, like a storage area and where the stone is was where they once were, but I still can’t believe with their spaceships and technology they dug a shaft down to a cavern and had to climb back out to go anywhere. No, Bud, I think these caverns are here for other purposes.”

They returned to the downward shaft and took several more samples at various depths inside the cavern. When tested they would universally be the same mixture of gases.

While Bud packed up the blaster and their other equipment Tom got on the radio to call his father.

“That’s… well I hardly think *incredible* is sufficient as a descriptive, don’t you?” Damon told his son.

“It is pretty hard to digest all this,” Tom admitted. “Bud and I are heading back to the original dig site, where the gravity stone lies, and resume that dig. In the meantime I need to rig up a more powerful light for the camera at the end of the probe. We could barely see thirty feet in the smaller cavern.”

An idea hit him so he asked his father, “Do you think the gas mixture inside the smaller cavern might have been close to solidifying and that caused the difficulty is seeing very far?”

Damon, although Tom could not seen him, was no doubt rubbing his chin in thought, a habit he and Tom shared and one that was being adopted by Tom’s son, Bart as well.

Finally, he answered. “There would have to be an almost liquid thickness of that gas mixture to get to actual liquid state and that would mean very high pressures. You didn’t mention that the gases came shooting out, so I think perhaps the carbon dioxide was so cold that it was a bit like the CO_2 coming out of a fire extinguisher. In other words, white and cloudy. In any case, Please be careful in piercing the larger cavern.”

“I will, but I have had a couple thoughts. See if you agree. If our friends used the large cavern for their gravity stone to give them sufficient gravity to live, why didn’t we register increased gravity before? After all, they were still around and communicating when we put the colony up here. And then, if they did drill a shaft and place the stone, when they backfilled it, do you agree they must have placed some sort of seal down there to keep the fill from just dropping down into the cavern?”

“Very good point, Son. I have no idea about the gravity situation, but only a fool would backfill a shaft without plugging the bottom of the hole, and we know our friends are or were anything other than fools.”

They took off once he got off the radio with his father and Tom related the conversation.

“I was wondering about that as well,” Bud told him as they neared the first dig site.

It was getting close to the dinner hour for them all so Tom called a halt for food and a ten hour rest period before setting the blaster back up over the original hole and continuing that dig.

“That’s good because I’d love to give that coating we sprayed in the hole a bit longer to totally set up. Something in the makeup of the rocks and dust has been making it set about one-third as fast as normal,” Hank told the two returning men.

It was tempting to take off and set back down at the colony to have a good Chow-cooked meal and to breath the clean air inside the habitat domes, but Tom wanted them to get an early start.

When the meal packs were taken out, everyone smiled seeing Chow had thought about each of them and included some of their

favorite meals like a bean-less chili for Bud, chicken noodle casseroles for Tom and Hank, roast beef in gravy for Red and several other selections.

When they were awake and back outside Tom and Hank set the blaster back on it's launching rig and anchored everything down again. Once the inventor had assured himself the sealant on the walls of the shaft had set, the blaster was lowered to within a foot of the bottom of the shaft. Down it went, foot by foot until it seemed to jam at the hundred-and-five-foot mark.

Tom used the built-in side treads to back it up a little before trying again. But, as before the blaster refused to move downward any more.

He brought the blaster all the way to the top and set it in the launch rack before lowering a video probe.

What they saw once the probe got to the bottom astounded them all.

"Is that a solid block of some sort of metal?" Hank asked.

"It sure looks like it," Tom replied with a puzzled shake of his head.

Red asked, "Is that some sort of 'Keep out' sign for us, or just possibly a natural metal block?"

"Or, it might be the plug whoever built this cavern placed to keep the fill from just dropping down. One way to find out, lets' lower the blaster down to, oh, maybe ten feet above and head off to the side and see how far it extends," Tom said.

The earth blaster went to work again, this time encountering nothing more that the standard mix of rock and dirt about a foot to the side of the shaft. When Tom tried one more time at a more acute angle he found the metal extended only four feet in the direction of their new side shaft.

More side holes were bored and by the time they stopped again everyone had a good idea that the metal was a nearly square slab, some nine feet across and about seven feet thick.

And one more thing. No matter what the setting, the earth blaster with its atomic heat could not make a dent in the slab.

"I'd say we have a keep out situation here. But, only for anyone just digging straight down the probably wider shaft to the cavern. We can certainly get around it but I am a bit wary of digging outside of what must have been the original shaft. Too much possibility of shifting materials.

Tom looked at each man in turn. “I think we need to bring up someone who understands how planets and things like this moon are put together. Someone whose expertise might be more in tectonic plates and volcanic eruptions, but a person I believe can give us an insight into all this,” he said.

With its inertial dampening capabilities and high speed, Tom’s flying saucers were about the best method of getting to Mars as quickly as possible given the widening gap between orbital positions. And, with the *TranSpace Dart* and *Challenger* already there, it was the only good choice.

The *Goliath* might have been an alternative, but as Bud had once pointed out, “Given they fly about at the same speed, why drive a delivery truck when you can cruise in a sports car?”

Deke Bodack had selected the newest of Enterprises’ test pilots to accompany him and his wife, Stefanie. Rollie Jones was a quiet young man with the most serious demeanor Deke had ever seen, but he had to admit the kid had flying in his blood.

At just twenty, Rollie had been qualified on everything from single engine propeller planed to the U.S. Air Force’s giant refueling and troop transports featuring six high-bypass jet turbines. He was only slightly less qualified than Bud had been at that age.

To allow them to travel at even higher speeds, Doc and some technicians had pulled the old “waterbed” couches from storage and installed them in the circular main (and only) room. Actually a gel-filled cushion, once a person climbed in and pressed a button, the gel went loose and liquid allowing the outer sack to shape tightly around the person’s body and head. Then, five-seconds later the gel hardened to a stiff goo and it held the occupant in the couch and helped absorb a lot of the extra G-forces.

It meant they took off from Fearing on a Tuesday, passed the Moon seventy-two minutes later and headed for the place Mars would be in nine days. Half of the way they were under nearly constant acceleration—except for food and bathroom breaks—and the other half was spent decelerating with the same break structure.

When Deke radioed the Mars colony they would be touching down in fifteen minutes Stefanie excused herself and headed for the bathroom. He was so busy showing Rollie everything that needed to be done for a good landing in the less dense air and lighter gravity of the Red Planet he forgot she had not come back to her couch or even to stand next to him.

He set the saucer down on the small pad in front of the very first dome to have been raised and he and Rollie got into their Martian environment suits.

"We're here, Steff!" he called out. "Get into your suit and meet us in the dome. Tom wants us in there pronto."

"Coming," she called back. "Be there in two minutes."

When she did come out it was inside the special suit that had been downsized to fit her shorter body. Deke and Rollie were standing outside the dome's airlock shaking hands with Tom and Hank.

"There she is," the inventor said, his smile showing through the clear oxygen concentrator mask he wore. He was a little surprised when she marched past him and into the open airlock without her customary jumping into his arms. He put it down to her wanting to wait until they were inside and he was less protected.

Inside, everyone spent a minute opening their suits and climbing out. Tom had his back turned to Stefanie and it wasn't until he turned around he got the full effect.

She stood there, looking proud and even a bit haughty, in a sort of chain mail skirt, slit up the sides to her hips, an ornate headpiece and a solid metal bikini bra with very little else.

"Princess Stefanie of Mars reporting for duty!" she declared before launching herself up and into Tom's arms.

"Sorry. She's been reading a lot of Burroughs lately, Tom," Deke explained. "If that bra thing hits you too hard it'll knock the breath out of you. Be careful, munchkin," he warned his wife.

To be truthful, Tom *had* felt the solid jab of the right side as it impacted just about at the base of his breast bone. And, it did hurt just a little. But, with the rest of Stefanie Brooks-Bodack pretty much uncovered he wasn't exactly sure where to grab her to move her back to the floor.

After standing there in a pose holding an imaginary spear or something she relaxed.

"Okay. Happy, fun time, jokey costume is feeling both uncomfortable and letting a lot of cold get into places I'd rather it didn't, so if Lurch will go back out and fetch this princess' suitcase, I'll go change."

The four men stood there looking at her and then at Deke, and then at her again. It was about to make her self-conscious when Haz Samson stroke around the corner, did a triple take and burst out in

a deep, throaty gale of laughter.

"By golly, we actually have proved there is a beautiful Princess up here on Mars!" He walked to stand in front of her and bent down to give her a small kiss on her right cheek. "Welcome, your Majesty and I'll bet you're going to want to get out of that garb pronto."

She smiled and nodded. "Yes, kind sir. Dejah Thoris, Junior at your… umm, well diaphragm. Please do not get used to this appearance. The Princess sort of under-thought this outfit and would like to cover a few of her assets before the general population starts to stare."

Ten minutes she had her suitcase and a quick change happened in a nearby equipment storage room. When she stepped back out it was in a plaid shirt tucked into knee-length shorts and a pair of running shoes. She also had pulled her red hair back into a pony tail.

Haz laughed again. "Just as impressive. I'll assume that you do not wish to be addressed as 'Your Majesty' or 'Princess'."

She walked over to him and looked up into his eyes. "Thank you, kind sir. Sometimes I get these odd ideas and do not think out the consequences. So, I'll appreciate everybody just forgetting my tiny ha-ha."

Deke had been standing back, allowing his wife to have her moment, but now stepped forward, picking up her suitcase as well as his own and taking hold of her hand.

"Bring your tiny ha-ha along and let's get your fancy clothing back on the ship before we go a-visiting to see our friends."

Once inside the main area of the dome and after she had practically bowled over both Tom and Bud, Stefanie settled down and said she was willing to go meet with them and Haz in the commander's office. "I'll catch up with you in an hour or so, Stretch," she told Deke before practically climbing him like a tree to give him a kiss.

Once in the office, Tom showed them the video from the one cavern they managed to get into, the makeup of the air found inside, and then the metal blockage to the larger cavern.

"Mars air?" Haz all but exploded on seeing the levels of the main gases. "That's impossible!"

"Nope, Haz, it *is* there. I've seen it for myself," Bud stated with an emphatic nod. "Or, seen the same readouts as Tom here."

The inventor admitted, "I can't explain it adequately myself. A

couple theories I can come up with on the fly include Phobos being a broken off piece of a mountain from Mars with a cave system that somehow got sealed before it ended up in space. Or," and he shrugged to say the next was a guess but as good as the first idea, "either the Space Friends or their ancestors originally lived on the Martian surface but migrated to the moon because they were having problems with the higher gravity levels."

"But, how does that explain what I hear you believe to be a new gravity stone?" Stefanie asked, now all serious and business.

Tom laughed. "If that is the correct scenario, then I think they found the gravity on Phobos to be just a bit too light for them, so they augmented it. Like on Nestria where we found another stone giving the planetoid about five percent that of Earth."

"And, then it was jusssssttt righhhhtttt," Bud said voicing the joke most had been thinking.

Everybody in the office stopped smiling and looked thoughtful. This theory appeared to fit the stone discovery and the small amount they understood about the space beings.

"Okay. And as much fun as it was spending nearly one-and-a-half weeks cooped up in one large room where my idea of intimacy was so far from met that I began having nightmares," Stefanie told them, "I really need to know and understand why you asked me to come up here. I'm sure I can't add to the knowledge base on those aliens as they came and went from their Earth visit while I was in Antarctica studying the accelerated breakup of the main ice sheets. So?

Tom cleared his throat so she turned to face him.

"We have begun digging a couple shafts down into a couple caverns under the surface. These seem to not be natural caverns created when something gaseous bubbled inside liquid rock. The floors are almost flat and even for one thing. Then, there is the evidence of a gravity stone. Here's the problem."

He told her about the metallic block and how the makeup of the moon changed from solid rocks to a powdery substance not all that far down.

"Ahhhh," she said, the light of understanding coming on. "So, you need me to tell you if you are going to get into danger, huh?"

"And," Tom told her, "whether we are going to cause damage or even partial breakup of the moon if we continue to dig."

* * * * *

Stefanie insisted on a visit to the two dig sites.

“I need to see what is inside that one cavern you did pierce, so is there some way to enhance that itty, bitty light of yours?” she asked after viewing the earlier video.

With a shrug Tom replied, “I can try, but we are limited in the size of what can be sent through the seal we made at the bottom of that hole.”

“Make a bigger seal,” she stated as if it were a foregone conclusion and not something she was ready to discuss.

He thought about it before asking,” And, how do you suppose we go about replacing the current seal without losing the atmosphere inside?”

Stefanie stood up—an act that only made her nominally taller but nobody dared to laugh about it—and began pacing. The one point where it seemed Bud was going to make a comment, she stopped holding up a finger in warning.

He said nothing.

Three minutes went by before she spoke.

“Okay. You start by making the new seal that can have a large enough light shoved through it. Then, you plant it just above the current seal. Next, you shove something through the new seal onto the top of the old one and give it a good shove down and into the cavern. Unless you had plans for retrieving it, it is lost anyway. Besides, if we do get into that cavern I will personally pack it away and carry it out for you!”

Tom found her logic to be nearly flawless and he told her so.

“Then, you can do that? Good! You can get a larger light down there and even maybe a way to turn the camera around so we see everything in there? Even closeups of the walls so I can see if we are looking for trouble?”

“Short of trying to build another mini-Geotron and sending you, or you and I going down together,” Tom told her, “that would seem to be the best option. Give me until tomorrow to make that new seal and we’ll head up.”

Everyone enjoyed another of Chow’s fabulous meals made in part from some new supplies Deke, Stefanie and Rollie brought along with them, and in part from some of the array of vegetables and vegetable-based meat substitutes grown and created at the colony.

“I’d swear that was one-hundred percent beef in that stroganoff,” Deke declared, “including the first honest old-fashioned sour cream

I've had in two decades. Someday somebody is going to have to tell me how you do it."

Gordon Tapp, the chief food biologist for the colony, the man sitting across from the tall pilot smiled. "First, thank you for your kind words. Second, the sour cream is easy. First, we grow a plant up here that produces a sap that is closely akin in viscosity, color and workability to whole milk. A little manipulation, a little home-grown vinegar and three days under about five-hundred psi of pressure and… well, it becomes what you have been tasting. Better for you as well as it has a high level of protein and some incredible amino acids we might otherwise miss out on in our diets.

