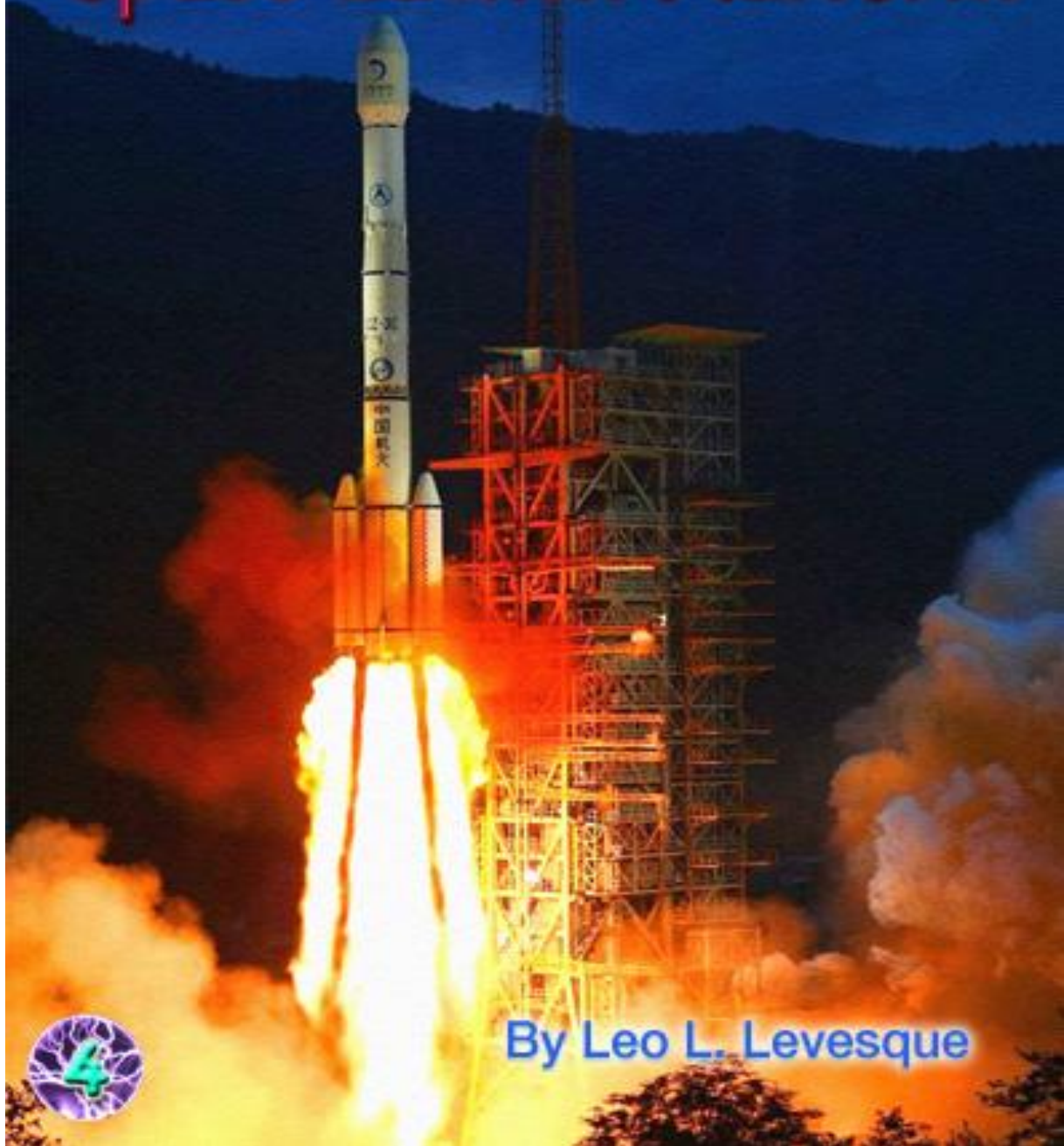


A SWIFT ENTERPRISES SAGA

Thomasina Swift and the Space Launch Platform



By Leo L. Levesque

A Swift Enterprise Saga

Thomasina Swift – Girl Inventor And The Space Launch Platform

By Leo L. Levesque

Dedication

This story is dedicated to the people
who dare to dream and wonder.
And then have enough courage to
discover and invent against all the odds.

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Technological Terms

This story contains several terms that may not be in every day usage. For those who might otherwise need to run to a dictionary, here are the basic explanations of them:

T Tauri stars [page 8] are pre-main sequence stars. Their surface temperatures are similar to those of main sequence stars of the same mass, but they are significantly more luminous because their radii are larger. Their central temperatures are too low for hydrogen fusion. Instead, they are powered by gravitational energy released as the stars contract towards the main sequence, which they reach after about 100 million years. They are very active with sunspots and intense X-ray flares and extremely powerful stellar winds.

Most of the following terms are used on page 22

Electrons: like all matter, have quantum mechanical properties of both particles and waves. They participate in gravitational, electromagnetic and weak interactions.

Arc reactor or laser evaporator: an apparatus for producing C₆₀ and other fullerenes. The metals can be transition metals like scandium or yttrium.

Bucky Balls: hollow, pure carbon spheres.

Fullerene: any molecule composed entirely of carbon, in the form of a hollow sphere, ellipsoid or tube. Spherical fullerenes are also called Bucky Balls.

Endohedral fullerenes: are fullerenes that have additional atoms, ions, or clusters enclosed within their inner spheres.

Endohedral Metallofullerenes: are characterized by the fact that electrons will transfer from the metal atom to the fullerene cage.

Fullerene Cages: they look like soccer balls--pentagons and hexagons bound together into round hollow molecular cages along the same architectural lines as the geodesic dome.

Superconductivity: a phenomenon of exactly zero electrical resistance and expulsion of magnetic fields occurring in certain materials when cooled below a characteristic critical temperature.

Cooper pair: two electrons that are bound together at low temperatures in a certain manner.

Waldos: a remote manipulator, is a device which, through electronic, hydraulic, or mechanical linkages, allows a hand-like mechanism to be controlled by a human operator. From the Robert Heinlein story, Waldo.

Prologue Part Four: Wild Ride

The whole situation was starting to feel insane. This were their fourth meeting and they were no closer to a solution than they were months ago. Tom IV had been shot at, and three folders containing the ongoing saga of Thomasina Swift's were found. But that was it. Everything else led to a dead end.

They were starting to feel like scared little children jumping at every noise that came out of the shadows. Or was this what their unknown enemy wanted? He pulled hidden strings and they danced to his tune.

Tom III was in his spaceship the Exedra, just inside of the orbital position of Mars. His robot companion, Aristotle, was in a shuttle craft in a similar orbit on the other side of the sun. Their job was to watch out for unauthorized intrusions from a "negative zone" probability breach or from an unknown starship.

Tom V, the youngest Swift of the group, was pacing up and down the conference room. Tom Jr. and TSL were trying to play chess. They were waiting for Tom IV to show up.

Tom Jr. looked at Tom V's pacing and chuckled. He finally took pity on him and said, "If you're worried about being attacked here, stop your fretting. See that box next to the monitoring console? It's our new protection. Just push that red plunger down and we'll be totally safe. I'll explain it at the meeting." He made his chess move and took TSL's Bishop.

"For crying out loud, Tom V," hissed TSL. "You're a distraction. Either sit down and tell us what's bothering you or go out and get a soda or something!"

Tom V sighed and sat. He fidgeted of a moment and closed his eyes. When he opened them he was ready to talk.

"Guys, I think I messed up. At the last meeting I gave Tom IV a *chameleon cloak*. I know! I know!" He held up his hands to ward off their comments. "We're not to give each other our inventions. But with him getting shot at and telling me he was hot on the trail of our nemesis. I panicked and gave it to him. I feel bad enough about that. But what's worrying me now is, doesn't he have his own personal quantum force field belt or something? So why does he need my invisibility cloak? You would think that a guy that could come up with force fields could whip up a cloak of his own." He looked at both Toms to see if his logic was faulty.

TSL answered, "Yes, he does. But when did he ask for the cloak? It had to be before the meeting."

"He did. He called me on the quantum radio a couple of hours before we met. The real reason I had that oversized parka that night was that I hid it in the

lining.”

Tom Jr. laced his fingers together and tucked them under his chin. He stared out into space for awhile and a humming sound came from his throat. He finally shook his head. “Do any of you get this feeling that we may be being had? Or am I just getting antsy and grasping at straws.”

“Are you trying to say,” inquired TSL, “that Tom IV is playing us? That for some unknown reason he’s out to kill us? Come on, we’ve known him for a long time. He invented the negative zone device in the first place!”