Bud, who wasn't certain why he knew this, added, "All courtesy of a mistake our very own Chow Winkler made on the first visit he made up here after the crops began coming in."

Following the meal, Tom could tell his diminutive vulcanologist and her veritable giant of a husband needed some alone time so he suggested that Rollie take one of the spare couches on the *Challenger*.

The young man smirked but said it sounded wonderful to him.

"At last… square walls!"

By the time the small team gathered at the saucer the next morning, both Bodacks were awake and ready to go.

Tom, who remained up until well past two a.m. was also ready with his new and improved shaft seal and a new camera/light setup.

He first flew them to the site of the deeper and larger cavern with the probable gravity stone inside. He asked everyone to wait while he went out and made a gravity measurement.

"Back down to thirteen-point-five percent of Earth," he announced as he removed his helmet and took a place standing behind Bud who piloted them to the second site.

"Deke and Steff? You can come out with us while we do the seal switch or you can stay in here. Your choice. It'll take us about an hour."

Stefanie nodded. "Thanks and all that, but I want to stretch these short gams of mine out on the moon. I take it I will be the official first woman to set foot on the surface?"

"First and possible the only one until Mars gets back around and closer to the Earth and we bring up a few more scientists. So, get suited up and we'll head out."

Stefanie looked around them and then down at her upper body.

“Uhhhh, in case you don’t recall I am built along different lines from your boys, and the bathroom in this ship is barely big enough for me to turn around in much less don a spacesuit. And, I’d like to get into something with more give before pulling on the outerwear.”

Tom blushed a deep red. He stammered a few things before suggesting that he and Bud and even Deke go out first and wait for her.

She joined them on the surface eight minutes later still tugging a little at the waist of her suit to get it into proper position.

“There. Now, let’s get that seal down in the hole!”

It took slightly less time than Tom believed and so Stefanie had to come hiking and skipping back from her short excursion a few hundred feet away.

“I found a few things that give me some hope you won’t shatter this rock conglomeration out from under us,” she stated. “Those striations even Professor Heller thinks might be indications of cracking points don’t look like they have moved for, hmmmm, maybe a million years.”

“Well, that’s good news,” Bud said.

“And, with that, I’m ready to go down and knock out the old seal,” the inventor announced.

He eased a new tool he’d built down until it was just above the new seal. At a command, a wireless signal irised open the top of the seal allowing the tool to enter part way. Next the top iris constricted, its pliable ends providing a near seal around the tool and opening the bottom iris. The tool slipped down and bumped against the lower seal just two feet below.

From the bottom of the tool came a dribble of a yellowish liquid that immediately got to work softening the sealant around the physical seal. Then with a little shove down courtesy of the tool being able to extend, the lower seal fell away and down into the cavern.

Tom pulled the tool up closing the iris seals on the way and soon was sending down the new camera a light.

Everyone watched with bated breath as it approached the seal, entered the first iris and then the second one.

The only sound from any of them was Stefanie on seeing what lay on the floor directly below the shaft.

“Crapsticks!” she swore. “If that isn’t a skeleton, I’ll give up my Princess of Mars title!”

CHAPTER 15 /

THE ATTACK

TOM FELT sick to his stomach. While it definitely was not a human skeleton, it was a collection of what had to be bones from a creature that must have stood under five feet tall, had two legs and two arms, and an oversized cranium.

"Tom? Could that be…" Deke whispered. Although he'd come to the Swifts several years after the space beings visited the planet he had seen many of the pictures and videos of them.

"Yeah," he replied. "It looks like it might have been one of our Space Friends, or one of their ancestors." He turned from the scene on the monitor suddenly afraid that this might be a sign his friends had not left the solar system but had perished… or been executed!

Taking a deep breath he directed the camera all around the cavern. To his relief there were no further skeletons or even signs any beings had ever been inside this space.

"How long would it take a body to decompose to just the skeleton in the Martian atmosphere?" Stefanie asked.

Tom had to shift mental gears to answer that. "With the incredibly low oxygen and high CO2, any aerobic bacteria would have troubles, but anaerobic bacteria would thrive and decomp could take just a matter of a week or two. We didn't find any bacteria of any kind in the air sample we took so I can't really say."

After giving Stefanie ample time to investigate the walls and floor and even the roof of the cavern he withdrew the camera probe and sealed the shaft.

They returned to the ship and rested while they talked about the possible reasons for the skeleton in the cavern.

Several possibilities were discussed including: accident; sacrifice; execution as punishment; a trapped/forgotten individual; and others.

Tom really didn't care for any of the scenarios. He wanted answers and so he moved to the communications board and typed out a brief and rather curt message:

From Later Swift to Space Friends.
Have discovered an internal bone structure we believe to be one of your people at bottom of small cavern. Why.

Communicate soonest to advise why gravity stone is on Phobos.

After sending it he almost regretted the tone, but he was severely shocked at the discovery. He was also getting angry at the supposed "friends" who, even if their Masters might be pressuring them to remain silent, had earlier found ways to get messages to Tom and Damon.

When he spoke to his father that afternoon from back at the colony, Damon agreed the message might have been better worded, but he also agreed it was something that needed an answer.

"In the meantime I'd advise that you do not disturb it. Who knows what sort of toxins it might have within it. Besides, Son, if it is very old even touching it might cause it to crumble to dust."

"Not to worry, Dad. We're heading for the larger cavern and giving Stefanie a good look down the shaft we've dug and that metal block in the way. Hopefully, she can tell us it is safe to dig around it enough to dislodge it without causing a catastrophe."

"Just be very careful, Tom," his father warned. "I'd much rather you just left things alone and had to continue the series of scheduled pushes than to cause Phobos to fall apart!"

They soon signed off.

Sitting back at Enterprises, Damon knew his son was sitting up there grinning and probably thinking, "I'm not *that* reckless." It made him grin to himself.

Once Bud had the saucer sitting on the surface within walking distance of the earth blaster and its hole, they all got back out and headed for the bore site.

Stefanie carefully watched as the camera was lowered foot-by-foot. At the point where solid rocks gave way to the more powdery materials, and even though a good coat of a polymer had been sprayed on it all, the fact it was clear gave her a reasonable look at how it was laid out.

Standing back up from her bent-over position looking at the monitor she asked Tom if they could get on a private radio link.

"Is it that bad?" he asked once they were speaking on the special frequency.

"It isn't good… but on the other hand it may not be that bad. Have you given any thought to sinking a second or third or fourth hole in other locations around the perimeter of that giant air

space?"

"Oh. The easy answer is that we haven't gotten that far, but the harder answer is that I am not certain we would have done that until we got you up here anyway. I hope you and Deke feel strongly enough about your babysitters to be away for another five or six days. I promise to take you back in the *TranSpace Dart* so we can get you home as quickly as possible once this is sorted out."

"Gee, Tom. That's at least three weeks earlier than we planned to get home. We figured we'd be going back in the same saucer. That will be more than wonderful!" She hugged him even though their suits made it difficult.

Tom gave the order to locate a point for another dig approximately a quarter of the way around the perimeter of the cavern below them.

With Bud carrying the launching tripod and Tom and Deke handling the earth blaster, it was left to Stefanie to carry the trio of anchor bolts and the camera rig which she slung over her right shoulder.

They made the trek in only eleven minutes and had things set back up—and anchored down—thirty-two minutes after that.

"I believe you can go a little faster than a foot a minute this time," Stefanie told them. "With me keeping a close watch I'd say up to three times that speed will be fine."

Tom made the necessary adjustments and soon they moved back to the safe position and the blaster was eased against the surface, turned on, and it soon began to disappear into the lunar surface.

Twenty minutes later Stefanie asked, "So, at what depth did you run into the loose stuff?"

"Around eighty feet. The blaster is only at fifty-seven feet right now so you've got a few more minutes to wait until we see if that loose materials is a continuous strata all around this area."

"Well, I can tell you this location looks a bit different from the other, and I don't mean the coating inside the bore hole," she said. "To begin with the rock is much more dense and contains a lot more carbon than over there," and she hooked her thumb back toward to first drill site.

The inventor looked over at the spectra-analyzer readouts and could see that along with nearly quadruple the carbon, this rock and soil contained higher levels of nickel and silicon.

Even at ninety-five feet there was no sign of the crumbly structure found in the first bore.

"Unless we meet up with another metal block," Tom told the others, "I say we go for breakthrough into this cavern. Of course, I need to get back to *Challenger* and build us another easy pass-through plug. This time I believe I'll also bring up a couple of our mini-searchbots."

These ball-shaped robots were just four inches wide, could roll around at up to one-hundred feet per minute, had a camera mounted to a central ring that remained pointed straight out—unless it was ordered to focus on something higher or lower—and were able to be autonomous as well as could be controlled wirelessly for their four hour runtime.

"What are you hoping to find with those?" Deke inquired.

"I want to get an all-around look at the gravity stone," was the simple answer. "They give us the best chance at getting close enough that if the stone has some sort of security system, it will be the robots and not any of us that takes the brunt of whatever happens."

Deke, after receiving a look of understanding from his wife, offered to accompany Tom down for the four hours it would require to land, fabricate the plug and return.

"Okay, but first let's get one of the larger survival tents out and set up so you two can take a break and get out of the elements," Tom told Bud and Stefanie.

He and Bud were the most experience with the tents and had this one out, set up and supplied with the necessary tanks and water in under eleven minutes.

The flyer and his female companion announced they were taking an hour break once Tom and Deke left.

"If you come back and we're asleep it's only because having a large planet dangling above you is very tiring," he announced.

Tom timed takeoff so the trip down to the colony took just seven minutes. When they landed a team came aboard as they were leaving to ensure all normal supplies were replenished.

Deke assisted the inventor by finding and bringing out a trio of the small reconnaissance robots from their storage crate in the *Challenger's* hangar along with their control remote which, truth to tell, looked more like a complex television remote than something able to control up to six of the small robots at a time.

He then watched Tom complete the assembly of the new seal device. It was about an inch less wide than the hole and about two feet tall.

"I've made a couple enhancements to the basic design based on what I saw happening with the first one. For starters, this one will spin out a rubberize outer ring at the top and bottom to seal things and not require any sticky goo."

"Ahh, so you can reposition it if desired?"

"Right. The other thing I've changed is in adding a small pressure cylinder of Xenon to fill and flush out the inner chamber. Now, before your next question, I'm using a gas that never appears, even in minute quantities, in Martian air so if we do find any in a sample from the chamber, we can pretty much assume it came from the seal."

"Makes complete sense to this former military pilot. This might still be classified, but I trust you, skipper. I was part of some fairly brief monopropellant experiments for a year and we used Xenon and Argon to flush out the tanks before refueling."

Tom smiled. "And that, in return, makes all sorts of sense to me. I'll keep the confidence, Deke."

When they arrived back at the dig site, Bud and Stefanie were out at the bore.

"We're within about two feet of the curved roof down there," Bud stated. "No sign of any metal cube, so we both think we can just go for it and get in without any problems."

"Did this small and redheaded one try to get you to just go ahead and punch through?" Deke said indicating his wife with a tilt of his head.

"I offered him money and he said no. I upped the offer for my body and he just laughed. Makes a girl feel unloved," she said putting on a rather outlandish pout.

"I'm glad you didn't give in, flyboy. I do see you got the blaster back out and in its rack. Uhhh, should I ask how you did it? It's a two-man job."

"Stefanie can muster the strength of a man when she feels she is not pulling her weight," offered the tall man.

"You're darned tootin'!" she declared putting her fists on her hips.

"Steff really was great, skipper," Bud stated. "Not sure if she

could have done the same down on Mars or back home, but up here, and with the gravity stone behaving, she was a champ."

The new seal was lowered into the hole and carefully positioned before it was expanded to completely close off the bore.

Minutes before Tom was planning on calling for the final drill through into the cavern, his radio announced a call coming from the distant Earth. He headed into the saucer, took off his helmet and took a seat before answering.

"It's Tom."

"Tom, this is Marylynn Dick at Enterprises. Sorry to bother you but I have to say this near instant radio technology is absolutely great. Of course, that isn't what I called to tell you. I'm afraid I have a disappointment to relate."

When she didn't continue he prompted her. "Go ahead. We're having some good news up here so I guess it is about time it got tempered with a dose of reality. What's the matter?"

"We finished the repelatron/Attractatron antennas and got them perfectly aligned and the whole of the superstructure built and attached. We thought we had all the stresses computed and handled, but when we put it to the test—oh, I forgot to tell you your father suggested using the Moon as our anchor and trying to move Nestria around a little. Well, we tried that and… well, the thing is when the repelatron moved slightly to get the aim correct the entire interconnecting structure torque-twisted and practically pulled itself apart." Her voice was now vibrating with the nervousness she obviously was experiencing.

"Calm down, Marylynn," he requested. "Did we lose the entire rig?"

He heard her take a deep breath before answering. "No, but it is badly compromised. That was three days ago and my team has just finished breaking the thing apart. Some of the main struts are now bent by more than twenty degrees."

Tom thought a moment. "Is there anything you can do to fix it and reinforce things?"

"That has also taken the past three days," she admitted. "We believe our only viable solution is to make a one-inch-thick durastress tube and mount one antenna to one end, flush and completely sealed, and the other at the opposite end. Obviously this leaves little or no space for the power pods so they will need to be

mounted outside the tube. Even then we aren't certain of the structural stability."

He knew he had to make an executive decision. "Okay. Get the pieces staged on the Moon and I'll try to make some decision once I see things. Ought to be back in under six days, by the way."

He signed off with his own deep sigh. It had been a good idea let down by the physics of having two opposing forces trying to fight with each other while doing their intended jobs. He was fairly certain it was a matter of scale, and that the enormous size of both antennas and the need to allow one of them to move around had meant it was difficult to impossible to brace them together using normal means.

Tom went back outside and loped over to the trio who had just placed the camera probe into the seal.

"Waiting for your go ahead, skipper," Bud told him.

"Then, go ahead," Tom directed.

He and Stefanie took the primary positions at the monitor looking for anything the camera system picked up.

What they saw at first was the same sort of foggy conditions encountered in the smaller cavern. That began to clear as they went deeper until the picture cleared and both took deep intakes of breath.

The cavern floor was almost architecturally flat and clear of any debris, but the real shock was the nearest wall that showed scraped and digging marks telling them this was a constructed cavern.

"Or," Stefanie said before Tom could voice his opinion, "it was much smaller and they dug it out like this."

"Mind reading, Steff?" he asked with a wry grin.

"Have to. I've given up asking the Beast what he wants for dinner. All I get is, 'I dunno. Whatever you want,' but half the time he really doesn't want what I do. So, I mind read and now hit the ball seventy percent of the time, But, seriously, it was logical that you were thinking what I was."

They made a complete sweep of the cavern, some of the farthest areas were lost to darkness the strong LED lights just could not reach.

With Bud's assistance, he lowered two of the three mini robots down to the seal. With the camera temporarily pulled up above them, the robots were lowered through the seal and to the floor of

the cavern where they released their tethers.

Both began sending video immediately, and the people above watched them scoot forward toward the only item sitting on the floor. While one took up a position about fifteen feet away, the other one began to slowly roll around the stone. As the first robot got within seven feet of the very visible gravity stone it bumped into something invisible. Vaguely pyramid-shaped and standing nearly four feet tall, the stone—and they could see that it appeared to be made from carved stone—looked almost exactly like the three-foot stone in the small cave on Nestria that gave the non-natural moon enough gravity to hold people down and to allow an atmosphere to be developed to support them.

It also looked like the smaller, fifteen-inch version the Space Friends supplied to Tom prior to his being able to finally get them safely down to the ground on the Earth.

The robot was backed up and sent forward again. It bumped into the invisible field again, but this time seemed to have pierced it by about half its body thickness. A third try had it inside the field.

"I guess that answers the question about what we saw on the Deep Peek scans," Bud muttered.

"Look!" Deke said in a stage whisper as he pointed at the visuals coming from the second robot. One face of the stone had been formed or carved to be flatter than the rest.

"Those are the symbols of the Space Friends all right!" Bud exclaimed excitedly. "Skipper? You hit it right on the head when you said there was a gravity stone down here."

Without wanting to sound like he might be bragging, Tom replied, "It almost had to be to give the fluctuating gravity readings we've encountered. I suppose now it is a matter of what to do about this one—"

"—and to see if this is the only one on Phobos." Stefanie finished, making the inventor wonder what they might run into on the second moon, Deimos.

The robots made a complete survey of the cavern and their videos were being fed into the saucer's computers to create a detailed 3D map.

When they finished, both returned to the point below the bore and internal magnets drew in their tethers. Each one was pulled back up and the camera equipment withdrawn.

"We'll leave the seal in place," Tom told them. "It'll make it much

easier to do any further looking around such as trying to find a way in."

As they returned to the ship, Tom remembered he had left the recon robots' controller sitting on a rock over by the bore hole.

"Back in three," he called over the radio as he spun and bounded back to the dig site.

Suddenly, and without any warning, all gravity on Phobos seemed to disappear and his latest bound now caused him to launch himself upward at a sharp angle.

Just as fast as it disappeared, gravity approximately that on Mars itself grabbed them all. The three at the ship braced themselves, but Tom, now fifty feet up, was grabbed and yanked downward. It was as if the very moon was attacking them all.

At the first sign of the gravity drop, Bud had raced back outside and looked to where his friend was continuing to rise into space.

When gravity returned with a vengeance, he let out a horrified scream.

The inventor was plummeting straight down toward the rocky surface!

CHAPTER 16 /
SUCCESS COMES BEFORE... AWW, NUTS!

GRAVITY ON the little moon fluctuated wildly and before Tom could hit the ground, it had all but disappeared again. However, he was already dropping and hit hard; it was immediately evident to Bud that he was injured.

The flyer ignored the possibility he might find himself in danger should gravity play any more games and raced to aid his friend. He got to Tom within half a minute only to find the inventor was mostly conscious and clutching at the leg of his suit.

The flyer assessed he situation immediately and grabbed the upper suit dragging Tom toward the nearby emergency tent.

He got them both inside before Tom's last strength faded and he passed out.

"Deke," he radioed. "Get out here with an emergency suit patch kit. Tom's fall tore his suit leg. Hurry!"

The man reached the tent two minutes later with both the patch kit as well as a first aid kit designed for decompression accidents.

He helped peel Tom out of his suit and while Bud checked for broken bones—fortunately there was no sign of anything other than skin being broken—before turning to the job of repairing the three-inch tear, Deke read the instruction card before he jabbed a self-administering syringe into Tom's upper thigh with an anesthetic to numb the pain he would feel as soon as he regained consciousness.

"Is he gonna be okay?" Deke asked Bud.

Bud shrugged. "I think so... I hope so, but we need to get back to the colony pronto. The doc down there will do what is necessary."

"What happened out there," Stefanie's voice came over their radios.

"If this moon were occupied I'd say it was some sort of attack on the skipper. All of us for that matter. But, maybe something we did down in the cavern set off a protection program in the gravity stone. Once we get Tom back to the colony and fixed up he might be able to shed some light on this," Bud responded.

Groggily, Tom groaned but said, "I don't think it was an attack, folks. I think it might have been the gravity stone continuing to malfunction, which is my latest theory on why the orbit shifting. Now, get me suited up and down to see the doctor. I think I'm about

to throw up from the pain."

His companions eased him back into his suit. He did not vomit as the pain drugs took effect and the last thing Bud saw before they laid him into a couch inside the saucer was a silly grin on his now sleeping face.

Stefanie had not been idle waiting for them to return. She had contacted the colony and a special protective sleeve and docking structure had been brought out so that Tom would be transported on a gurney in a heated space with Earth-normal air inside.

The colony physician took charge of the inventor and three helpers got Tom rolled inside the main habitat dome.

With little or nothing they might do, Deke and Stefanie headed for the cafeteria while Bud remained with Tom and the doctor.

"Do you know how to set up one of the SimpsonScopes?" she asked him.

The flyer nodded. He had been with Tom when he'd demonstrated the special scanning device to Enterprises' doctor years earlier. A thin flat plate was slid under the portion of the body to be looked into and a trio of armatures positioned over the top. A combination of sonic waves, invisible high-intensity light waves and a small amount of tightly contained radiation pierced the body and the results were displayed, in full color, using a variation of Tom's 3D Telejector. Images in real time appeared directly above the body and the exact position and depth of what was being viewed controlled by the physician.

"Okay. No internal damage other than about nine bruised ribs in the upper torso," she reported to the anxious Bud ten minutes later. "They're gonna hurt every time he coughs or sneezes for a month or two."

The only other injury of any note was a twisted right leg, the one that had sustained the suit damage.

"I've got to hand it to the man," she said almost to faintly for Bud to hear. "He managed to grab that suit tear and fold it over so he never was exposed to the complete vacuum. Lucky!"

"He generally is," Bud told her. "But he's also very fast at sizing up any situation and not panicking. I can't even tell you how many times he's saved both of us with his lightning fast reactions."

"Glad to hear that, and now some of the things your Doctor Simpson has told me over the years make even more sense. Oh, and that reminds me, I need to contact him and send him the images

from the scan. He seems to be keeping a rather compendious file on both of you." She smiled at the flyer. "He believes the two of you might be setting some sort of records."

Now, Bud grinned back at her. "Yeah. We sort of have become magnets for injury over the years. But, as Doc says, nothing we can't live long and fruitful lives with once he finishes with us. Well," and now he blushed but also looked a little sad, "there's the whole dose of radiation I got at age sixteen that is now haunting me by not letting my wife and me have a baby."

The doctor knew nothing of this, but as a professional she understood there are times you pry and times you just listen. This was a listen situation, but Bud had nothing more to say on the matter.

"I can't say anything about that, but I know I was unable to conceive so my husband and I adopted. She's twenty-six now and living in Alaska while her husband is doing research on their non-migratory sea birds. Sounds awful!"

"Sounds cold!"

They shared a laugh as they made certain Tom was covered and comfortable before they turned the lights down and left the small recovery room.

"Did everything stop just because of me?" Tom's voice came from behind Hank, Art and Bud who were having some of the local coffee substitute the following morning.

The three whipped around, concerned looks on their faces until they saw that Tom was standing there, unaided, and smiling.

"I want to thank my every faithful brother-in-law for his rescue. I had a good hold on the suit leg, but enough of the cold vacuum seeped in to make me feel like passing out. So, I owe you one. *Another* one."

The three men rose and shook Tom's hand.

"Nope. I still owe you so many I can't keep track. The fact is, we all owe you, skipper."

They all sat down and Tom accepted a cup of the brew.

Twenty minutes later they had discussed some of the next steps to take regarding the gravity stone and the Phobos situation.

"I promised Steff and Deke to get them back home to their kids, and I believe Bud and I need to remind our ladies that we still exist,

so the *TranSpace Dart* will be taking off tomorrow, and the two of you are coming along."

With them would be Chow, Professor Brandon—whose studies on Mars had concluded, and his regular job was calling for his return—Stefanie and Deke Bodack (obviously) and two other men from Fearing Island.

Before leaving orbit Tom radioed to Enterprises to tell them his intent was to push the ship to the top speed it could reach given the distances to travel and be landing in just four days and nine hours.

"If you can have one of the saucers waiting at the *Space Queen* we can just transfer over, drop the Professor off at the old Outpost and then land directly at Enterprises. Dave and Allan can take the saucer back to Fearing."

Everything was arranged and Tom picked up the small black hole he'd left in an orbital position safeguarding it from drifting too close to the planet.

"Stand by for acquisition," he announced to the crew who were in the mid level while he and Bud were up in the small control cockpit.

"Are you going to be able to handle the sitting up here?" Bud asked thinking of Tom's ribs.

"The doctor gave me some pain pills that have just enough narcotic to cut the pain down but not make me loopy… or even sleepy. So, yes."

It was a moderately tricky balancing act to get close enough to the black hole while keeping the repelatron focused on it always pushing it away. Even then, he knew he had to start from several thousand yards away and ease up to a point where everything was equalized and the ship was less than a hundred feet away.

Then, physics took over and as the black hole drew them in, the repelatron pushed the hole away at the same rate and, despite what one might believe, instead of simply canceling each other out, the ship and its new propulsion system began moving forward… and accelerated constantly and at an increasing rate until—if enough distance were to be traversed—they could reach nearly the speed of light.

For this trip back to the Earth they would only manage to achieve about 39% the S.O.L. during the acceleration phase and then everything would be swung so the tail of the ship was pointing at the planet and they slowed as quickly as they sped up.

On reaching the orbit of the Moon, Tom eased the ship

backwards from the hole by increasing the repelatron until they were moving forward at just fifty-thousand miles per hour. Then, at the halfway point they slowed even more.

Tom dropped the black hole off at a special point where its orbit speed would keep it at a constant distance from the planet and the space station. It would remain there until called upon again.

"I can hardly wait to get home," Bud stated as they were putting on their spacesuits for the transfer to the saucer.

It had been decided to bypass entering the station and so they would be drifting over in the void of space.

"No need to accompany me over to the station," Professor Brandon announced when they pulled up to within fifty feet of the space wheel. "I've been doing the free drift the past three times I've come up. Besides, I can see one of the transfer techs shooing the sticky line over here."

Sure enough, they all heard as the end of the line struck the hull of the saucer sticking to it so the Professor could clip on and just push off to glide over.

When he was safely attached to the station and heading into the airlock, the tech send a signal to the end piece which detached and was reeled back in.

"Home, Jeeves!" Bud declared to Hank who had volunteered to pilot them down.

"A little less of that or you walk," came back the rejoinder.

Two days after coming home, Tom came back to work. It was Thursday and his father was in an all-day planning and review meeting at the MotorCar company with Charlie deGroot, the manager at that facility.

"Welcome back and your father wanted you to handle his daily correspondence," Trent greeted him when he arrived at the outer office.

"Good to see you, too, Trent, and is there anything I need to know before I mark up things?"

The secretary bit his lower lip. "Just that your dad has been receiving a series of mildly threatening letters coming at random intervals, from random *and all fake* addresses and in a variety of envelopes and handwritten or printed addresses. Harlan Ames has asked that the mailroom send all his and your letters to his

department for scanning, so everything you get today actually came in yesterday. I have a basic paragraph of apology for delayed responses when needed."

Tom headed into the office, saw the moderately short stack of letters and a few key email printouts on his desk and made a short detour to the side table where he poured himself a cup of hot and strong coffee.

Sitting down he reached over and took the top page. It was a letter supposedly from one of his father's old NASA friends asking if Damon might come down to Florida to discuss an old project that was being updated.

He was about to note this one needed his father's attention when something in the wording caught his attention.

> What with the great times we all had with that original space shuttle program, until everything fell apart, I thought you might jump at this chance.

Tom knew his father had not been involved in the original shuttle program but in the second program coming about a decade after the first one shut down.

He noted that this needed further Security investigation.

Five letters down, all of them variations on begging letters but most probably things Damon would want to send a personal response to, he came to what looked to be an email printout, but it had been scribbled on by Harlan himself.

See if you can spot the trouble with this—H

> Some of the time people must write to you and say that we are all in this world together. I must assume that you and I are cut from the same bolt of cloth in that whenever I find something that seems to shout injustice I really have to say or do something.
>
> Do you understand what I am trying to say? Do you feel as I do?
> Even if you do not, please contact me at my address.

Tom read it three times before he spotted what Harlan had.

The first letter of each line spelled out another threat to his father: SwIft DIE

It made his stomach feel sick.

"Harlan?" Tom said when he called the Security man. "I just got to that note from dad's crackpot. Do you believe he's in any jeopardy from this guy?"

He heard a sigh from the other end of the line.

"If you want the absolute truth, Tom, I do not know. If you want my gut feeling, I believe the sender is unbalanced but harmless. Also, and this is based on handwriting analysis we've had done on a few of the notes with actual pen and ink words, this is no guy. Our expert is willing to swear it is a woman who wrote those little bits, but nobody can say for certain if all the letters were from just the one individual."

"I see, or I don't, actually. Are you saying this could be a group and one of them is a woman? Would that mean the rest might be men?"

"If there is a *rest* and this *is* a group, then that is a possibility. If, however, it is a lone female sending all these letters, and there have been a total of nineteen so far, she had either a lot of money or friends who forward her letters. They've come from at least fifteen cities in the U.S. and two in Canada."