“Yes, he did,” Tom Jr. responded. “But if I remember right he wasn’t too keen on restarting this technology. He almost destroyed his own probability with it and it was only by accident that when he managed to stop the cascade effect of his negative zone device he found himself struck in my probability. It took us months to reinvent the device and stabilize it. Then it was weeks before we found the right sequence of events to stop the cascade before it did any real harm in his probability and could insert Tom IV back into it. He swore never to use it again.”

They all nodded.

“It was at my insistence that we re-contacted you other three Swifts. We did sort of owe you an explanation for us popping into your realities. The looks on your faces as we stopped, took location points and told you ‘Sorry, wrong stop...’ and disappeared.”

“Do you remember,” asked Tom V, “who suggested the restaurant?”

Tom Jr. looked at TSL who shrugged and shook his head, “No.”

“Ha! I can’t remember either,” Tom answered in wonderment. His memory had never failed him before.

“What real evidence do we have against Tom IV? None!” TSL sat back with his arms crossed. His loyalty to Tom IV was unshakable.

“You’re right, TSL,” Tom Jr. agreed. “We have no real proof except,” and Tom Jr. counted them on his fingers, “he never once came up with an idea to help us catch or defend ourselves. He’s the only one to ever find a blue folder with Thomasina’s stories in them. He’s the only one to get shot at, and only on his say so, it was never collaborated by anyone that we’ve heard of. And most important, he now drinks, like a fish and not just beer. I don’t think we have enough whiskey at the bar to satisfy him. Always on the sly since I stopped him at the last meeting.”

“What do we do now?” asked Tom V. “Do we confront him?”

Unseen by the others from his position in the hallway, Tom IV leaned back from the door... he had heard enough. It was time to put an end to his little game with the other Swifts. He took a mini-voice recorder that anyone might find in greeting cards and stuck it in place inside the blue folder he was carrying. He had modified it some weeks back just for this type of occasion.

He snuck back up the hall, turned around and started to whistle loudly as he

walked back to the conference door. At the door he took a deep breath and with a smile walked into the room.

“Just found this on the floor outside the door.” He threw the blue folder onto the table. “Be back in a minute. The little boys’ room is calling.” With a wave of his hand, which they could see was bandaged, he stepped back out and closed the door. “You fools,” he thought to himself. “You’ll never learn the truth now!”

Laughing he swiftly walked out the front door and as it closed he fingered his retrieval fob in his pocket and calmly walked into the negative zone portal that materialized before him.

The monitor console beeped rapidly, getting louder with each beep. It was signaling a NZ activation. Tom Jr. reached for the console and pulled it to him. The sentry robot was also reporting in with its own hooting noise, and adding to the confusion was Tom III calling in. With the flip of two switches the alert noises subsided.

“Tom Jr., my sensors are indicating a zone forming near the restaurant! Hope your sentry robot is on the job. I’m coming in as fast as I can, just in case.”

“Roger that,” answered Tom Jr. “The sentry robot is approaching the portal and firing a tracer probe. Will let you know the results as soon as possible. Be ready to receive probability coordinates. Out.” Tom Jr. relaxed in his chair. The other two Toms did likewise. They had both crowded around Tom Jr.

The monitor screen lit up with several rolls of numbers. Some location points within the galaxy and others positional coordinates in the multi- universe.

“Tom III, I’m sending the numbers now. It looks like it’s only a probability change. There is no change on the star position coordinates. Remember, just a quick look-see and come back to get us. No heroics. A dead man tells no tales.” He warned.

“You’re the boss and anyways I like my behind just where it is and not blown to smithereens. Be back in a jiffy. Out.”

To hide his nervousness Tom V reached for the folder and opened it to see what it contained, if anything. The monitors started to beep again. Tom Jr. hurriedly tapped out orders on the touch screen. He quickly glanced around as the room filled with laughter. The laughter was issuing from the folder that Tom V had opened in his hands.

The laughter stopped and was replaced with a harsh, evil voice. “There can be only one. I, Thomas Appleton Swift, am the one! No impostors shall live. DIE! All of you!” it screamed.

Before anyone could react, the room rocked, shrunk and expanded all at the same time. Tom Jr. knew the feeling. It was an uncontrolled negative zone.

They were about to die.

* * *

The Exedra followed the course setting through the multi-universe. The computer reading showed no danger at the terminus of the tunnel. It was a rather empty spot located next to the planet. The ship popped out and all hell broke loose.

His sensor equipment showed another NZ forming and pulling him toward it. He materialized and dematerialized within two heartbeats.

His mind could not handle the sudden switch of two zones so close together. It roared with pain. Tom III collapsed. The second zone was unstable. It had no ending point. The tunnel whipped back and forth like a thrashing snake. Coiling and then snapping out trying to anchor itself. The Exedra's inertia dampening systems could not compensate fast enough. Tom III was thrown around like a rag doll. After what seemed like an eternity the tunnel held firmly onto something.

The ship popped out and began a slow spin, tumbling end over end. The computers were down. In fact, all the systems were down. It took time for Tom III to recover. He ached all over and at the same time felt numb to the bones.

"Wahoo," he thought, "what a wild ride." He was looking over his control board. Only the low iridescent glow of emergency lights were visible along with a small blinking light at the top right corner of the control panel calling out for his attention. The master circuit breakers had tripped in the engine room.

Unbuckling his restraints he drifted up over his seat, reaching out slowly he floated his way to the engine room and the master control panel. Slipping his feet into the built-in foot grips in the floor left his hands free to work the control panel.

Circuit breakers were the first order of business; lights came on and the automatic computer started up and internal damage reports started to scroll on several screens.

Tom III had to initialize most of the systems and even with computers helping, it took time. When the video screen from the outside of the ship cleared, he wished it hadn't. With the gyros working the ship righted itself, facing the nearest object to it.

Tom III inwardly groaned. It was the opposite of just what he needed. A Tauri Star, the start of a new sun. The sun? Tom III felt like he had been thrown out of the pan and into the fire. At this close range he would be fried to a crisp if an X-ray flare happened to hit him. The shielding in his ship was as useless as...

He put that thought aside. He could do nothing but continue the start up. He ordered all unnecessary subroutines stopped and concentrated on the probability device. It was just a matter of time before an X-ray flare erupted and ended it all.

* * *

The NZ tunnel they were in was too small to hold them. It started to squeeze

together to hold what it could. At least the part of the restaurant they were in was still in the zone and getting squeezed. The walls were cracking and coming in. All three Toms were thrown about. So were the conference table and the portable control units.

As Tom Jr. scrambled to get to the emergency plunger, the table hit him and he was knocked out. TSL was against the far wall and Tom V landed right on top of the unit. He pulled it out from under him, and not knowing what it did, pushed the red plunger down. The room stopped being crushed and all noises stopped. It was eerie—one moment hell was breaking loose and the next... nothing!

Looking around, Tom V saw that TSL was slowly getting up. Tom Jr. was still under the conference table. He moved over to try to get the table off Tom Jr.

“Not yet, Tom V, let me get at one end and you go to the other end.” With this done the table moved easily.

Tom Jr. moaned and opened his eyes. “My shoulder,” he gasped. TSL helped him to sit up and felt around the shoulder and arm. Before Tom Jr. realized what was happening, TSL wrenched the arm out and down. The arm snapped back into place. With a yell, Tom Jr. pushed TSL away. He had used his injured arm he realized with a sheepish grin.

“Thanks! I guess,” he told TSL as he moved his arm about. “Tom V, please get the control unit and pull the plunger back up and stay away from the middle of the floor.” Tom V did as he was asked and was surprised as a small section of the floor slid open to reveal a ladder going down into another room. “Down we go guys and watch your head. It’s a little cramped.”

It was like climbing down into a space ship. As Tom Jr. started to descend he spotted the blue folder on the floor and grabbed it. “Who knows,” he mused, “It may contain something useful. Or evidence,” he thought to himself.

From in front of the ladder there were two columns of seats, with three seats on each side of a walkway led to a huge semi-circular control panel. It dominated the wall in front of the first two seats. Tom Jr. got into the right seat and he indicated that TSL take the left one.

“Strap in guys. I don’t know what we’ll find when I cut out the stasis field were in. I’m only going to flick it off and then back on to get a fast reading of what is going on out there so we can make a decision. This field is opaque in both directions. It’s designed that way so no radiation or some other form of energy could leak in.”

Part of the control board was already running on one side of the panel. With a touch of a few controls the whole panel lit up. Two monitors brightened, showing just static. Looking over the board and satisfied with the reading he cut out the stasis field.

Immediately alarms went off. Radiation and heat indicators hit the roof. He

snapped the stasis field back on. The two monitors showed images now. They were quick approximations of what was happening around them.