"As Bud would say, Jetz! and not in a good way."

After being given assurances the investigation was a priority one and in full swing, Tom hung up.

His next call was to Marylynn Dick.

"I wanted to tell you I'm back at Enterprises and wondered if you have a little time today to meet. I'll even come to your office and bring pastries," he offered.

"Thank the makers you are back," she told him. "And, boy have I got some news for you. Sure, come on over, and mine's a cherry Danish. Or, two. I've got the rest of this morning free."

"Be there in fifteen minutes."

He stopped by Chow's kitchen down the hall to see if there were any pastries available.

"If'n ya can wait five minutes, I've got a rack o' Danishes and some mini fruit pies coolin', but they need a little bit longer or they'll fall all apart!"

The two men passed the time in conversation with Tom starting by thanking the chef for his extended stay up on Mars.

“Haz told me, as did their resident psychologist, that your food did more for morale than just about anything. Well done, old timer.”

His compliment made the chef blush.

He left a few minutes later with a box of a dozen assorted pastries. They were still quite warm and he needed to switch hands several times as the bottom of the box was too hot on his hands.

“Danish Delivery Service,” he called out as he poked his head around the door jamb of Marylynn’s office. “Hope you have fresh coffee to go with these.”

She nodded, not taking her eyes off the box and its tempting contents.

“Sit and open that thing within reach then we’ll talk, and I think you’ll want to hear this so the sooner you come all the way in and sit down the sooner I’ll spill what I know.”

Over their first mouthfuls of the desserts she informed the inventor that a few things had happened since their conversation about the mangled repelatron/Attractatron array.

“It turns out that your father had authorized the folks out on Fearing island to make some significant changes to the *Goliath*,” she said. “Really significant, but ones I hear you might have previously discussed.”

Tom had to think. “Wait. Do you mean taking the superstructure off and repositioning a smaller control cabin under the cargo deck?”

She took another mouthful before nodding.

“Umm-huummff,” she said spewing puff pastry crumbs on her desk and all the way across it to land on his shirt.

“Ooops! Sorry,” she apologized wiping the mess up with her hands.

“No problem. So, if I read this correctly, they’ve started on the project?”

She shook her head making him look resigned. “Nope. Finished it! Evidently it only took a week after your dad sent over some design ideas.”

Tom brightened back up. He now had a new plan of action to put in place. It only required that his father agree, and his wife accept his offer to take her and the children on a one month vacation.

* * * * *

Bud went to speak with George Dilling in Communications. He explained to the manager that Tom was taking Bashalli and little Bart and Mary with them to Mars and that he would appreciate it if Sandy could be temporarily assigned as the communications technician on the *TranSpace Dart*.

"Purely to be the resident radio person?" George asked hiding a grin behind his coffee cup.

"Of course," the flyer promised. "Anything else would be against ship's rules. Uhh, well I have to back up on that. You see, space inside the ship is at a premium so there might be something like they do in submarines. Hot bunking. One bunk but two people using it at different times. Different shifts."

"I'll bet!" the older man said with a smirk. "Okay. Sandy has been really great for almost a year, minus her trip down to Mexico, and so she deserves to get out and stretch her communications legs. But, she is going to have to pass a Class A radio operator's license and that will take a minimum of two weeks. Can the trip wait for that?"

He knew the answer as Tom and Damon had both called him regarding the forthcoming trip and cleared everything.

Bud nodded. "We leave in fifteen days. Can she start today?"

Now, George nodded. "I'll have her installed in a quiet room with all the study materials. You will need to coach her every night. Since you passed your license nine years ago a few things have changed, but you use the equipment on almost a daily basis so you should have no trouble. Just promise me no cheating. She passes fair and square and she goes. She fails and unless the trip can be postponed for a full week—the wait period between testing opportunities–she stays back here."

Bud reach out and shook George's hand. "Deal!

Tom and Bashalli, and Bud and Sandy with her new license, boarded the ship. The Swifts had decided to leave the children home with the grandmothers and a special tutor for Bart who was being prepared to attend the first grade in another three months.

Goliath had been despatched six days earlier and was near the turn around point where it would start to slow down.

The *Dart* would catch up in three and a quarter days and pass it as it, too, decelerated. Tom and crew would arrive nearly a week early and be there to direct Goliath as it would be snugged up to the moon and used as the resident repelatron, taking the place of the

various mules and saucers and even the *Challenger* as they kept pushing the errant satellite back up into nearly its normal position.

When the day arrived and the giant repelatron-powered ship was resting—upside down to the untrained eye—with its cargo deck on the ground and the dish pointing up—or down toward the planet—Tom and a small team of four stood a thousand yards away ready to start the process. Because of the curvature of the small moon, they could only see those parts of the ship eleven feet above the surface.

All systems reported **GO** status and the ground tracking team at the colony had positioned five **RADAR** measuring devices around the planet in addition to those at the colony.

Power was energized at the lowest setting, barely enough to lift one of the saucers much less move the moon. Then, minute by minute and finally into hour three it was increased until there was measurable movement. Tom had not needed to halt things because the moon would not directly overfly the colony for thirteen more orbits.

"We have a change to report," radioed the station one-hundred-twenty degrees around the planet form the colony.

"And station three is seeing that as we have acquired a lock on. We are showing ninety feet outward motion and a rate of five feet per minute."

It went like this until the colony station reported, "Phobos is home and in position. Reduce power to holding levels."

Tom did this and was about to call out the success of the project when something happened. Evidently the gravity stone didn't like what was going on and increased gravity on the moon to half that of Earth.

With no warning the satellite began settling downward at a rate that would see it entering the atmosphere in just five hours, far too short a time to get the *Goliath* back off and safe.

If Tom failed to do something, all would be lost.

But, as quickly as it happened, gravity returned to normal.

"If that happens too many times we could be in big trouble," Tom admitted to those with him. "We don't have a lot of spare power for too many surprises!"

CHAPTER 17 /
IN THE HALL OF THE LIZARD KINGS

INSTRUMENTATION HAD let them down in their search for the truth about Phobos' interior. The deepest they had managed to penetrate was close to three-hundred feet and that only via the Deep Peek in an area that appeared to be an old crater now filled with a fine, dust-like particulate.

"What do you think that would like be if we tried to walk on it?" Bud asked from his seat next to Tom's.

The inventor inhaled deeply and let the air back out through his nose before answering.

"Quicksand would be my guess, and that means we are going to have to be really careful when we're all out running around," he cautioned. He repeated the warning for everyone else in the ship.

Tom opted for a landing at the same location they first touched down. It not only was fairly level and had proved to support the ship, it also had their emergency habitat tent still set up.

From an altitude of two-hundred feet he performed a **RADAR** scan and one using the Deep Peek of the surrounding area. During this he located one other "quicksand" area of about thirty-feet in diameter, but at one-thousand feet out and detectable by the eye as it was in a circular indentation some five feet lower than the surface, he simply pointed it out to the crew and said to skirt around it.

Duanne offered to go out and stake it off with red tape.

"I'll make the no-go zone another fifty feet from the edge," he suggested.

"Sounds good, but take Zimby with you as a safety precaution. I also want everyone out in teams of two with a safety line between you," he told the crew.

The surrounding five miles had been mapped from above and now was in each person's suit computer. The 3-D map showed them all just how high or low from the surface norm any place was. And, as an added precaution, Tom had just included a red circle around the quicksand craters so their suits would sound a warning if anybody got to within one-hundred feet of the crater edge.

Tom set the big ship down with the lightness of a feather before beginning the process of shutting off major systems and placing the rest into standby. If absolutely necessary, the *Challenger* could lift off inside of eight seconds. It would be rough but it was something

that had saved the ship at least once in the past.

"I want four teams to head out in four directions. Red? Take your man and head up the slope to the top of the crater on a heading of about one-four-zero." He designated two other teams and their relative directions before nodding to Bud who was shifting eagerly from foot to foot.

"Yes, Bud? A question from you?"

Settling down a little, the flyer shook his head. "Nope. Just waiting for you to tell me we're heading for that Litmus crater."

"Limtoc," the inventor corrected him knowing full well that Bud knew the real name. "And, yes… that is our destination. We'll be traversing down the steepest end so I want us to take a Porta-vator."

The Porta-vator was a self-contained lift mechanism that could be anchored at the top of an incline or even a cliff and could take a man plus equipment totaling about four-hundred pounds on Earth down—and back up—as much as two-thousand feet. It was basically a winch and a T-bar on which the astronaut stood while holding onto the upright bar.

Tom had created it as an emergency device shortly after his own mother and sister fell through a weak dome over a vacuum void on the Moon three years earlier.

They had been rescued by Chow Winkler—who had brought out his lariat to practice roping boulders in the low lunar gravity—along with Tom and Damon Swift and only by the skin of their teeth and a lot of heavy exertion.

Since then all repelatron donkeys, a favorite method of lunar exploration, carried one.

"How far down will we be going?" Bud inquired.

"I believe we have about eleven-hundred feet to the bottom of that inverted cone. Oh, and grab a sampling kit. I want to take back some of the inside materials of the cone for study. Some people believe it isn't a second impact crater so much as it is a collapsed mini-volcano."

"Neat! I'll grab those two things. Anything else while I'm rummaging in the hangar?"

Tom considered the question a minute. "How about pulling out a second emergency tent. I'll carry that and you can bring the other things. Not certain why I want that, but what the heck. We might find we need to climb inside for a rest so we might as well have it with us."

An hour later the pair were approaching the crater—or inverted cone—edge. It was quite a stark difference between its interior and anything surrounding it.

"Now that I see it," Tom said setting his pack down, "the more it looks like there might have been a pretty big void under that and it collapsed right in the lowest part of the cone. See how everything looks like it slid down to that point on the right side?"

Bud also set his load down and stood up looking into the cone.

"Wow. It sure does look like a cave-in. Wonder what was under all that?"

Tom snorted. "No telling. That collapse could be a hundred years old and it could just as easily be a million years old. I tend to lean on the newer end of any timeline since I can't see any spot where notable debris from space has hit in there."

He and Bud set up the Porta-vator and drove the tip of the self-boring anchor a foot into the dusty surface. After that, a simple press of the ON button had the screw-auger nose turning and pulling the anchor down with it. Nine feet later it stopped and gearing inside extended side anchors to hold it firmly in place.

It would reverse the process and pull itself back out once they were finished.

"Ready to head down?" Tom asked.

Bud nodded before remembering that inside a suit and helmet a simple action like that might be missed, so he added, "You bet! And, in the spirit of a promise you know I've made to your folks, I go first."

The inventor knew better than to argue and so he assisted Bud in getting the T-bar set just over the edge of the cone.

Because it was not a straight drop, Bud straddled the upright bar and began using his legs to "walk" down the angled wall.

"It's kind of loose footing, skipper. When you come down it'll probably be best to shove off and sort of hop down. That's what I'm doing now."

Ten minutes later, and as he approached the lowest point in the cone's bottom, Tom heard his friend take in a sharp breath.

"What is it, Bud?"

"Uhhh… I think you ought to come down and see this. I've stepped off the bar and am sending it back up. I'll stay right here until you get down."

Something in the flyer's voice told Tom he could expect to see something exciting once he got down. It took the bar five minutes to come back up and when it arrived he made a quick check to ensure it had not received any damage on the scraping trip up. It looked fine so he climbed onto it and started down.

"Interesting that your footprints are still visible, Bud. Guess the wall has a good coating of fine dust particles. I'll make a check in with the others and be down with you in a few."

None of the other teams had anything to report so he told them to continue on for the next two hours before heading on arcing routes back toward the ship.

"Try to come back at least five-hundred feet to the left of your outbound path," he requested.

He quickly arrived next to Bud who had decided to take a seat on a smallish boulder. Bud's face inside his helmet was all smiles as he wiggled a little to keep himself between Tom and whatever it was behind him he'd found.

Standing back up he turned and swung his right arm around inviting the inventor to take a look.

Tom let out a very un-Tom-like oath on seeing what it was.

Behind Bud, and partially covered by loose stones and dust, sat what could only be described as a metal hatch.

They approached it cautiously. The plate was a manufactured piece and not natural, was pitted and discolored by time and conditions, but unmistakably a hatch covering something.

Together they moved as much of the debris around the edges as they could. Four minutes later they had uncovered perhaps 80% of it if the one edge and corner now exposed were any indication of size.

Tom made another radio call.

"Listen, everyone. Bud found something down there in the crater. We need at least one person down here, but we also need something like a flat-bladed shovel to pry something up. Red? Are you closest to the ship?"

"Roger that. We'll head back down. There is absolutely nothing to be seen up here. How many of us do you really need?"

Tom answered that one man up top and one down with him and Bud ought to be sufficient.

"We planted a Porta-vator so I'll send that back up for you."

Tom, who had brought the emergency tent down on his back now turned to it. He and Bud had it set up on the ground in an area that sloped less than the surrounding areas before Red and Duanne reached the upper edge of the cone and the latter started down.

When Duanne arrived the two friends were sitting inside the tent discussing something that had them both alternately grinning and scowling. The young man let himself into the tent, equalized his suit pressure with the lower pressure inside, and removed his helmet.

"I brought down what looks like some sort of snow shovel I found in the hangar. Hope that's the right tool."

Tom's smile told him it was just what might be needed.

The three suited back up and left the tent. With Duanne putting his back into it, the hatch—about five feet wide and nine feet bottom to top—was uncovered along with about a foot of additional space around it. That, like the hatch, was made from some sort of very old metal.

Bud stood back looking at the hatch. "How the heck are we going to get that opened?"

Tom stopped kicking smaller rocks to the side and stood up. "Well, I can't see anything that looks like a knob or even an electronic lock, not that anything like that would still be working; this hatch has got to be a thousand years old… or even more. I suppose we might try lifting it aside."

Duanne placed the edge of the shovel blade in the small gap between hatch and collar and gave it a little tilt.

To nobody's surprise the hatch failed to move even a millimeter.

"Red?" Tom called over the radio.

"Here, skipper. What's going on?"

Tom told him of their find and lack of a good pry bar.

"Okay. I think I have the thing back in the ship. Zimby and his partner just got back there. I can see them climbing the ladder. Hey, Zim!"

The other man stopped his climb and answered.

"Yeah, Red. I've been monitoring the skipper's calls. What is this miracle tool you think we might have?"