The left screen showed the outside temperature—it was in the millions of degrees, hotter than the sun. Radiation levels registered off the charts, and solar winds roared around them at several thousands of miles per hour and rising.

The second screen showed them the solar system. Nine old and tired planets and their sun. The sun was exploding. It had gone nova and they were on the outer expanding wave of the sun, riding it like a surf board. Eventually they would tumble in and disintegrate.

* * *

“I know I can’t time travel,” Tom III thought to himself. “But I’m back to the formation of the sun. Is there any difference in the two?” He couldn’t help being the scientist he was even in these panicky times. He could not get the probability tunnel to hold open. There was too much X-ray radiation. He had been lucky so far, no spikes, but would it last?

The monitors kept showing a shadow of another tunnel, a false reading he was sure. “But... what if it wasn’t? What if it was another tunnel?” his mind raced, he came to a decision. All or nothing.

He fed his remaining power into the probability unit. Lining up his NZ portal inside the shadow, he poured in all the power he had left. He was there one second, in the tunnel the next, and out the other side before he could blink an eye.

* * *

“So that’s the plan. Does anyone have another suggestion?” Tom Jr. asked.

TSL held up his thumb, afraid his voice would betray his fear. Tom V was wide eyed and pale. He nodded his head up and down, finding it impossible to speak.

“Okay then, let’s do it! TSL, you man the star drive. Head us straight out, full power. Pushing against this gravity wave from the sun it should last about five seconds. I have that much time to get the NZ locked onto something. The energy pouring out of the nova is destabilizing the NZ focusing point.”

He looked at his companions. They nodded their support.

“Cutting back on internal power, all life support and gravity fields off.” The control capsule lights dimmed and they could feel the manual restraints tighten to hold them in place. “On my mark, five, four, three, two, one, mark!” Tom Jr. shouted. Even his nerves were getting strung out.

The stasis field collapsed. The temperature shot up. No alarms sounded, they

were turned off. TSL fired the star drive. He held it steady, there were no computers assisting him. It was pure dead reckoning by feel only. It wasn't especially hard to do, but he was sweating.

Tom Jr. fingers were flying over the probability control board. He now had four seconds to find a way out. The capsule strained to get them away from the nova. It made it past the orbit of Jupiter and stopped. No more star drive power. They had minutes to live.

The capsule was now in front of the nova wave and the coordinate computer locked onto a tunnel that was fading away. "What the heck!" Tom Jr. marveled. "What is that doing here? But it's our way home." He opened his NZ focusing point into it, and fed the last of the NZ power reserve into the ship drive. The ship jump into the tunnel.

They were saved.

Chapter One: Xichang Space Launch Center

Three hours after the round table discussion group had ended and Thomasina Swift was giving the go ahead to build the energy transfer point device, she found Sandra Swift, her cousin, in her public relations/marketing office. She did not look happy.

Tommy went over to Sandy and, taking her hand, led her to the seating area in her office. “What happened, Sandy? Did you get a call from Haz? Is he all right?”

“Tommy, things have gone terribly wrong with the satellites. They launched the first pair from Xichang space center alright, they went into orbit on schedule and they even transmitted for awhile. Then they both went dead. Both at the same time. One second they were working the next, nothing.” She just shook her head in disbelief.

“I’m waiting for Haz to call back. They’re trying to reboot the systems on both satellites.” Sandy just stopped talking and sat there. Tommy said nothing but sat with her friend until the phone rang.

“Get daddy quick, will you, Tommy? He’s in his office,” Sandy then rushed to pick up the phone. “Haz, are you all right! Did you get the satellites back on line?”

“Yes and no,” Haz answered back. “Calm down... Take a deep breath, will ya! Is your dad with you? Is Tommy?”

“No... Wait, they just walked in. I’ll put us on speaker,” she clicked a switch. “Go ahead, Haz.”

“Hi, folks, I guess you all know by now the satellites failed. Like the old saying, “the operation was a success, but the patient died.” Haz sounded defeated and exhausted.

“What are you going to do now, Haz?” asked Mr. Swift.

“Well, Mr. Swift, the next two satellites are ready to go, but the Chinese Long March B-6 rocket will not be ready till the end of the month. Their next scheduled launch is to carry a science lab for the Beijing University and that’s next week. The Beijing project has higher priority than mine. Their science and their rocket base.”

“Is there anything we can do to help you?” Sandy asked with concern. “Will the old communications array last long enough for you to have two more Com-Sats made?”

“I hope so, but one of the old Sat Ones is already down fifty percent and failing fast. If it lasts till the next launch we’ll be lucky.”

“Haz,” asked Tommy, “have you given any thought to the possibility that the failure was sabotage? You do remember that Flagger Communication supplied a lot of the electronics and if Sergey had his people already inside the organization when those parts were shipped, he may be the culprit.”

“Sure I remember, but why would he want to, Tommy?”

“For political reasons. Let’s look at it this way. Flagger was the only other buyer for the network. Once you got it, the Russian mob attacked your headquarters in the Baltic. Why? Easy! To shut you down and when that failed they made sure the satellites malfunctioned.”

“You did say, Haz, that those Com-Sats cover the Russian-Sino border countries, right?” Mr. Swift asked.

“Yeah...” he said, cautiously, “keep going, Tommy.”

“Those border countries are watched over by the military of both China and Russia. They want their own independence without overlords. If something drastic happens won’t this be the best time for the Mob to move in? The Russians or the Chinese won’t be able to send in troops without causing a war or at least an international incident. The Mob will then have a safe haven to work out of. They’ll be able to sell their arms all over that part of the world with immunity. They’ll probably set up puppet governments in one or two of the republics.”

“But, Tommy, there are no free republics!”

“Not right now there’s not, but what if both Russia and China lose the ability of coordinating their forces? Don’t both nations depend on your satellites for their communication?”

“Come on, Tommy, that’s a far reach even for your imagination.”

“You think so, Haz? Then why did Sergey want into Flagger’s company? Why did the Mob attack your Baltic headquarters? Why did both of those satellites fail at the same time? Coincidence? Hardly! Imagine what the Russian mob could do if they had their own satellites and their own countries to work out of? What if the satellites aren’t dead, just waiting for a signal from Sergey and his gang so they can hijack them?”

“Tommy, you’ve got to be wrong! If the Russian mob could establish themselves as a government, there’d be hell to pay. The South American cartels will look like child’s play, compared to them.”

Tommy said nothing. Sandy and Mr. Swift were in silent amazement. Finally, Haz cleared his throat and let out a heavy sigh.

“Guys, I’ve got to go. If Tommy is just partially right on any of this...” and the phone went dead.

* * *

There was a buzzing sound in her head, it came and went, came and went. Finally the fog of sleep dispersed and Tommy grabbed for her phone. The clock read 2:37 am.

“Hello,” Tommy answered, still half asleep. “Haz, are you all right? Do you realize what time it is? And I’m not Sandy, this is Tommy! You called the wrong number,” she hung up.

The phone buzzed again. “Haz... oh! Sorry, I thought you wanted Sandy.” She sat up in bed and rubbed her eyes.

“No, Tommy, I want you. No! Forget I said that! God, I’m tired! Listen, I hate to say this, but you were right. Both Russia and China are on military alert. They’ve mobilized troops to several border areas. Neither country is happy.”

He now had Tommy’s attention. All thoughts of sleep had disappeared.

“My launch window has been moved up. We’ve got a go in four days. I need you here to check out both satellites before the launch. I’ll trust no one else. Both Com-Sats are under military guard till you get here.”

“Haz, slow down, will ya?” she managed to squeeze in, “and don’t repeat what you said. I got the gist of it. Can I bring Bud with me? He can handle all the mechanical systems, leaving me free to concentrate on the electronics.”

“Sure, Tommy, bring whoever you need to get this done. Things are heating up around here and if we can get those Sats up maybe we can save the day. Heck, bring Sandy, too. She can watch the launch with the rest of us. If this works out right we’ll all be heroes. Get on the first non-stop flight to New York City and on the way call the Chinese Consulate and tell them when you’ll land. They’ve got a person sitting there waiting for your call. They’ll have a direct flight ready for you — just a hop over the North Pole and down to China. It’ll take about thirty hours to get here, and when you do, be ready to work. So, sleep on the plane. Take a pill if you have to. Got to go, and Tommy, thanks!”

* * *

The flight and train ride took longer than expected. Forty hours later Tommy and Bud, wearing clean room suits, were led into the ‘white room’ where the two, eight-ton satellites were waiting. Sandy did not have clearance to get onto the base so she had to stay at the hotel for now.

Haz had the forethought to have the access hatches open and all the tools and electronic meters and gauges ready. There were rolls of schematics and several computers. Two Chinese assistants were assigned to them; both could speak fluent English, having spent time at American universities.