Red described it and told Zimby where he believed it would be found.

"Okay. Assuming it's there I'll have it heading for the cone ASAP."

“Pull out our other Porta-vator,” Tom requested. “I have a hunch we are going to need the extra lift.” He added a short list of other tools he would like to have come down.

It took another hour—the three went back to the relative comfort of the tent—before Zimby called down that he was just descending with everything they asked for.

The three met him near the bottom of the first Porta-vator and assisted him in shucking the three bags plus the nine-foot durastress bar he’d brought down.

“I took a few minutes to laser-cut the tip at an angle so it might fit inside the gap. Now I’m looking at it, I think I did the right thing.”

Tom agreed.

It took all four men to get the bar tip into the gap. It tool all four of them to begin working their way out to the end, but all they managed to do was lift the side of the hatch an inch.

Bud let go and reached down to shove a wedge Tom had requested into the wider gap.

The bar was moved farther in and the process repeated twice more until they had one side lifted about a foot. Then, they abandoned the bar and crouched down to give it a manual lift.

That was less successful that using the bar, so Tom called a halt to that attempt.

“Now comes the time we get to use a little power tool,” he told them. Reaching over to the small pile of things Zimby’d brought down he pulled out a box labeled: **HANDLES/SELF WELDING**

He handed two of the four pieces to Bud suggesting where he might place them. As Bud complied Tom did the same with his pair.

From the box he pulled out a small fob with a single button covered by a plastic shield. That was removed and he told everyone to step back and look away. Pressing the button caused the magnetic mounts on the I-shaped handles that had been set at the upper and lower corners of the hatch plate to almost explode with blinding light.

When the light stopped, the four handles had been permanently welded to the metal. The joins were glowing red but quickly cooled in the icy vacuum of space.

Next, he directed that the two Porta-vator T-bars be brought over. He slipped the lower bars under the tops of the handles and used some durastress cable he also had requested to bind them to

the handles.

A simple press of the **UP** buttons caused the two lifts to rise. As they did, the others put their backs into the task and soon the hatch had been lifted up and shoved to the side.

Tom stopped the lifts and reversed them lowering everything to the ground.

"Okay. Bud and Zimby are with me. Duanne you stay out here just for safety. Be ready to get out of the cone if we get into trouble. Red'll know what to do once you report to him."

The three who would enter turned on their helmet lights to full strength and looked down into the hole.

"Okay," Tom stated with a little surprise mixed with happiness, "that answers the question of how we get down inside."

In the lights they all saw the platform about twelve feet down with the wide and deep stairs leading to their right. The low gravity made the drop down feel like only about two feet which they managed to handle with ease.

With great caution they began to descend the stairs, obviously meant for some beings larger than man. They went around a curving corner about thirty feet down and kept moving in a wide circle another hundred feet or about seventy steps.

At the bottom was a room with only the stairs at one end and a second hatch—this one open about half way—twenty feet away.

"This area must have been some sort of airlock. Not much good now," Bud stated.

Tom asked Zimby to stand guard at the open door while he and Bud moved forward.

They stepped out and into a pitch black cavern. Once Tom activated a small pod he'd brought out of his suit pocket, the immediate area was bathed in bright light. Now they could see it was more than a cavern, it was an enormous hall so wide and deep their lights could not penetrate. Tom looked up and could see the roof was easily fifty or more feet above them.

"Can you tell if this place was natural and only used by some aliens or did they carve it out?" Bud asked.

"Flat floor says this isn't natural. Whatever they were, the aliens sure appear to have put this to some good use. Look around. There are signs this place was once filled with… things!"

"Do you think these aliens had anything to do with your Space

Friends?" Bud asked, a shudder running through his body.

Tom could only shake his head slowly. "I don't know, Bud. They might not be the beings we have called our friends; we met *them* a couple years back. But, they have alluded to larger and more powerful beings as their 'masters'. Maybe…" His voice trailed off.

The two men looked around at the vast cavern before they began walking in the direction away from where they had entered. They passed dozens of pieces of deteriorating equipment, none of which made sense to them.

Bud shivered. "This place gives me the willies. It has to be a half mile across and curved just like the surface. Nothing looks like it has seen a service or an oil job in about ten-thousand years and everything we've touched sort of disintegrates. All except for that!" and he swung his arm around to point to an object that had just come into view as they passed something that must have been a building at one time.

Tom stopped to activate another light, and Bud walked into his back.

It was a statue some twenty feet tall and it was definitely something out of most people's nightmares.

"They must have worshiped dinosaurs, don't you think?" When Bud received no answer, he added, "Right?"

"I honestly don't know, flyboy. That is, with leeway for Earth artists' renditions based solely on bones that have been found over the decades, this statue appears surprisingly like a tyrannosaurus. Remember that as man progressed we stopped putting up statues to our gods and changed to ones of ourselves."

Bud gulped finding his throat had gone quite dry. "Lucky us…"

The statue represented an upright lizard about twenty feet tall with small arms just below the up-stretched neck and huge, powerful-looking hind legs. The differences between what people had believed for decades and this was the tail was longer by at least three feet and the snout was longer with a thicker lip structure.

If there had been teeth in the statue they had fallen victim to time, but there was certainly enough room in the mouth for many dozens of long and probably exceptionally sharp teeth.

Tom found his courage and stepped toward the stone figure while Bud preferred to hang back a little. He would be the first to jump forward it Tom got into trouble, but he had a little problem with snakes and lizards. They gave him, what he called, the *heebie-jeebies*!

Now that he looked closer, the inventor could tell these lizard beings had had terrible claws possibly capable of ripping open their chosen dinner—or an opponent for territory—with a single swipe of their hind feet. The arm—and one was mostly broken off and missing from the statue—would have only been effective at very close range, probably for pulling chunks of flesh to consume rather than for fighting.

All in all, if this were a true representation of the former occupants of the cavern and of Phobos, Tom was happy they were long gone.

"If I could only get our friends to answer a simple message, Bud," he said turning to face the still-nervous man who had been inching forward, "they likely could tell us who these being were." He sighed.

After walking around the icon he commented, "I think this must be a twice size representation. The entryway we came through and the few items still in partially recognizable condition would indicate our visitors—and I have to believe they were not native to this chunk of rock—were about ten feet tall as I originally said."

"Or," Bud said feeling a shiver traveling up and down his spine, "they *were* this big and ducked when they came in." Tom turned to look at his friend. He was thinking about Bud's words a moment before nodding.

"You could very well be right, flyboy."

With both their helmets taking detailed measurements and high-definition videos of all they encountered, they only paused another few seconds before traveling on.

The floor was even more strewn with what likely had been buildings the more they explored the cavern. It made seeing what might lay a hundred feet in front of them difficult.

As they rounded a fallen-in structure both Tom and Bud skidded to a halt, their blood draining from their faces. In front of them was a raised platform some five feet above the ground level, and atop it was an altar along with the thing that had nearly stopped their hearts.

Inside what appeared to be a glass-enclosed box were the preserved remains of one of the lizards. Although damaged by time, reptilian skin was still covering nearly all the skeletal structure and the face—the spookiest things about it—lay facing them, its eyes (*probably synthetic,* Tom thought) were open as if the final thing the being inside had wanted to do was to see anyone coming by.

"We're all seeing the videos," Red radioed. "What a find! Do you

intend to explore the entire place?"

Tom fought with himself over the forthcoming decision.

"No. We'll look around for another hour or so and then come back out. This is going to need a large team of experts and archeologists to properly explore. All I think I want to do is get a couple samples of some of the materials down here."

He and Bud moved farther into the cavern eventually coming to a stone structure that had mostly survived. It was more like an exhibition hall than a storage building. Inside, on the side walls, were carvings of symbols.

The same symbols his Space Friends used!

Bud took the left wall and Tom the right and they got video of all the symbols. As he turned to head back to the doorway the inventor spotted what must have been a table. On it were three small cubes, or boxes. He gingerly touched the first one. When it failed to fall into a pile of dust he carefully picked it up. It was made of some sort of plastic and had stood the test of time. It was impossible to see how or where it might open but he knew it had to have some significance. He placed it into the padded samples case attached to his chest.

He and Bud met up and the flyer grinned. "Guess what I found."

"Some boxes?"

With a shake of his head, he replied, "Nope! Something that looks like a video headset. Meant for a big head… kinda like one of those dinos out there," he said, pointing.

Walking out of the hall they made a wide sweep to their left around the hall and several other buildings—none of which were in as good a shape—before deciding to go back to see how Zimby was faring.

"Mostly bored," was his answer, "except that I did step over to the right and found a sort of library. All their books or whatever were so much dust but on what might have been a cover was one of those symbols your little gray friends use. I'll guess you also found some of that sort of stuff."

Tom nodded and told him of the treasures of the hall.

As they left the cavern, mostly unexplored, Tom made up his mind.

He would do everything he could to ensure Phobos continued orbiting Mars. It would not be destroyed; it would be moved back… and *permanently*!

CHAPTER 18 /
"YOU'RE IN FOR A BUMPY RIDE"

TRANSPACE DART made the trip back to Earth in near record time. The orientation of both planets was still relatively close for the trip.

Before leaving Tom had set up a series of sensors—for gravity and side-to-side/up-and-down acceleration for the most part—to manage the power and use of the reconfigured *Goliath* to shove Phobos back up into its regular position whenever it strayed by more than one-quarter of a mile, but it was going to take the combined power of the three power pods to provide energy to shove and keep it there.

Repositioning shoves were going to be taking place twice or even three time per Martian day.

For an unknown reason the gravity had been climbing steadily over eight days. It stabilized and reduced for a week after that.

Now the inventor was back at his desk he set out to calculate the energy available from his power sources along with current drain and was satisfied that unless the gravity stone was capable of greater that 56% Earth normal, the large ship would have sufficient power to do the job.

To date it had not surpassed 49%.

"The really frustrating thing," he told Haz Sampson, "is that we have to find a final solution. I'm going to need *Goliath* someday and you need the safety of a Phobos that behaves, so I think on my next trip I'm digging into that cavern and taking the gravity stone out!"

The large man looked at his friend's face on the video link. "Are you going to do that rather that investigate the treasure trove that is the giant cavern of those lizard beings?"

Tom grinned. "Nope. My intent is to pack the *Dart* with a team of experts and give them enough supplies to live outside your domes until the two planets come back into close orientation to do whatever it takes to look at, catalog and save anything they can."

As he was leaving his office that late evening Tom detoured to the Communications building and sent a message to the Space Friends:

To Space Friends from Later Swift.
If you are near your outpost close to
planet Mars, please try to contact me.

We are still at a loss to access the gravity stone inside the small Mars moon, Phobos. It is often sets to a very powerful level and may cause moon to fall from orbit.

We may need to destroy Phobos to safeguard our colony, but would rather just turn stone down to low setting if possible. Or remove it to a new location.

Also have entered large cavern with many items that seem to be from a race of lizards or reptiles. Your Masters?

Were they seed life for our Earth dinosaur lifeforms?

If you have anything you can tell me or do to change this unnatural gravity or anything about the lizards, please contact me as soon as possible. Again, if we receive no indication from you that you might help, we will remove Phobos from orbit and destroy it.

"Any chance they'll answer?" Hank asked the next morning when he and Tom were discussing options for the Phobos dig.

"I tend to doubt it, Hank, but you never know. Perhaps just them knowing we've found the lizard race may make a difference. If not directly to them, perhaps their Masters will read that message and realize we now know a lot more than we did a week ago and let the Space Friends call us."

"You didn't tell them much about the big cavern. On purpose?"

"Yes. If they know about it I want them to come forward with information. If it is all news to them, there is no use in giving them info they likely will have to provide to their Masters who might decide to come see for themselves. We aren't ready for that sort of intergalactic guest."

"Do you believe they might come with bad intentions?"

Tom shook his head, but changed that to a slight nod and a shrug. "We just don't know. The former Masters, at least the one I interacted with, Garl, was unpleasant, dictatorial and brusk, but saw

reason once it was pointed out to him. They also honored our desire to not have them come here. I have no idea what these new ones want or might do."

"Right. No good inviting potential trouble. Back to the cavern, what happens if this group of diggers finds something, well, incredible or even dangerous?"

"Then, even if we are on the opposite side of the sun, it will be back to Mars and Phobos with whoever we might need."

"You know something, Dad? I now believe that gravity stone may not be malfunctioning after all," Tom stated that afternoon as the two Swifts sat having coffee. "I've studied everything we have from the incident logs and there is a pattern. I'm thinking someone is directing that stone to turn up and down. Or, set it to do that."

"Okay. Let us suppose you are correct. Why?"

"You may laugh, but I'm thinking whoever they might be, they want us to leave Phobos alone. We get too close and they turn up the power. We retreat and down it goes. The only problem with that theory is that I can't see a pattern in where we have been or done before the gravity increases."

Damon was shaking his head. "I have to tell you I don't agree with the basic theory, or not with it as a blanket answer. Think about your sailing up off the moon and crashing back down seconds later. If this is a series of 'Keep Off' attacks, that would mean someone is watching Phobos all the time, and I have to believe, given the delay you had in speaking with those Masters years ago, that they can't instantly see what is taking place. I'd be more inclined to think the idea you had before of a malfunction is more likely."

"Okay. I can be convinced, Dad. But I still haven't figured why the stone was put down in that small cavern when the lizard remains are in a giant cavern half-way through the moon. Not even exactly on the opposite side. If they excavated a cavern for it, why not directly on the other side? It would seem to be for their gravity comfort, but also why not in the main cavern? Those stones seem to universally affect whatever body they are placed in, even if that is on the surface, but their influence has limitations."

It was true. The stone of Nestria was in a small cave a few feet up a very small hill and not deep below the surface. The small stone they gave Tom for their visit was mounted in the middle of the living space in the airship he'd constructed to pilot them around

many points on the Earth. Anyone could touch it, but its influence was strongest inside of three feet and only extended fifty feet in all directions.

The Space Friends had explained that even the small stone could affect a much larger area; it was all a matter of how it was set and how much power it had available.

An idea came to Tom. “If that gravity stone is like the others we’ve seen, why has it not run down after all these years or centuries?”

Damon spun around to look at his son. “An incredibly insightful question, Son. Why, indeed? Where might it be getting power, and can you interrupt it? And, can the source be dangerous and that is why the distant placement?”