Tommy and Bud had worked out a strategy for checking out the satellites. They had only thirty hours to do it. That left only twenty-four hours in which to

seal up the satellites in the delivery capsule and move that onto the giant rocket. Part of the plan was to work four hours and rest for ninety minutes.

Fifteen hours later found both of them frustrated. They found nothing in the first satellite and they were now two hours behind schedule. They started to cut short their rest period. Things were going faster the second time around and that led them to think that maybe they were going too fast and missed something.

Fourteen and a half hours later two very exhausted but somewhat happy people walked out of the 'white room'. They were only a half hour late. They found no hint of sabotage or faulty components. They did everything they could. There wasn't anything more they could do. Time would tell the rest of the story.

* * *

Sandy, Tommy and Bud were in the spectator viewing area on one side of the control room about a mile from the launch platform. It was five-thirty in the morning. The sun would rise in thirty-five minutes. Just in time to greet a new rising star brighter than it was.

Haz was in the launch control room with a mixed crew of his and Chinese launch personnel. The Xichang technicians handled the launch and Haz's people watched over the satellites.

Military personnel were everywhere and that led to an anxious mood in the control room. And, while everything ran like clockwork, tension was high.

At five minutes before launch an automatic hold started for three minutes to check that all ground crew personnel had left the launch area.

The jumbo-tron jutting out of the control building's roof gave a crowd of carefully screened and important spectators a fantastic close up view of the rocket. The spotlights surrounding the ship made it stand out when looked at from across the way. The loud speakers called out the countdown in two languages.

At minus five seconds the main rocket engines ignited. Smoke and flames billowed from underneath the rocket. At zero, when the four solid boosters ignited, it stood there for a second and then slowly lifted off the ground. As the rocket passed the top of the gantry the emergency alert horns blared out.

"Code five! Security breach at sector nine! Repeat. Code five. Security breach at sector nine. We're under attack! Take cover!" The words were barely out when a streak of flame hit the rocket, now only three hundred feet off the launch pad. It exploded in a tremendous burst of flames, sending smoke and rocket fragments everywhere. The sound was just starting to diminish when a second smaller explosion was heard and felt.

The left side of the control building went up in an inferno of fire. Bricks, mortar and suspended ceiling tiles fell everywhere while smoke blanketed everything. The space center's petroleum service stations were located behind and

to the side of the building. They were hit by a second missile. The people that were near them disappeared in the flying ruins of the building.

The Jumbo-tron, hit by the blast force leaned off the roof. Slowly at first and with building speed it fell onto the spectators.

Bud lost sight for the two women when the Jumbo-tron fell. Screams of pain were everywhere. He could hardly see with all the smoke and bits of fire.

Military personal were running around with their guns drawn and ready. They pushed and prodded people into groups and held them prisoners. Panic was setting in. Another group of military police came and forced Bud and every man not hurt into a work crew to help clear a way into the control center building.

Tommy and Sandy were bleeding and in a daze from the explosion, both had been hit by flying debris. The Jumbo-tron separated them from Bud. In minutes they had been hurriedly looked after, handed bandages to put on themselves, and then left under guard so the medics could attend to more seriously hurt people.

They could not find Bud. Nobody could tell them he had been forced to help elsewhere. The girls were led into a small crowded building and not permitted to leave.

It was hours before Tommy, Bud and Sandy were reunited with hugs, kisses and tears. All the Americans were then brought together and force marched out of the rocket center. They could not believe their eyes on how much damage the catastrophic explosions caused. A bus was waiting for them at the outer gate. They were ushered back to the hotel and told not to leave. Guards were posted at every door.

They still could not find out anything about Haz that night or the next morning. All the foreigners were escorted out of Xichang province on a train right after a quick cold breakfast. Then, with no explanation, they were flown by military plane to Hong Kong airport and left at the arrival gate to make the rest of their journey home the best way they could.

For the first three days Sandy camped out at the Chinese consulate in Hong Kong. Tommy and Bud did the same at the American embassy. No one could give them a word on Haz's well being. The Chinese would not even see Sandy, never mind talking with her, and as for the inquiries from the American embassy they were told that it was an internal problem and that the Americans had no jurisdiction or right to tell them what to do. Especially now, a state of preparedness for war was in effect.

The Chinese government wouldn't even tell them if anyone had been caught in the raid at the launch site. Both Russia and China were posturing to invade the boarder countries, but which one was responsible for the attack, no one knew. So they sat there, seething with anger, waiting.

The yelling and screaming from Sandy got so bad that a squad of embassy

Marines finally had to haul Sandy back to the safety of American ground. After several more hours of heated discussion she was coerced into going back home to Shopton, New York.

It took three more days for the group to get back to SEI (Swift Enterprises International). At no time could they get word on Haz. No political or private organization could convince the Chinese government to cooperate and give a list of missing people's names, dead or alive.

No consoling or arguing would calm Sandy down. After a time everyone left a large circle around her, letting her stew. Tommy sought refuge in the shed working on both her super size flying generator and making up a list of equipment she was going to need to help her make the power transfer point device a reality.

Chapter Two: Regrouping

“Uncle Hank, thanks for coming over on such a short notice. I really appreciate it.” Hank Avery sat down at Tommy’s desk and started to clean his glasses on a cloth from his back pocket while he waited for Tommy to finish what she was doing.

“Still no word on Haz, I take it?” he asked to fill in the quiet of the room.

“Still nothing and we’re trying to find out more information. But I’m going by the old adage, ‘no news is good news’ and praying a lot.” Sighing she held up three folders for Uncle Hank to see. “I’ve got three projects that need to get done right now and I would like to hand the first one over to you seeing that you pretty much built the first flying generator.”

She handed him the first folder and he thumbed through the first few pages and stopped at a 3-D drawing of the generator housing and the size scale. “Missy, come on... fifty feet in diameter, and you want two? What sort of wing can hold them up?” He was shaking his head in disbelief.

“To tell you the truth, Uncle Hank, I haven’t designed the wing yet. Those new turbines are going to be the test bed for a new design concept. Notice, there are no support struts holding the turbine. The whole blade assembly just floats inside the cowl. The cowl is more like a diffuser shroud that helps form a low pressure zone behind the turbine. That will increase the air flow through the blades and that in turn will increase the efficiency of the whole system.”

Hank looked at the page again, and then back at Tommy. He didn’t look convinced.

“I’m using a backwards TMH hub. The top of the blades have a magnetic ring that encompasses all the blades and it then fits into a ‘C’-shape channel that runs around the whole circumference of the shroud. The channel is really hundreds of individual electro magnets and laser sensors that read the position of the blades and the computer adjusts the magnetic fields to keep the whole assembly centered.”

“Won’t that take a lot of power?” He asked as he put his glasses back on.

“Not even five percent. I’m projecting the power output to be around nine Megawatts with a wind speed of a hundred miles per hour and at an attitude of 23,000 feet. Give or take a megawatt and a few thousand feet. That’s enough power for about two thousand houses.”

“You really think you can get this generator up and running?”

“Two generators, Uncle Hank. And remember these are only a test bed. The real turbines may be as big as three hundred feet across and a power output of over

300 Megawatts. So three of these turbines in concert, could in theory, put out as much power as a good nuclear power plant of 1000 MW and with no harmful products to get rid of or to worry about.” She smiled at the older man. “If I could devise a way to make this happen the world’s power crunch is over and so is most of the pollution caused by fossil-fueled power plants worldwide.”

“That’s a tall order, Missy, but if you think it’s possible then I’m all for it! What is it you want me to do?” He was at the edge of his seat with excitement and wonder of it all.

“I assume that you know someone at Astros Aerodynamics because Bud told me of the model you had tested there. They make most of their private jets out of composite materials, right?”

“Yes sir, Missy, they do. They can work up and cure a whole airplane body with wings, making the plane virtually seamless. It’s quite an operation, even if I say so myself.”

“Do you think they would take on this project for us? Is your friend’s connection high enough in the organization to get it done?” She asked intensely.

“Oh, I think so. Zimmerman is president and owner of the company. He was the structural engineer of our old group at NASA. He left the group early. He saw the writing on the wall way before we did. Zimmerman wanted us all to leave and start our own fledgling aircraft design company. When we decided to stay with NASA he bid us adios and he started the company on his own. For a few years afterwards he would host a get together down in Florida somewhere near Kennedy but it slowly fizzled out.

“When Damon took over here at the construction company, I came along with him and have been here every since. After I settled in here I contacted Zimmerman and we’ve been getting together every once and awhile for a beer or two and to hash over old times.”

“And he can be trusted?” Tommy asked.