“That is something I intend to find out.”

“What are your feelings about the lizard creatures?”

Tom had to think a moment before carefully answering, “Not lizards. Dinosaurs. I’ve compared the structure of the statue with many, many examples of what scientists believe Earth’s T-Rex dinos looked like. And, while these are smaller, by at least fifty percent, they are that same dinosaur.”

Damon was stunned. He’d seen the basic statue picture and the reclining preserved body in the case, but hadn’t tried to compare those with Earth saurians.

Seeing his father’s consternation, Tom stated, “I’ll go one further. I believe those beings were one of the Master races for our Space Friends at one time in the past. Perhaps even the ones most recently displaced. It’s going to take getting our friends to answer a lot of questions, but I think the reason our friends were sent here was because their Masters had failed to find a way to get to Earth for more than a brief time to check out mankind themselves.”

Damon snorted. “Next, you’ll be saying you think our ancient dinosaurs were the result of them trying to seed this planet.”

Tom shook his head. “No. I don’t believe that. Not until I have some proof or an answer from our friends. But, I do believe that the saurian form would be the best suited for survival on a new planet. Hardy and vicious, as any survivor needs to be. If ours had not perished all those millions of years ago, with room inside their craniums for brain development, perhaps they might have developed intelligence and civilizations and ancestors of man as we know it would have died off because we would make a great food

source."

"I see. But, how do you prove any of that?"

Tom smiled. "By taking up a team of archeologists and anthropologists. I have Personnel working to get five of each who are willing to live on Mars and use the saucers to commute up and down for the eight months it is going to take for Mars to get back around and the Earth to catch up and be close enough for reasonable flight times."

"You know something? That is exactly what I'd do as well!"

Tom addressed the team of scientists that would be travelling with him to Mars.

"I will not overstate nor will I minimize the potential for danger in what you are about to embark on. Mars is in itself a dangerous planet. You cannot go outside without the aid of breathing apparatus and protective clothing. Even with that available, it is one-hundred percent better to not venture out unless you are in the combination pressure and spacesuit you have been issued. And, Phobos is ten times more deadly.

"You have all been shown the videos and the data regarding the erratic gravity. You must be on your guard at all times for fluctuations. Now, here's an important thing… you also have to be on guard for your neighbors." He looked at the group and they were all nodding. "I see that lesson has sunk in so I won't hammer at it now.

"When we arrive my job is to see that you have safe and ample means of getting into the cavern and back out and up. That is mostly in place although fair warning; it won't be like traveling in an elevator in a luxury hotel. Nothing you will encounter up here will qualify as luxurious."

This got him a small laugh from the seven men and three women. One of the ladies called out, "We're so used to rickety ladders and badly knotted ropes, any powered means will be a luxury!"

"Glad you are all prepared for less than perfect conditions. I can't tell you how to best do your jobs. You are experts in your fields and highly respected ones at that. All I can say is if it can be removed without damage—and I doubt if much falls into that category—do that but everything else gets studied in place. Thousands if not hundreds of thousands of photographs will be taken and cataloged along with nearly constant videos. I'm guessing that is standard

practice for you anyway."

He went over how the trip would happen including the crowded conditions inside the ship.

"You will each have a small cabin but your crew will be doing what is known as hot-bunking, There are only twelve cabins in total and a five-man crew, so one of us will be sleeping in a special couch inside the storage room. A sign will be on that door in the lower living space when that space is occupied so if you see it, please try to be quiet. Normal conversations are fine, just no shouting arguments about King Tut's curse or something like that."

When he asked for questions, Tom was surprised the only one came from one of the men, an Englishman named Walter Frobisher.

"Yes, Dr. Frobisher?"

"Ummm, I hate to sound like a sissy, but I tend to become slightly nauseous on airliners whenever they encounter turbulence. Will this trip be rough or smooth? I ask because I can take certain tranquilizers to settle my stomach."

Tom smiled at the smaller man. "The trip, once we leave the atmosphere and get up to the ship that will take us to Mars, will be smooth as sitting in your own living room. You will feel no acceleration or deceleration and in the vacuum of space there is no turbulence. What I must be totally honest with you is that once on Phobos you may be in for a bumpy ride. We haven't been able to find a pattern for the gravitational swings and while the satellite does not buck and shake, the changes are sudden and can be, well, disconcerting."

The Englishman smiled. "Oh, I have no troubles once I am on solid ground. I once spent a month in an area plagued by earthquakes striking fifteen times a day. No problems."

Tom made a mental note to take the man aside in private to tell him this would not be like the ground shaking under him. He also noted that Frobisher probably needed an extended session inside the zero-G chamber Tom had created years earlier to train astronauts for the rigors of space when building the original Outpost in Space.

The meeting broke up with everyone being told they had five days to go home and get their things in order.

"Take-off from here will be at nine on the morning of this coming Monday with the larger takeoff from Fearing Island at noon. Remember to pack only a few vital items such as personal

electronics and instruments of your trades along with your toiletries. All clothing will be provided including the under suits we all wear in space."

He did take the Doctor aside as people shuffled out of the meeting room and suggested it would be beneficial for him to spend an hour inside the training equipment.

"Why only me?"

"A legitimate question," the inventor told him while trying to figure out how to word things, "but the truth is with your smaller stature, the artificial gravity in the ship will affect you differently. I need to be assured you won't have any problems. I trust that you understand that precautions are only here to protect you and the others."

"Of course. Forgive me for even questioning your request. Uhh, when do I get another go at your zero-gravity chamber?" He, like the others, had already had a brief fifteen-minute session to check for disorientation. Everyone passed, but Tom felt he needed at least a two-hour test.

"After lunch, so don't eat too much. Bud Barclay will come get you from your room."

At three Bud reported to his friend that the Doctor had passed with flying colors. "I have to tell you he was nervous about possibly losing his lunch, but I think it is all in his head. There was no sign at any time he was having troubles. You couldn't have wiped his grin off with sandpaper!"

The image in Tom's mind made him chuckle.

The transfer flight to Fearing took off five minutes late because Sandy wouldn't let go of Bud.

"Sorry for the delay, folks," he announced to the scientists sitting in the *Sky Queen's* lounge. "My wife was just delivering a long message to me and I had to stand there and, uhh, pay attention. Don't worry, though. We can easily make up the delay in the air. Hang on because there is a report of a storm front coming in about the same time we'll pass over Rhode Island. This is a big jet but we may feel a minute of bumps."

The flight was almost perfectly smooth as Tom let Bud skirt the storm by heading out almost due east from Shopton before turning south for a fast flight to Fearing.

The *TranSpace Dart* was sitting on her fins out on the takeoff pad. The *Queen* landed on the main runway and quickly received permission for a taxi over to where the spaceship was sitting.

Everyone stopped talking on seeing the towering ship standing in front of them, nearly falling over each other trying to take a look, causing a backup at the lower hatch. But, within a minute they had all managed to get out onto the tarmac where ten faces were looking upward in awe at the top of the arrowhead-shaped ship.

"*That* is one huge rocket," a woman archeologist stated. "Must be really large inside."

"It is tall and a little wide down here on the ground, but the accommodations are not as spacious as you might believe. All this lower seventy percent is taken up with power and drive systems. In fact, at the top where the two pilots sit, that space is just about the same size as the front of a compact sports car."

"One of those dinky foreign jobs to boot!" Bud added with a sly smile. "Don't worry, though. We go so fast you won't have much time to notice that."

In groups of five—four passengers with one crewman—they headed up in the internal elevator, were shown to their cabins and around the living and work quarters and all given a brief safety lecture before Tom and Bud climbed the narrow ladder to the cockpit. With only a brief warning to strap in, the ship lifted and headed into the midday sky.

The hookup to the black hole was as smooth as any Tom and Bud had made and soon the ship was racing past the orbit of the Moon on its seven day trip to Mars.

Tom's plan was to let the scientists have a two-day recovery and orientation period once they reached the Mars colony. He would fly them up and around Phobos on the second day to give them a look at their new work location before putting to them work the next day.

As with other groups of Earth visitors, to keep the air and food supplies of the colony safe, Tom had packed away in the hold of the ship a small habitat tent with ten bunks plus an air supply and enough food to sustain the scientific team for up to five months. It was all concentrated and could be left unrefrigerated. They wouldn't eat in luxury, but they would have their own quarters in which to rest between visits to Phobos. An unmanned resupply ship would meet Mars when it was about 65% of the way back around the sun with the Earth playing catchup.

During the first of these two rest days, Tom and a small Enterprises team headed up to Phobos to accomplish two things.

First, they rigged up a more permanent four-person elevator with armatures and wheels that would keep itself from scraping down and up the crater wall, and would be quicker making the one-way trip in only two minutes.

With the cavern below in total vacuum, there was no use in putting up an airtight barricade and lock, so he satisfied himself with placing three of the five-man emergency tents inside the cavern where the scientific team members could take breaks.

A supply of extra oxygen tanks would be brought up with the scientific team.

The second thing Tom did was to borrow the larger and more powerful atomic earth blaster from the colony and set it up over the smaller cavern containing the gravity stone.

Stefanie had made a detailed study of all her findings and had devised a plan of action that included the statement it would be perfectly safe to make a four-foot-wide hole down to the eighty-foot mark before inserting an airlock. She had suggested a slight angle of about three-degrees from perfectly vertical—missing the current shaft bottom and plug—so Tom and Bud set up the launch rail five feet to the right of the current hole. It would not intersect with the current lower hole, ending fifteen inches to the side of the small plug.

The only interruption was in taking the blaster back out once it reached a depth of about ten feet to allow it to be slipped into and through the airlock before going back into the hole.

The airlock's top and bottom would be left open while the blaster headed down to the smaller plug, stopping inches above it before being withdrawn and the airlock lowered into place and sealed.

It would be up to manual labor to break through the last two feet and into the cavern.

An attachment ring on the inside wall of the airlock would let a narrow version of the porta-vator be hooked up so people and equipment could be lowered and raised, along with—everyone hoped—the gravity stone.

Tom's thought, which his father agreed with, was to remove the stone altogether until it might either be understood and repaired, or deactivated, or just stored someplace where it would be of no consequence to anyone or anything.

This was easier said than done as they still needed to get into the cavern and come up with a method for bringing up the stone that might still be attached to a power supply or anchored to the floor.

Just about everything was unknown.

Tom Swift hated unknowns!

CHAPTER 19 /
ONE, FINAL, CONTINUOUS PUSH…OR NOT

THE FINAL, manual, excavation did not go as easily as Tom would have liked. For one thing, the stone found at that depth was so dense that simple hammers and chisels didn't make much of a dent. That, plus the four-foot shaft was incredibly narrow for this sort of work.

Two men used to heavy labor from the colony had volunteered to come up and provide the strength necessary to break into the cavern. Because of space limitations, only one could work at the shaft bottom at a time so they spelled each other off at twenty minute intervals.

It was on the fifth shift that John Crabtree, formerly a railroad track construction engineer and currently the colony's expert in repairing everything they had that moved, reported that between them, they had only chipped out about a centimeter of material in an area barely nine-inches across. "I'm sorry, Tom, but this stuff is as hard as diamonds."

Bringing down the small earth blaster was not the solution as it would need to be operated from above and the nature of it being a tethered device would mean the airlock would need to be left open. Tom wanted to preserve the atmosphere in the cavern.

He wondered about backing the airlock up to the surface and using their blaster to go down another twenty of the assumed twenty-three or twenty-four inches of materials before going back at things with manual labor.

If we only have a few inches to get through after that perhaps the hammers will be enough to break that out. They won't be working against another couple of feet of hard materials, he told himself.

It as then that Crabtree's statement registered in his mind.

Diamonds?

He knew that gemologists cut diamonds with other diamonds, so why not try to rig a diamond-tipped drill? He reasoned that if someone could drill a series of holes around the perimeter of the bore bottom perhaps the rest could be weakened so much it could be smashed apart.

It took until after he'd returned to the colony before he found out he could find what he required just fifty-seven miles away. A trove

of crystals had turned out to be large diamonds, some as big as five-inches across. A few had been brought to the colony with an even larger number mined and sent down to Enterprises to pay for many of the services and even the most recent three habitat domes.

Damon had suggested the colonists keep them as Enterprises had already written off the costs associated with the colony, but Haz had insisted.

Today, there was still a reserve of about eighty-one million dollars sitting in an account ready to pay for any special items requested.

"Of course you can have one of the diamonds, Tom," the colony manager assured him. "And, in case you don't know this, we have an electric jackhammer we can rig it to. Totally self contained with one of your Solar Batteries that'll run it for over two hours. No need to try the drill route with that piece of equipment."

The very next day along with the scientists, Tom took the digging tool up in the *Challenger*.

Hank and Bud stayed with the research team at the giant cavern while Tom and three others headed back to the gravity stone cavern.

"I honestly don't mind going down with the hammer and finishing the job Jake and I couldn't get done before," John Crabtree told Tom. "It'll give me a bit more exercise, and I need that. Too many things not going haywire up here so I do a lot of sitting around."

The big man and the jackhammer were lowered into the bore and through the airlock. As he climbed down the last few feet and set the tip of the hammer against the floor, he also braced himself against the wall. With the lower gravity he knew the hammer could shove him backward and up with no problems. Other than, that was, the problems associated with having your head shoved up and against something like the bottom of the airlock.

Along with the hammer he had brought down a container into which debris could be loaded and then hauled up through the airlock.

In the airless void, no noise was to be heard, but even the people on the surface could feel the slight vibrations as the hammer slammed into the hard rock at a rate of 1,800 strikes per minute. Heavy and specially padded gloves meant the operator's hands remained unaffected and helped in gripping the tool.

John stopped after just two minutes and filled the debris

container.

"Okay up there. The first hundred pounds or so of busted up rock ready to haul up."

With that, the line went stiff and the soft-sided container rose up and out of his sight.

He went back to work and by the time to container returned he had more than enough to fill it. Plus, he had managed to get down almost nine inches and mostly to the edges of the bore hole.

"This is going to be a cinch," he told those above, "but I'd better get my safety line on because I could break through at any time."

"Don't go down more that twenty inches at any spot," Tom warned. "I want to come down then and inspect things and also see if the old hammer and chisel and arm swings can get us through in a bit more gentle manner."