“We throw each other a bone every now and then and have a good working relationship. As a matter of fact his was the last company to let us go after the breakdown of Damon. He loved the instrument packages your Uncle used to put out. He even came over once or twice to try to help, but you know that didn’t work out.” Uncle Hank was wiping his glasses again. It was starting to become a habit whenever he talked a lot.

“So I gather that you want him to construct the generator housing and blades and we’ll supply the electronic and such?”

“Yes, that’s it and can you have them add this to the composite layering?” and she handed Uncle Hank a piece of woven material. “This is made out of the same crystal matrix that composes the non-electrical sheathe on the CCN cable. Betty Rawlins and I tweaked the formula a little. It now has a positive affinity to

Kevlar and the two crystal structure interlock to form a composite that's as hard to break as my CCN cable. Normally they stick to each other like magnets, but under heat and a vacuum they meld together and won't come apart. Whatever shape they are in when molded is permanent. Betty is having bolts of this 'InterlockWeave' made up and shipped to us. Eventually we will license it for mass marketing and let others fight over the useful applications of it."

Hank Avery put his glasses back on and looked at the young English women with undisguised admiration.

"Can you do it, Uncle Hank? Coordinate it all and have the completed turbines delivered here for testing? Maybe you can send one or two of those new engineering interns you've hired. One with structural design training and the other with electronics?"

"Sure can do. And it will give those students some real hands on experience that they'll never get in school. Are you sure you want two generators, Missy? They're not going to be easy to modify. By the looks of these diagrams most of the internal components are locked in. Sure, easy to replace, but not to move around or reposition. Let's build one. Keep all the dies and jigs and we can make any changes on them a heck of a lot easier and than on the generator. It will probably be quicker that way too, than trying to fudge the old one. We'll never get it to balance right anyways."

"Thanks, your right again! Make it just one them. Also you'll notice that there is no way to secure the turbine to anything. We'll figure that out with the wing platform specifications. I will want to make ground tests first to get a base line on power performance. Then maybe a tower to compare it against the big European models. I don't know yet. I'm hoping I'll have Professor Albert's puzzle done by the time the turbine is finished... and that brings us to the second folder I have." Tommy handed it over to him.

"This is a list of thing I'm going to need to start with, a lot of it is ultra cold handling equipment that ready available, nano size Waldos with auto-adjusting computer motion control units and most of the modifications I'll need done to my shed to hold the equipment."

Uncle Hank skimmed through the list and started to nod his head. "Well Missy, you're going to end up with a first class lab after this. I see you're taking out the storage room and putting in an electronics lab too. It's about time you make a place for yourself. Yes indeed, it is!"

Tommy grinned. "Now for the third folder. Read it through and call Hardin Ames and set up a meeting for all three of us. This project is to coincide with the shed makeover. I would like to have a twenty-four/seven crew on those two last projects."

Uncle Hank looked at her in surprise, "It's going to cost you!" he warned.

“It may cost us more if we don’t do it this way. I’m sure you will agree with me once you read this last folder.”

* * *

It was slow going, a lot of new equipment had to be ordered and installed. A liquid oxygen tank, condensers and feed lines, electron microscopes, rare earth minerals like Yttrium and Strontium plus special storage containers, an arc reactor and a laser evaporator. A cold work room and control area had to be built from scratch, and the list went on and on.

While the work on the shed proceeded, Tommy had time to think of the future, when and if the Power Transfer Point device worked. A lot of the work would need to be performed in an ultra cold room and in a vacuum. A person could not reasonably be made to work in those conditions all day. A human-like robot was needed. Not now in her experimental lab but for when the production line had been established. So for the next two weeks she worked on a humanoid robotic system that could be used in extreme cold and vacuum.

Bud, his usual self, took one look at the headless titanium framework with its human shape, and wittily remarked, “Oh, boy, a Sandy look alike— heavy on the frame and light in the head.”

Tommy punched Bud in the arm, and pretended to be mad. But she knew that Bud preferred her tall lean physique over Sandy’s fuller figure.

By the third week after coming home from Hong Kong Tommy was visited by a very downcast Sandy. Looking at Tommy, who was at her new desk working, with sad blue eyes she sat herself down and with a quivering bottom lip, started to cry. Tommy immediately jumped up and reached over to her. Sandy by this time could no longer contain herself, and her quivering lip curved upward as she burst into giggles.

Tommy, glad to see her friend laughing again, sat down and pretended that she did not care. She started to whistle and looking around the room, pointedly ignoring Sandy.

“Thank you for trying,” Sandy began her apology with as she caught her breath. “I’ve been a bear lately and have spent the day apologizing to everyone. Can you forgive me?”

“Sandy, there is nothing to forgive. I’m just sorry that we couldn’t find out anything about Haz. The wheels of diplomacy are still at work. I even petitioned the British Ambassador to China for help. Please give it more time and we’ll get an answer.”

Sandy tilted her head to one side and gave a brief nod of agreement.

“I know you thought I was wacky when I told you that Bud and I were

always together, a sense of déjà vu back at the pylon race. Remember?" Sandy nodded. "Well, I believe that Haz is your Bud. He will be with you no matter what happens. He will find a way to come back to us. To you!"

Sandy, slowly nodded her understanding and sighed. In a moment with a small smile on her lips, she asked. "So, does Daddy know what you did to his shed? When I first stepped in I thought I was in the wrong place. I guess you finally got your lab after all."

"Sure did." Tommy replied proudly. "Let me show you around." For the next half hour Tommy was a gusher of science information as she showed Sandy the new set up in the shed.

The front half of the building was divided into two sections. On the right of the door was Tommy's desk and computer work area. Along that side wall was an oversize book case filled with Tommy's books and knick-knacks of various types. There were also two easy chairs to relax in with end tables and lamps.

On the other side of the door against the whole side wall was the new cold room area with a control panel in front of the half glass wall with a door at the end. There was a workbench with different instruments that Tommy was going to need for her current project. At the end of the bench and against the back wall was a small room with a kiln in it to cure the ceramic superconductive materials she intended to create.

The wall behind Tommy's desk ended three-quarters of the way from the right to the left and made a turn to form a corridor wall to the back. There was the kiln room door to the left, a door straight ahead to the bathroom area, and on the right a door that led to her electronic section.

By the time she was finished with the tour, Sandy was glassy eyed and numb. Talk of cold room, ceramic ovens, Waldos, Bucky Balls, and evaporators, oh my, one replaced the other as Tommy, lost in her own wonder world, told Sandy of her progress with the PTP device (power transfer point).

"The key to it all this is keeping it small, really small, at the molecular level," Tommy was explaining as she led them to the small sitting area. Relaxing in her easy chair and looking up at the ceiling to help her concentrate, she continued.

"I'm going to add some Bucky Balls to a layer of superconductive ceramic made from a mix of Yttrium, Barium and Copper Oxide. I'm not certain which, but I'll be using either the arc reactor, or perhaps the laser evaporator..." she bit her lip in thought before finishing, "or, maybe both to see which bonds the two together best. Anyway, that's my Endohedral Metallofullerenes! E-M, you see?"

Sandy looked at her as if her English cousin were speaking in tongues. "Right," she replied slowly. "Actually, E-M I don't see. But, you go right ahead and explain. I'll just make myself more comfortable." She yawned, and pulling the blanket off the top of the easy chair and cuddled into it.

Tommy, not really listening kept on talking.

“Everything has to be kept at a surface temperature of minus 260 degrees, even under the electron microscope and I have to use micro-sized robotic/computer controlled ‘Waldos’ to handle the materials. I showed you them in the cold room.”

“After I create the basic Endohedral Metallofullerenes components, I’ll bind the superconductive ceramics and their Bucky Ball covered surface with a nanometer thick layer of polymer and Strontium mixed together to seal it up. Once that is achievable I’ll have to back up a step and add Cooper pairs of electrons into the Bucky Balls before sealing.” She didn’t notice that Sandy’s eyes had almost closed.

“The ultra cold will hold the electron pair at a standstill and the carbon fullerenes will be able to entrap the pair of electrons—once the entire surface of the ceramic film is covered with Bucky Balls, now filled with electron pairs, it will be sealed. A second ceramic film will be added to the first. It creates an instant Bucky Balls to Bucky Balls sandwich. The molecular structures are such that the two surfaces interlock.” Sandy’s head nodded toward her chest.

“The most remarkable thing is that the whole ceramic sandwich block is only a couple hundred nanometers round, forming a disc. A dot to the human eye. Now, if all goes well, all I’ll have to do now is slowly raise its temperature to above thirty-two degrees in a vacuumed chamber, let in air, slowly, and if it does not disintegrate, the PTP disc will be made.”