"Right. I'll let you know. Probably another eight or nine loads or so."

It took ten loads before he figured he'd gone as deep as Tom wanted him to, so he scraped up the last of the rocks and a lot of dusty materials before calling for it to be removed.

"Also, at least for now, I'm attaching the jackhammer to the take-up line so you can have that as well. I'll come up after that."

Fifteen minutes later everybody was on the surface and Mike Pemberton, another of the colonists, was using a soft bristle brush to clean his friend's suit.

The team discussed strategies before Mike, the lighter of the two colonists, said he'd go down and try to get the breakthrough.

"Okay," Tom said, "but be certain you are safety lined to the airlock and still have your line attached to the surface. Take things slow and easy."

The man grinned. "I'll be extra careful, Tom. Promise."

Seconds later he had slipped his feet into the hole, stood on the cross bar of the porta-vator, and was disappearing down the bore.

"I've passed through the airlock and am standing on the bottom," he reported a little later. "Good thing I brought my brush down because there is a lot of tiny stuff I'll bet John's gloves just could not get a grip on. Gimme a minute to sweep and let the dust settle and then I'll get to work."

When he reported he was about to take the first strike at his

chisel, Tom found he was holding his breath. He let it out and tried to take a few even and deep breaths before speaking. “Go ahead,” he finally said in a calm voice.

“Roger. Starting now.”

During the ensuing fifteen minutes Mike made several reports including one when his chisel broke up a piece nearly eleven inches across and three deep. “It looks to be an anomaly and not that everything from here on will crumble,” he said.

Three minutes turned into five and then nine before something happened and the first small hole broke through.

He lost his chisel in the hole that finally intruded past the cavern’s ceiling.

“Got poke through,” he reported. “Want me to try to break it all out?”

“Please use that camera in your pack and take a look to ensure nothing is below, then go for it,” Tom instructed.

Only a small amount of rocky debris, and the lost chisel, could be seen on the otherwise clean floor and so Mike moved back and braced himself now taking swings with the hammer alone. Piece by piece the small hole widened and more and more materials dropped away.

“I’ve got about sixty percent of the bore floor open now. I won’t be able to stand here for much longer. Do you want me to lower myself part way down and break the rest out around my waist?”

“No. Come on up and we’ll do another complete video survey. I still have my little recon robots that I’d like to take another look at the stone and also make a sweep around the perimeter of the cavern. Good work, Mike, and you as well, John.”

Tom called for a one-hour break back inside the ship before anything else was to be accomplished. During this time he contacted Bud for a status check.

“Man, if you could see these sci-geeks. Like kids turned loose in a candy store. Check that… let loose *outside* a candy store with pockets bulging with money. They hardly know where to start. Hank and I had to arbitrate the order they have been going down because everyone had a perfectly wonderful reason they ought to be first. Personally, I think they all boiled down to wanting to have their name at the top of the list.”

“Keep them working nicely with each other,” Tom advised. “If

any one of them tries to push their weight around I suggest you remind them that as long as they behave they stay. Misbehave and they go home."

"I had to do that already and only got a 'Yeah but you'll be gone soon so we can do what we want,' look. Not totally certain how to handle that one."

"Tell them they could find themselves down on Mars and not back up here. Haz can make that happen when we are gone."

"Right."

Tom returned to the business of getting the gravity stone out of the cavern. From past experience he knew the actual stone likely weighed only a hundred pounds—on Earth—so here on Phobos it would be easy enough for one person to carry it.

He had never figured out if the stone was hollow or if it was just made from something fairly lightweight.

Since the first moment of breakthrough into the cavern until now, there had been no indication of any danger from approaching the stone. That didn't mean whatever was powering the stone was entirely benign; it might even be a radioactive source they had not been able to measure.

After radioing everyone on the little moon with his intentions, Tom flew one of the saucers back to the colony and the *Challenger*. There, he build a set of instruments along with a mechanical wedge he believed would be able to lift on side of the stone and then measure whatever was below it. Everything from invisible light to hard radiation would be seen and measured. Along with one of the small gravimeters he knew he would get the best yet "look" into what was happening with the stone.

Art Wiltessa wandered over to the small station the inventor was using to build his package and stood back, observing for several minutes, before asking a question.

"What happens if that figures out there is something very bad attached to the stone?"

Tom sat back, stretching his back muscles.

"Well, my hope is that we'll find nothing more dangerous than a connection to a large version of a battery. If so, we detach it, make more measurements, and bring it out. Then it gets flown to the surface of this planet and allowed to completely discharge whatever power it can store."

Art nodded before asking the inevitable. “And, if it is not connected to something innocuous?”

“The inventor stood up and turned to face Art. “Then, I try everything from trying to slip a tomasite cover over and as far under it as we can get and see if that cuts off most of its gravity generating capability after which I find a way to get a robot built to go pick the thing up, detach it from its power and bring it to the surface. We would do that remotely and then try to get the stone away. In the meantime I foresee another robot filled with tomasite foam going down to fill the hole under where the stone once sat and block things off.”

“Then, would you fill the shaft back in?”

Tom smiled. “Absolutely. I figure that if the rocks around the power supply have contained anything over all these years or centuries, then it will still perform that function. I think I’d just make a plug at the bottom of the shaft and backfill with some of the loose materials around the hole.”

With Art’s assistance he completed the new sensor and wedging device a couple hours later. They carried it to the *Challenger* and headed to the moon shortly after that.

Bud met them, having left the scientists an hour ealier. He wanted to be part of the gravity stone removal, and his tolerance for the petty bickering between the ten scientists was wearing him down.

Together they lowered the new equipment into the shaft at which point Tom activated it and drove it forward on its two studded wheels.

The built-in high definition camera showed them what they might see if they had been in the cavern. What they saw was simply the roughly pyramid-shaped stone with no indication of any radiation or protective shield.

An hour later every measurement they might possibly make had been. Tom even had the device use its wedge to lift up one side an inch and then measure what came up from the hole under the stone.

With nothing measurable, Tom announced he—and Bud once he saw the look on his friend's face—would be heading down to witness the lifting and disconnect of the stone.

They traveled to the airlock on the narrow porta-vator and were soon standing on the floor of the cavern.

Bud looked at the stone and shook his head.

“So, why did Deep Peek show there was something around the stone and yet I’m seeing nothing?” he asked as he and Tom stood shoulder to shoulder fifteen feet away. “Even the little bots ran into something, but now I see nothing!”

“This is only a guess, but I’d say there *is* some sort of field around the stone. Not certain what or even why, but perhaps it was once a perimeter alarm. Now, it is a mere ghost of what it once was but Deep Peek saw it nonetheless.”

Tom reached out and began moving toward the stone. At about eight feet his fingers touched something that yielded to his hand while giving him a slight tingle as if some sort of electrical field was touching him. He told Bud about it.

“Oh, it’s still there,” was all Bud could think to say. When Tom stepped forward he encountered no resistance other than a slight tingle as his body pierced the field.

As best he could estimate, the field was only about an inch thick.

Bud came inside commenting that it actually felt invigorating.

The gravity stone was relatively easy to move from its position inside the cavern, but it was definitely attached to some sort of power supply far beneath the floor that only allowed it to be shifted by about three feet in any direction.

Tom pondered whether it might be safe, or was asking or a disaster, if he simply severed the semi-flexible tube carrying power. The problem was the more he studied it, the less he understood about the entire situation. He brought the new devise close to the hole and the tube.

There was nothing measurable coming through the tube. Zero power readings were to be found on his instruments. Nothing was to be seen through the semi-opaque sides of the tube. And, when he dared to reach out with his gloved hand, there were no vibrations and nothing tangible to be felt.

Believing it was a necessary delay, Tom rode the porta-vator to the surface and hiked the three-hundred feet to *Challenger* where we placed a call to his father.

“You caught me just ready to leave, Son. What can I do for you?”

Tom explained the gravity stone and its anchoring tube.

“I’m not sure what to do, Dad. Do I cut that tube or is that asking for trouble?” He sent his father the video of the gravity stone being moved and the discovery of the attached tube along with all the

measurement data.

"You say there is no registration of power, no vibration indicating it is connected to something generating the power for the stone?"

"Nothing. I even had all lights turned out to see if there was some sort of beam inside. Not anything even on infrared or ultraviolet scans."

He told his father he'd considered evacuating the moon and placing some sort of remote-controlled severing device that would be triggered from far away.

"I say do that, but be sure to have the *Goliath* ready to give one heck of a push should the stone object to it. That means I am suggesting a push far to the side and into space where it would be captured by the sun and drawn in rather than heading down to Mars."

Tom hated the idea of losing the valuable information to be gleaned from what the scientific team might find in the giant cavern. Even if he didn't say so to his father, he believed it might be worth the risk to have someone calculate the exact push to keep Phobos around Mars for as long as humanly possible.

Once the call was disconnected he sat at the computer trying to figure out the power needs and the exact angle of push he would give the little moon. More than once he wondered if a higher orbit would be a safer one. Could he push the moon fast enough to raise it by several thousand miles and expect it to remain there?

The basic answer was yes, he could expect that, but only if he could achieve that speed and disconnect the stone.

With the scientific team happy and totally oblivious to anyone other than themselves, Hank had also come to the gravity stone site with John and Mike transferring to the large cavern to act as liaisons and guards.

"I see a gleam in your eyes that tells me you plan on doing something either foolish or exceptionally brave," the flyer told Tom.

"Perhaps a bit of both." He told Bud about his desire to cut the attaching tube and be ready to shove Phobos back up. "I've spoken with dad and he agrees we ought to sever that tube or cable or whatever it is remotely. We have what is needed in *Challenger* so I'm going to get build a guillotine for something that diameter and we'll see what we get. Oh, and while I'd doing that can you go back and tell the scientists they will need to conclude today's fun and excitement in about three hours?"

“Sure. Nothing I’d like more than to ruin their day!” And with that he was out of the control room and the ship, sprinting to the waiting saucer fifty yards away.

By the time he returned to say the scientists were grumbling about having to leave, “‘…and why can’t we just live up here?’ and that sort of thing,” Tom was nearly finished with the small, clamp-on device that would use a high-pressure compressed nitrogen cylinder to drive an exceptionally sharp, durastress-coated angled blade with such force it could cut through one-inch steel rebar.

He asked that Bud stay up at the top of the bore hole while he went down to install the device. It took only a moment and he was quickly riding the porta-vator back to the surface.

“The hardest part was dropping off the porta-vator into the airlock, and then having to climb down that rope to the bottom. Good thing the gravity is only about one-twentieth at the moment. I shudder to think what might have happened if it shot up all of a sudden. I believe I’ve had about enough of that.”

Bud went back to herd the scientist up the side of the crater and onto their saucer while Hank took on the pilot position in *Challenger*. This freed Tom to perform some last minute computations and to be ready to press the “cut” button.

From a position nearly three-hundred miles above and slightly behind Phobos, the two ships paused while Tom activated the device. Two things happened:

1) The gravity stone must have taken exception to a loss of its connecting tube because gravity on Phobos shot up to Mars normal levels.

2) Phobos immediately began dropping lower in its orbit.

The drop was not great because gravity soon dropped back to half Mars normal, but if left unchecked it would accumulate and become a real problem in several months.

Tom shook his head. It had always been a possibility, but one he had hoped would not come to pass.

He moved to another control panel and brought up the programming for *Goliath* which was still stuck—using its Attractatron—to the lower trailing area of the little moon. Slowly he set the power of the repelatron to press against the surface of the planet below, always shutting off as it got to within fifty miles of the colony. It would not come back on until it had passed by that much.

It was a foregone conclusion that the ship would not be able to

provide all the necessary push to move the moon out of orbit as its power pods could only deliver so much energy before needing to be shut down for twenty-to-twenty-six hours. He had been using two of the three at any given time allowing the third to have its rest period, but he now pondered using them all and giving the moon a really hard shove.

If he did not give it that shove, it would spiral down and down until it either broke up and scattered all around the planet, or simply crashed doing as much damage as was possible.

CHAPTER 20 /

LIFE GOES ON.....

BECAUSE IT was going to be necessary to wait for the Earth to ship a new, fully-contained nuclear reactor to provide the necessary high power to get the best push for the *Goliath's* repelatron, Phobos had slipped another six hundred miles closer to the surface. Its meek gravity was beginning to be felt every time it raced over the colony domes. Water in the most fully filled hydroponics tanks often overflowed slightly; the habitat domes grew taller by about a foot; dust storms gathered more quickly but often soared into the sky as if attempting to follow Phobos as it raced past.

In another two months it would be brushing the atmosphere and nobody wanted to imagine what sort of storms that would set off. Shipping time from Earth was going to leave just two days between arrival and the first bits of the moon possibly being ripped away by the molecules of the Martian atmosphere.

Ditto the widespread damage possible should it decide to break up at that point or even earlier.

Even of greater loss was the potential to learn more about the lizard aliens who had inhabited the gigantic cavern inside the small moon.

But, the ultimate loss would be if it damaged or destroyed the colony and the domes that had kept the citizens safe and warm over the years. That could never be allowed to occur.

To Tom's mind, it was something that had to be conquered in the next two weeks at most and not to be delayed even another day after that.

His Space Friends had been silent in spite of multiple pleas for information or even guidance. The finding of dinosaur statues and even carefully preserved tissue samples that yielded unmistakably prehistoric dinosaur DNA had been a difficult thing for Tom and for all of Earth's scientists to come to grips with.

So many cries of, "You're trying to put one over on us!" and "Prove where this came from; take us there *and show us*!"

There was no way Tom could figure to reattach the tube and the gravity stone had adhered to the floor with a stubbornness that almost spoke of some sort of built-in anchoring device.

The call to Enterprises with the power needs set many things in motion, but no matter how fast Tom or his father wanted that

reactor to be ready, the fact was it was going to take a week at the very best just to get a trio of new power pods available. A full-fledged reactor was several months away.

Following three days of pushing—both in the "shove" sense as well as the stressing of the power pods—Tom began to despair. It was turning out that Phobos was coming in a little faster than calculations would have anyone believe, and the power pods were showing signs of fatigue.

The nuclear reactor would likely not arrive in time and the longer he waited the harder it was going to be to shift the moon.

His sleep, such as it was, that evening was interrupted by Haz Samson.

"Get up, Tom! You have to come to the command center."

Groggily, he sat up, tried to focus his eyes on the man, but the sudden bright light in small cubicle where he had his bunk in the *Challenger*, combined with the even brighter back lights of the control room, meant he could only tell who is was by listening to the timbre of the voice.

He croaked out, "Haz? What is it?"

"I need to have you tell me," came back the answer. "Come out here and do some Tom magic and check the readouts. My people are either in seventh heaven or insane. I need you to tell me which."

Tom forced himself to swing his legs over the side of the couch and accepted Haz's helping hand to stand.

Bud, who had also been awakened by the noise of his friend's 2:00 am visit handed him a cup of water as he entered the larger room.

Tom found that his heart was racing and he had no idea why other than the possibility that Phobos was about to crash.

He slipped into the seat by the console that was tracking everything having to do with the satellite. As soon as his eyes focused on a small cluster of gauges, his first thought was that he was still asleep and dreaming this moment.

"That's no dream in case that's what you're thinking," Haz told him. "It's what we're seeing inside the colony. Tell me what it means."

It was almost spoken as a plea and not a request.

"That," Tom said before finding it necessary to clear his throat and take another drink of water, "says that the gravity stone on

Phobos, the very one that has been running haywire, has shut completely off. No gravitational output whatsoever according to our instruments up there. Now, don't get all celebratory until I can get up there to make certain it isn't instrument failure, but it looks like the stone may have had some back-up internal power that has run out. At least, I assume and hope that is the case."

Most of the crew staying on *Challenger* were awake by now and once they understood what might be going on they all stated they'd like to go up now and not later.

"Besides," Bud said speaking for them all, "nobody is going to get any more sleep tonight… or rather this morning. Let's get Chow out of his bunk up in the storage room and have something to eat and some hot coffee and head up to Phobos."

There was a chorus of "Here, here!" from everybody else including Chow who had come down the narrow ladder in time to find out about the gravity stone.

"I kin get some breakfast burritos goin' in a couple minutes. Just got ta heat up the eggs an' make some fresh salsa. But, first, I'll brew up some strong coffee." He turned and walked to his small kitchenette and opened his refrigerator and two cupboards.

Before Tom had finished examining all the readouts the smell of fresh coffee was wafting through the room.

"Haz? You go back and tell the colonists that might be awake to not get anybody else out of bed, but things might be looking up. Also tell them to pass no rumors around until I get back from the moon. Then, come back and eat with us."

The word was passed, breakfast eaten and, twenty-three minutes later, the ship lifted off. It met up with the small moon nineteen minutes after that and Tom and Bud piloted the ship to a pinpoint landing just twenty yards form the bore hole.

The inventor told his friend that, contrary to his own father's explicit instructions to the pilot that he was the expendable one and always should go into potential danger before Tom, the inventor said, "I'm down there first and alone until I call out for assistance, Bud. No argument."

Knowing there are times he ought to insist and times he ought to stand back, Bud stood back. "But, I am suiting up and will be a the top of the hole in case…"

The two men were ready and outside the ship in about nine minutes.

Tom dropped down and out of sight on the porta-vator and only called once he'd sealed the airlock above him.

"Getting ready to drop down. I'm activating my helmet light and camera so you can see what I do."

What everyone saw was the side of the shaft giving way to the vast openness of the cavern, and when Tom looked down they saw the floor with the small amount of debris from the breakthrough nobody had cleared away visible.

The inventor touched down and began cautiously walking toward the gravity stone.

"There is no extra gravity down here at all, and the stone looks, well, sort of dull and lifeless," he reported. "It might be imagination of just a wild hope, but it looks… well, dead."

Everyone saw his right hand reach out to tap the stone. What surprised them all was that it rocked under then slight pressure. This had Tom wondering just how heavy it might be, so he reached out with both hands and grabbed the upper third. With only a slight amount of exertion the stone came up and away from the floor.

He turned and set it down a few feet away from the defunct power tube.

"Well, folks, I guess that is the end of the gravity stone problem. I'm going to bring it up and we'll get it off Phobos. Someone prepare a cradle for it on the porch outside the hangar, please."

He created a sling affair using some extra strong line and the debris removal bucket that had been left on the cavern floor. With that strapped to his back, and now with the minute gravity that was natural to the satellite he pulled himself and his load up to the airlock where he shut the lower hatch and took a moment to rest.

"Okay. I'm coming up," he radioed the team above.

"Are you just going to leave it here?" Haz asked after they returned to the colony two hours later.

Tom nodded, but also said, "For now. If I'm reading that stone right, it won't give any more troubles unless someone hooks it up to power long enough for the internal systems to charge. Even then, it is on the exact opposite side of Mars from the colony where its influence ought to be minimal. I'll take it home once the planets get closer next year."

With the gravity stone danger eliminated, Tom and Bud returned

the scientific team members to the moon the next day and set up a rotation whereby at least two of them could remain overnight so some studies were not interrupted.

What Tom said he would be doing was waiting three days to give the power pods time for full recovery and then giving the moon a steady push back to its proper orientation, speed and orbit.

"If your people can tell me exactly where that is supposed to be, we'll make it happen!"

Haz laughed. "I've had them compiling that information for a couple months. They can tell us both within five feet altitude and a hundred meters along the orbital path where that spot is every five seconds of its daily orbit. Tell us when you want to push and we'll fine tune everything based on that."

While the scientists were off the moon for another (agonizingly long according to them) period of time Tom set up a schedule.

The move began that evening just before the sun went down over the western mountain behind the colony. Tom, Bud and Hank stood by in one of the saucers with the reconfigured *Goliath* sitting in its position and all three of the colony's mules ready to give little tiny directional nudges if and when required.

It started so slowly that it wasn't until an hour later the colony reported the now had some indication there was movement.

"The move is looking good so far," they reported, "but we can't determine if everything is going in the absolute right direction."

Tom radioed down, "Give us another hour and then you should be seeing what is actually happening."

After that and over the next thirty-two hours things went absolutely as they should. On only two occasions were the mules brought closer to give the tiniest of corrections, a move necessary because of extremely limited steering control using *Goliath*.

The final five hours were spent getting things so close to where they had been Tom was able to report the moon was now within a meter of where it might have been had there been no intervention courtesy of the gravity stone.

Back at the colony Haz asked if Tom was taking the *Goliath* back home with him.

"It's been on my to do list, Haz, but if it'll make all the people up here feel better and safer, I can leave it until we get the two planets back in closer orientation. I've already arranged to transfer the

controls to the colony and we'll train three of your top people before we depart."

He wanted to spend a full day with the scientists on Phobos and that happened two days later.

Tom and Bud were wandering through the cavern noting where some things had already been viewed and cataloged and now were cordoned off with bright red and yellow tape.

"Starting to look like a crime scene," the flyer quipped.

"Yeah, but what's got my interest is what I think I'm seeing way down that corridor," Tom said pointing.

Bud looked and then looked at Tom. "What the…?

Close to one of the side walls was something that looked out of place. It was cube-shaped and in very, very good condition.

"Obviously, that wasn't here all this time," Tom stated, "so I wonder how and when it got into this cavern."

The approached the cube which turned out to look for all the world like a large storage or shipping case roughly fifteen feet on a side. The grayish material on the outside was similar to some of the items the Space Friends had once sent for Tom to look at before their Earth visit. Slightly rough and bumpy with a plastic-like dull appearance.

Three hours came and went as Tom tried to gain entrance until he had a realization that it might never open in the vacuum; it might require being in a viable atmosphere so he ceased what he was doing and made a call to the colony to arrange for it to be carefully brought to the Martian surface.

Tom. Bud, Hank, Chow and five others left for Earth a week later in the *TranSpace Dart*. *Challenger* and two of the three saucers would come back as a flotilla with the saucers being unmanned and everybody else in the larger ship.

Where the *Dart* would take just five days—they might be farther away than the previous trip out but that meant more distance to get up to higher speeds—the other ships would take three weeks.

Chow made certain there were plenty pre-made meals for all to enjoy, so nobody was worried about the extended transit time.

On the way back to Earth, Bud asked Tom a difficult question that had the inventor puzzle.

"What *was* the source of the power down under the gravity stone?"

* * * * *

He was shocked, quite frankly, when only an hour after returning to Enterprises he received notice from Communications of an incoming message from space.

"Don't know what to tell you, skipper," the duty radioman said, "but it's coming in on the proper frequency and has every earmark of being real. Want it on your screen?"

"No. This might be our last ever communication and it just seems right that I take it over there. See you in five."

As soon as he sat down at the monitor the computer *pinged* indicating it had reached a translation of the entire message.

Space Friends to Tom Swift. Yes we now understand your personal identifier.

We also regret not being able to send answers to you for lengthy period of time. Our Masters have forbidden it. We now must depart your system but have made Masters understand need to shut off gravity stone inside larger orbiting object.

Object you call Phobos would have been returned to original position, however we detect this has already occurred. Assume you are responsible for this.

Uncertain how this was accomplished. Can you send final message with details.

The large beings and artifacts you have found were from our previous Masters who once attempted to populate your planet. They had some success but perished almost in total many eons of your time ago. The last time they were near your planet Mars was almost five thousand solar orbits ago.

The remains you found in the small cavern was our commander who perished from time. That

is his final place of habitat and we ask you do not remove him.

We depart the system in one rotation of your home planet. Our voyage home will take one half solar orbit time. After that, we will try to communicate. Impossible during transition to home planet.

We have found great satisfaction and what we believe you call pleasure in our time here and our communications with you.

And, that was it.

Tom sat, a combination of surprise and sadness running through his mind as he re-read the message.

So, it was true. The Space Friends were actually departing the solar system for their home world and in about twenty-four hours. There were so many things he wanted to tell them and ask them, but his thoughts were interrupted by a radio message from his father.

"I saw the message, Son. What a great loss to us, but oh, how much we have learned about things that might have remained hidden to us had they not made that first attempt at contact nine years ago."

"Yeah, I know, but it feels like a great friend has announced they are moving to a foreign country, and it is happening in less than one day and there might be no phones or mail service. I want to acknowledge their message but can't think what I might say or ask. Any thoughts?"

Damon told his son he had more thoughts than could ever be expressed. "You go ahead and send them what you want to. Be sure to add my thanks for all they have meant to us. Okay?"

"Sure. Thanks."

Tom pulled over a notepad and began writing a possible message. He read it and crumpled the page up starting over on the following page. An hour later he had about twenty balled-up pages and a message he thought might be adequate in communicating his real thoughts and feelings. He moved over to the radio panel and pulled out the keyboard.

Tom Swift to Space Friends. My father you call Earlier Swift known as Damon Swift sends his greetings and regrets that you

must leave our system. I also am saddened by this news but understand you might be eager to get back to your home planet.

Knowing you has meant a great deal to both of us, and what we have learned from you has increased our planet's knowledge of the universe. For this we thank you.

I have so many questions but primary is knowing if it is safe to open one of your radio devices to see if I can make more of them.

Your question about position of Phobos is easy to answer. We found gravity stone and have removed it from the small moon. It is now down on the planet Mars in a position it cannot affect anything.

Is there a gravity stone inside other moon?

Also found large container inside larger cavern with lizard being remains. It is very new and has been brought out of cavern and to surface of our planet. Can you tell me what we will find inside.

If possible contact me before you depart and again when you arrive in home system. I will try communicating with you in just over half orbital time.

Farewell, which means have a safe and fast trip home. Also, thank you for your friendship.

Tom pressed the SEND key and sat back. He didn't expect to receive any return message and was shocked when the unit *pinged* less than thirty seconds later. Across the screen came:

To Tom Swift and Damon Swift. We believe you call feelings of happiness for knowing an individual to be called

friendship. We feel great friendship for you and will not forget our time on your planet and here in your system.

The gravity stone will be returned to normal condition and can be controlled using controls build into it. Touch is set for Tom Swift to enable commands.

Our Masters set stone to high to destroy it in crash onto planet Mars. They were not understanding you have Earth beings on planet that might be harmed or destroyed. They will never energize if again.

There is no other stone on second moon.

The remains you found were from our previous Masters who abandoned the small orbiting object before they sent us here the first time.

Container you found in large cavern is our gift to you. Again, touch of Tom Swift will open. We bid you goodbye and farewell and will attempt communication once we get to home planet.

And, that was it.

Except it wasn't. The following day the container Tom and Bud found emerged from the cavern and was brought down to the Martian surface.

Haz sent word he would get it to Earth as soon as possible.

Good to his word, and of some surprise to Tom, *Goliath* announced her approach three weeks later. Her skeleton crew, hampered by being tucked under the cargo deck, managed to set the big ship down at Fearing Island where Tom was waiting.

Eagerly, Tom and Bud and about fifty of the personnel at Fearing and all the crew of *Goliath* crowded around to see what might have been packed into the fifteen-by-fifteen-food cube.

It had been hauled into the hangar next to the Administration

building where some aircraft and ground vehicles were kept and maintained. With the doors closed, the atmosphere was thick with expectation.

The inventor had a camera set up to send images back to Shopton so his father could see what was inside, as well as back to Mars, before he searched for and found the hidden keypad. It was invisible until his hands moved to within a few centimeters of it. Then, what looked to be a detection pad and a single button glowed a bright yellow.

With great care, Tom placed his right hand so it hovered over the surface of the pad. It began to strobe bright and dull until he placed the palm directly on it.

The closest people stepped back quickly as a series of sharp *clicks* came from all around the upper plane of the cube. Even Tom moved back a step as a precaution.

The top edge nearest him popped open about an inch and then slowly rose as if on hydraulic struts. But, as he watched he saw nothing like those opening devices. It simply opened on a hinge point until the top folded over the back side and the edge rested on the ground.

Tom called for a portable stairs unit and was soon stepping up to peer into the box. He let out a gasp but did not move back.

When Bud came up and joined him in gazing into the crate they looked at each other with great smiles on their faces.

"So, are you going to tell us what the heck is in there?" Haz's voice called out from the video receiver at the bottom of the stairs.

"Seconded," came Damon's voice.

Tom looked down to the camera. "The unimaginable, Dad and Haz." His voice softened so only Bud could hear him. "They left us their portable manufacturing unit, flyboy."

"Can we built my faster than light drive with that?" the flyer asked with a big smile.

"It's possible. *Who knows what we can make with it, Bud?*"