With no questions coming from Sandy’s direction, Tommy continued. “Taking a single strand of CCN cable I’ll be able to slice through the dot at its seam. The two pieces will have to be kept so that the cut surface doesn’t get touched and marred and no matter how far apart they are, the energy will jump from one half dot to its other half in an instant. At least that’s the theory.” A snort caught Tommy’s attention. Looking over she found Sandy asleep.

Laughing to herself, she remembered all the times her professor’s dull talks had put her to sleep, too.

* * *

Tommy’s bracelet phone rang, it was Mr. Swift. She listened for a minute and with a squeal of delight closed the phone and ran outside to the administration building parking lot. A number of people were gathering there. Tommy found Sandy and Mr. Swift in front of the group of people that were watching the sky.

A U.S. Air Force fighter jet thunder by followed by another. They both reeled off in opposite directions, and started to circle the complex.

Hardin Ames and Bud showed up in a jeep. More security men and vehicles started to encircle the runway. Hardin was directing the positioning of his men by

standing on the seat of the jeep. Bud joined the Swifts.

An aircraft was slowly approaching the main runway. It loomed bigger by the second. It was nothing most of them recognized as an American plane. Bud informed those near him that it was the Chinese version of the Ilyushin IL-76, multi-purpose four engine cargo hauler. Designed for the USSR military, it was now sold to China because of its in-flight refueling abilities and long flight range, but best of all because of its short landing and takeoff capabilities.

Even with this ability it took most of the SEI landing strip to stop. It turned around at the end of the runway and taxied partially back. A side hatch opened, a ladder drop out, and a man climbed down and ran to the edge of the tarmac. The door had closed by then, the jet engines roared into life and with a high powered scream, the plane raced down the runway and took off. In seconds only Haz was standing there.

Sandy could not restrain herself and ran to meet him.

Haz held his arms out, waiting to hug Sandy as she ran toward him, her legs flashing in the sunlight and her skirt swaying as she ran. He liked the sight of her. When she reached him, she balled up her fist and KO'ed him in the jaw. His eyes glazed over, his legs trembled and he fell flat onto his back.

After a moment he moaned and his eyes half focused on the clouds in the sky. Tilting his head up off the tarmac he looked into Sandy's blazing eyes. She was standing over his feet, hands on her hips, glaring down at him. His gaze wandered and found her chest, heaving from both the exertion of running and her fury. Her fluttering flowered skirt caught his attention next.

He gulped, and murmured the first thing that came into his befuddle mind, "What legs!"

Sandy turned red, stomped her foot and screamed out loud, "Men!" Without thinking she marched right over him and continued down the runway.

Haz's head hit the pavement with a solid thump as he tilted it back to watch her. "Ouch!" he called out in pain. With his eyes closed he rubbed the back of his head. "Yep!" he thought to himself. "Them's the best legs I ever saw!"

Slowly rolling over onto his knees he watched Sandy storm away. He was sure there was steam issuing from her ears. Unsteadily, he got to his feet and turned around.

"God, they're still standing there watching," Haz moaned to himself. He waved at the group of people gathered to greet him back home. Sighing, he made Sandy his first concern. "The rest of them can wait!" he thought, and slowly at first he went after her. In a few steps he was almost running.

When he could reach out to her, he spun her around and tried to pull her into his arms. Her face was stained with tears. She fought him, pushing herself away with her hands. Not being able to break his grip she took to hitting him on the

chest. Haz took her punishment and finally she stopped hitting him. Her face was slack of emotions and her hands hung down at her sides. Haz just rocked her in his arms.

A white sports car squealed to a stop near them. Tommy and Bud got out of it and, without saying a word, walked away hand in hand. The car was running and the doors left open. Haz picked up Sandy in his arms and walked over to the car. He placed her in, fastened her seat belt and closed the door. He got in, put the car into gear and drove out of the complex.

“Well!” exclaimed Mr. Swift, looking back and forth at everyone that had gathered to meet Haz, “I guess this is a bust! Back to work, everyone!” and with a mix of laughter and awe they dispersed.

* * *

It was after midnight when Sandy crept into her cousin’s bedroom. She had not turned on any lights and when Tommy spoke from the window seat it surprised her.

“Are you all right, Sister?” Tommy asked. Sandy joined her on the seat and folded her hands on her lap. The room was quiet. They heard the coo-coo clock chiming once from the living room downstairs.

“Tommy,” her voice was flat of emotions. “Haz asked me to marry him. I refused. He then took me home and left me without another word. I think I’ve lost him. I’ve been standing on the porch for the last hour hoping he would return. He’s gone!” she whimpered in anguish.

Tommy encircled Sandy’s waist with her arm and softly replied, “Haz will be back. He loves you! Just give him time.”

“Oh, Tommy, he looked so hurt! But I can’t marry him now. If I do, it’s for all the wrong reasons,” she answered back. Sandy paused for a moment and then continued. “He went through a lot back at the Xichang rocket control center. When part of that building went up with the exploding fuel deport the control room was hit hard.”

“Several people were killed. Two of them were part of his satellite team. One of them was four months pregnant. She died when a support beam fell out of the ceiling on her. Haz was standing right next to her. It could have been him; he is really feeling guilty about that. The ceiling tiles also caught on fire from the explosion. The fumes were poisonous.”

Tommy wanted to comment about the lack of safety laws in China, but bit her tongue.

“The power went out and that caused total panic. The only light was from the tiles that were on fire and the black fumes soon made them unconscious. Luckily, the rescue party got to them fast. If it had been a few minutes later they all

would have died. They all suffered burns from the tiles. Haz's back is a mess, and some of the people will never be the same. They will have breathing problems for the rest of their lives." Sandy had to stop and swallow her fear.

"It sounded so terrible hearing it from Haz. He had no emotions and his eyes had a blank look to them. It was then he asked me to marry him. I was stunned! I just couldn't... I can't, even now." A tear slowly slid down her face.

"How do you marry a man that thinks there is no future? That it's now or never. He was not like that before! What do I do?"

Tommy took a deep breath before answering. "You love him! You just don't give yourself to him. Show him there is a future and that being together is a big part of it. You're not alone. Bud and I will be there for you. We helped your father and we'll do it again!"

* * *

Haz parked the car in front of the administration building. Dawn was starting to break. Looking up he could see lights in the air traffic control tower. It should have been dark. Sighing, he went inside to investigate. "Where is security?" he asked aloud, hoping the man was asleep on duty and not locked in some closet. But the man was at the kiosk and doing his job. When Haz inquired about the light he was told to go up and see. Someone was waiting for him. After all he had been through that day it was the last thing he wanted to do, but his sense of duty would not let him leave without finding out who it was.

"Hello!" he called as his head came level with the floor of the control tower.

"Out here, Haz. For a minute I thought that I had to go running after you."

The familiar voice drifted in from the catwalk. Haz found Bud sitting on the walkway with his feet dangling over the edge like a little boy. His head was resting in his arms that were folded on top of the middle railing.

"You come up here often?" inquired Haz as he joined his friend on the platform and sat down by him.

"Actually, yes," was the surprising remark back to Haz. "I like the view; you can see the whole complex from up here."

"Were you looking for something special tonight?"

"Yes, you!" was the reply.

"Me! What did I do now? I just can't stay away from trouble, anymore!" he sounded as if he was starting to get angry or frustrated or both.

Calmly, Bud told him, "Haz, look around you. What do you see? Do you see just buildings or do you see the future? No, don't answer that!" He told his friend. He took out a pocket flask and handed it to Haz. Haz looked at it, and handed it back unopened.

"What's this? You don't drink. Tommy told me that on our trip to London."

“No, I don’t. But I just wanted to see how bad you’d gotten.” Putting the flask away, Bud knew that Haz was going to be okay. He’d helped his mentor, Patches O’Brien, through years of alcoholism, and this was going to be a lot easier, even for a back room psychologist.

“Do you know how amazing it is to sit here, compared to six months ago? When I saw that signal flair in the sky leading me to this place and I saw only a lot of falling down buildings, I thought that it was the end of my flying career. Sure, the big assembly plant was still in use, but I landed on a Saturday afternoon and this place was closed for the weekend.”

“Looked dead?” Haz ventured. Bud nodded.

“But two young ladies stepped into my life and it hasn’t been the same since. You’ve been here from the beginning, you helped them get started. You could feel their potential and no matter what you might say now it was not for the money that you helped them. When I climbed out of that plane I found a home and the woman I’m going to marry. This place has gone from a handful of employees to over two hundred, and it’s still growing. That is because of those two very remarkable women, and you know it. And, you’re a part of it! One of them loves me and the other loves you! Don’t you ever forget it.” He took a deep breath and continued.

“Sure it was touch and go back at that rocket base and nobody was expecting that attack. But that’s not a reason to give up on the future and the woman that loves you.”

He glanced at Haz, but he would not meet his eyes.

“Did she tell you the hell she raised trying to find out what happened to you? I tell you there are a lot of Chinese people that now fear her name. And most of them only had to deal with her on the phone. The people that had to deal with her in person in Hong Kong had to have the American Marines drag her away. That was a sight, I tell you!” Bud laughed at the scene that went through his mind’s eye. He thought he could detect a slight upturn of Haz’s mouth.

“If you really want to help the people that were hurt and died, then make a life for yourself. They had no choice over what happened to them, but you do!”

Getting up onto his feet, he looked down to his friend and held out his hand. Haz took it with a quizzical look. The grip was firm and sure.

“I let my younger brother down when he needed me. I’ll be darn if I’ll let the same thing happen to you! And, if you think you can hurt Sandy and get away with it, you’ve got me to answer too! His voice softened. “You’ve got a second chance most people don’t get. Good night, Haz.” Bud walked to the door and turned back.

“Oh, yeah, just reminder. We’ve get a meeting at nine in the conference room later this morning. See you there!

Chapter 3: The Meeting

At nine Haz walked into the conference room. Everyone was sitting at the table. Mr. Swift at the head, with Sandy and Tommy at his sides. Bud was next to Tommy and Hank Avery was next to him. A chair was empty next to Sandy and Hardin Ames was on the other side of it.

Haz immediately went to the empty chair and sat down. He reached out, took Sandy hand and whispered to her, “Sorry, I really do love you. When you’re ready to forgive me, I’ll be there.” Sandy reached over and kissed him.

“Ahem,” called out Mr. Swift, “I guess everything is back in order. And if Mr. Samson doesn’t mind we would like to know more details at what happened at Xichang Rocket Center. Haz?”

Haz rose from his chair and went to the other end of the conference table. He leaned forward, placing his hands on the table, and began to tell his story, slowly at first, and with as little emotion as possible. But he could not hold his feelings back. By the time he told them of waking in the hospital he was crying.

Sandy tried to go to him, but he signaled her to stay put. He blew his nose, and composed himself.

“I found myself flat out on my stomach and my back covered with a sheet spread over some kind of metal framework. The doctors had to take off the burnt skin from my back and they replaced it with artificial skin mixed with my DNA to help speed up healing. It’s remarkable stuff as you can see. I healed and regained my range of motion of my back; was well enough to be released in just eight days. Others will be there for a long time.” He shook his head and sat down in the empty chair that was at the end of the table.

All was quiet for a time. Mr. Ames cleared his throat and asked his question with concern. “Do you know who the raiders were? And how did they get in?”

“It took awhile, but the Chinese did find enough pieces of the raider that crashed into the fuel depot and blew the place up to identify the murderers. The DNA came back as Kirill Levenkov!” Haz stopped to let that sink in.

Bud pounded the desk with his fist. “Not them again! When will they be stopped?” His voice shook with anger.

“There were three of them and it is assumed that the other two were Sergey and Peter.”

“You said he crashed, so they flew in. How? In what?” inquired Bud, the pilot.

“Trikes— ultralight powered hang gliders. They have hard body nacelle for the flyer to sit in, a two-stroke engine with a pusher prop to power them, and

collapsible wings. They also rigged up two rocket propelled grenades for each trike. They flew in under the radar just at launch time, when everyone was the most distracted. The lead glider took out the rocket. One guard had the presence of mind to shoot at them and he shot down the one that hit the fuel depot. Of all the luck! As the other two raiders flew off they hit targets of opportunities. One was the assembly building for that launch site and the rocket assembly building at another site a half mile away that had a rocket being prepped in it.”

“Did they capture the other pilots?” Mr. Swift inquired.

“They found the trikes abandoned about a mile from the rocket center on a road with fresh tire tracks in the dirt. Five miles later that vehicle was found in a barn. The trail stopped there.”

Haz sighed, “You would think that a Russian man with the scar that Tommy described would not be hard to find deep inside China, but he is!”

“What are the Chinese and Russians doing now to find them?” Ames asked.

“They’re both searching high and low for them. The Chinese have a better chance of finding them, with them being foreigners. The Russians are rounding up all the mafia gang members they can find. In fact the mafias have named the Levenkov’s ‘persona non grata.’ And I thought only governments could do that!” chuckled Haz.

“What about your satellites?” Hank asked.

“Still no response from the first two Com-Sats, and both Russia and China want them back up and running. So-o-o... Mr. Swift, would you like to go into the satellite building business? I know in the old days at NASA you were a satellite and rocket man. Care to do it again?” Haz looked at him hopefully.

Mr. Swift tapped his fingers on the table and looked up to Hank. Hank was already nodding his head ‘yes’.

“Damon, I already can think of people from our old group that are available and eager to come out of forced retirement. I’ll probably have them here in a few days, a week at the longest.” Hank was rubbing his big hands together in anticipation.

“When do you need the new Com-Sats, and do we start from scratch?” was Mr. Swift’s next question.

“Reinvent the wheel? No, sir. I have the complete schematics of the Com-Stats. And we can get any parts we want from Flagger Communications. He’ll be more than glad to help out with the best they can produce— anything to get himself back in good graces with the government.” Haz was enjoying this part immensely.

“As to when, the faster the better. Once we get a completion date on the first two Com-Sats, the Chinese will have a Long March B-6 rocket ready for us. They have a dozen in inventory right now. Two of the old constellation satellites are dead

now. The communication holes are wreaking havoc in that area.”

“Well,” expounded Mr. Swift, “it looks like we’ve got our marching orders. But I would like to end this meeting on a good note. Now that Haz is back with us it’s time to announce a new member to our... ahem... budding VP positions.”

Everyone at the table looked at him in anticipation.

“We’re going need someone to handle our expanding cargo delivery systems. Haz feels, rightly so, that if he handles the shipping negotiations with the leading cargo haulers in Europe that he’ll end up in a head to head confrontation with his father. Mr. Samson is bull-headed enough to try to push Haz to the wall just for the fun of it, and then freeze us out with his clout just to get the better of his son. So we’re going to avoid this possibility all together by using an unbiased person.

“With the arc jet cargo planes now available it behooves us to utilize our own technology to deliver our electronics and other products by our own men and planes. So this person will need to run that whole operation too. We’ll still use ground delivery for short hauls, but anything else we’ll fly. That’s the cheapest way to go.”

Haz had a smile on his face and was looking at Tommy and Bud to see their reaction. Tommy was as surprised as everyone, and Bud was sinking in his chair.

Mr. Swift continued. “I know I have not given notice of this new appointment, even to my co-owners, but I did talk it over with Haz before he left for China and he whole heartily agrees with the person I’ve chosen. Before I make the announcement, does anyone else have any comments?” He looked around at all the faces and Haz raised his hand. Mr. Swift nodded to him.

“Guys,” and he breathed in deeply and exhaled. “For starters, I just want to thank you all for coming out to greet me yesterday. I really did appreciate it, even if it didn’t show.” This was greeted with murmurs of “No problem,” and “Sure” and “We know.”

He smiled with some relief. “To handle all of this new work is a big responsibility and Mr. Swift and I have had a man in mind right from the start. In fact, he’s our only candidate. He’s intelligent, started college at seventeen, was in the Air Force ROTC program, graduated top of his class. He spent six year in the Air Force after college, handling both the physical aircraft maintenance as well as management of the ground support groups and transport teams. He also minored in business administration. We both feel he is the right man for this job.”

Nobody quite knew who to look at, so Mr. Swift picked up the narrative.

“And so I would like you all to congratulate our newest VP, Bud Kenworth! Bud, stand up and take a bow!” The whole room was silent and open mouthed over this announcement.

Mr. Swift started clapping, joined by Haz, and then by everyone else but

Tommy joined in. She just sat there totally shocked by the whole thing. She thought she knew everything about Bud, but apparently she did not!

Bud was slowly turning red and Tommy rose to her feet and started to clap the loudest of them all, with a smile on her face and tears of pride in her eyes. Bud just sat there and grinned at Tommy.

The room turned back to normal after a round of congratulation and good luck from everyone. Still beaming from their reaction to his announcement Mr. Swift called out, "Hank and Haz please come back to my office so we can get started on this new venture of manufacturing communication satellites. Bud, you'd better take Tommy out and explain things as best you can. If you survive *that*, you'll be ready for your new job."

Bud looked at Tommy, who smiled even bigger and nodded her head.

"Come on Haz!" laughed Hank. "I watched the new lightweight champion take you out yesterday, so I guess I can come and listen to you today, if you're still not too rattled?" Hank clipped him on the chin as he walked by.

It was after lunch and Bud had talked until he was blue in the face trying to explain to Tommy and Sandy why he did not tell them he was going to become a VP with the company. The twinkle in both Tommy's and Sandy's eyes kept getting brighter and brighter as Bud talked and talked.

By the time they had finished lunch they were laughing at Bud. It slowly dawned on him that they really didn't care that they didn't know before hand as long as it was something that Bud wanted to do.

Tommy, Sandy and Bud made their way back to the new lab. Bud had a few days before he had to start his new job and he opted to help Tommy out. As her assistant he could help her out with the difficulty of starting a new project with new equipment that had to be adjusted and modified to fit her needs.

"Sandy, you're just in time to look at the superconductive ceramic discs. They're ready to come out of the kiln. I'll go get them." Tommy went down the new corridor to the insulated kiln room. She came back carrying a twelve inch square, white colored tray and showed it to Sandy. "It's what you and I discussed the other day."

She could only see tiny black dots in even rows on the tray— hundreds of them. "Where are they? Or, it? Is it supposed to be on this tray? It's empty except for the dot pattern and it's not very original." Sandy looked from Tommy to Bud.

"Sandy, are you blind? It's right there in front of you, open your eyes!" Tommy was starting to giggle.

"Right. Are you trying to tell me that these dots are the ceramic disc? Please, I wasn't born yesterday." Buds face had a silly smirk on it by now.

"Guys, when you're ready to show me something, let me know. I think my office is calling me. I'll see you two clowns later." Sandy turned around and

walked out the door, waving back to them as she went.

“How’d you like that, Bud? Show the girl a little science and she disappears like magic. Proof! And she’s gone.”

Tommy, opened a panel on the control board for the cold room and placed the tray in it and closed it tight. An automatic vacuum pump took the air out of the tray compartment. In fact the cold room was more than a simple cold work area; it was a powerful vacuum chamber. The very molecules that made up air were a hindrance and a problem as they would mix into the work being done. The other plus was that the electron microscope also only worked in a vacuum.

From here on in, the dots were to be worked on using the Waldos or other automatic processing machinery that they had set up in the room. Tommy and Bud had to be on hand at all times because some of the work— once started— could not be stopped until it was completed.

A buzzer sounded announcing that the tray of dots was at minus two-hundred and sixty degrees. The tray held over twenty different chemical mixes of the superconductive ceramics dots of which there were thirty of each. Ten were to be held back for later use, if needed, and ten of each were put equally into the arc reactor and into the laser evaporator to have Bucky Balls attached to the ceramic surfaces. It took over seven thousand five hundred Bucky Balls to fill each dot.

Covering the Bucky Ball discs with a mixture of both a polymer and Strontium in a foam consistency was done with a nozzle taken from an inkjet printer with a heating coil around the spray point to keep the foam from freezing and clogging. This was done in a separate side chamber to keep the cold room from being contaminated from the spray.

Doggedly they kept at the work. Sometimes it was done by trial and error and at other times by sheer determination. And after fifty hours they had their first tray of completed dots. Only one set of ten dots made it through the whole procedure.

Sandy took it upon herself to see that they both ate and slept during that time. The easy chairs reclined and made comfortable beds.

Tommy locked the finished dots in her desk and bidding Bud goodnight, let Sandy take her home to sleep for the next twenty-four hours. Bud did the same, but in his mobile home next to his office/hanger at the complex.

Chapter Four: “Well, it’s not *supposed* to work that way!”

Bud found her late the next day in her electronics room in the back of the lab. She had created a half dozen sketches of the device she was working on. Her bench was covered with parts. It looked like there were several regular pocket phones and a couple of Swift bracelet phones on the bench in various states of disassembly. Their guts were now being reassembled into two new devices under Tommy’s solder gun.

Bud looked them over and asked, “Is this you’re Power Transfer Point device, Tommy?”

“Well, yes and no. This isn’t the full-fledged PTP. It will transfer power, but at the higher frequencies that we use for radio and video signals. Believe it or not, it is much easier to work with them than with pure electrical power right now because I don’t have to contend with the mass or the electron charge.”

“Do you need my help right now? Because there are several deliveries I have to fly out and job interviews for six new pilot positions and ground mechanics openings to fill. My work has started to pile up and I need to handle it. Maybe we can find you a technician or someone to help you. Would that be okay?”

“Flyboy, slow down, I’m fine now. The procedure roadblocks are all over with, and everything is working as planned. The construction of the electronic parts for the PTP device I can handle by myself. Do what you have to do, and I’ll see you whenever our schedules allow. Now come here and kiss me hello, and then goodbye.”

* * *

“Sandy, just handle it as you would a regular cell phone except you hold it in front of you. Look!” Tommy opened her phone and showed her how. Sandy’s phone beeped and she opened it and copied Tommy’s hand and arm position in front of her face. Tommy’s face filled the top two-thirds of the video screen and Sandy’s own face appeared at the bottom one-third.

“You will notice that you see both yourself and the person you’re calling. That way you can adjust the camera angle so they can see you the way you want them to without guessing. There’s a built in stand so you can set it on a desk or table.”

Sandy now saw what Tommy had been attempting to explain.

“I even added an extra camera on the back cover in the top right corner. Just touch the icon on the bottom pad and your face is replaced by the picture from the

external camera. You can zoom in or out as you like. I have a directional mic that automatically focuses on your mouth. See the box that follows your lips around as you move? You just have to whisper or if you get good at it, just mouth your words. The speaker can be left where it is or you can take it out and place it behind your ear so only you can hear it.” Tommy was proud of the work she’d done.

“This is great, Tommy, but can’t you do all that with a regular phone? Why duplicate it? The PTP device you added doesn’t seem to make it any better?” Sandy was confused over this.

“Your right, Sandy, in this room or even down here on Earth, except for the lack of static there is no difference. But in geosynchronous orbit or signals to and from the moon or Mars and beyond there is a difference that NASA would kill for.”

Sandy’s mouth formed an “O.”

“What you don’t realize,” continued Tommy, “is that this same size phone is all that is needed no matter where in the solar system it’s located. The power requirement is the same. Real time communication over great distances with no information lost.” While all this was going on Sandy was walking all over the place with the phone, both inside and outside of the building, trying to find a spot it would not work right. She found none. Tommy watched her maneuvering from the front door and around the building through the phone.

Sandy was still not convinced. “Are you telling me that those little dots on that tray does all of that? How many dots? All of them?” Her perplexed attitude sounded in her voice. She handed the phone to Tommy.

“It only took two ceramic dots. I could have done it in one, but this way I have a failsafe system. If one of the channels dies then the master CPU Chip will automatically switch both feeds through the one remaining ceramic dot.” Finally turning off the phones, they settled into the easy chairs.

“And how do you get electric power through this? I thought that was the whole idea—PTP—power transfer point?” She was seemingly as lost as ever.

“This is the first juggling ball I talked about at that meeting so long ago after I bumped into that invisible person. Next I’m going for the second ball, actual electrical transfer.”

“When are you going to announce this advancement to the world.”

“At the weekly SEI meeting, just us...” she sighed, “to the world... that will have to wait till after Levenkov is brought to justice and we find out what they did with the professor theories and notes.

* * *

Sandy was watching Tommy and Bud putting the finishing touches on two eight-inch square boxes on the work bench in the electronics lab. They were five feet away from each other and a few digital readouts were on the box side facing

them and an electrical socket was on another side. Power leads came from a transformer that was off to one side and affixed to the wall above the bench. The lead ends could plug into the boxes.

“That’s it? That the PTP device?” asked Sandy amazement. She was expecting some type of elaborator setup. She had envisioned antennae, and sizzling arcs of electricity. Real Frankenstein stuff.

Tommy just nodded and tilted her head toward the box. “Yep!”

“Now that you have one made tell me again how it’s supposed to work, and will this explanation take long?” Sandy, being one for as little science as possible.

“We have eight dots cut in half, resealed and placed in the two devices. When the power is turned on, the electrons are pushed into the Bucky Balls and—since no two electrons can occupy the same quantum position in the Bucky Ball at the same time—the first electron ‘jumps’ to the other half of the dot and that forces the other electron out and down the power line. The flow of electrons is continuous from one point to the other. And that’s about as simple as I can get, Sandy. We’re almost done. Bud just has to insert the ceramic dot blocks into the circuit receptacles in the order I told him about and we’re done.” Bud picked up the first of the quarter inch square block with four plug leads coming out of the bottom corners and inserted it in place, seven more followed in quick succession.

He slid the cover in place making sure that the readout windows lined up. He picked up the transformer lead and looked at Tommy. She nodded her okay.

Tommy gave everything a look over and, satisfied, reached out first to check that the voltage and amp dials were set on zero and then adjusted them to one volt and one amp and turned on the current. She got the identical power reading on her PTP box. She called out the numbers to Bud. He read his display back; it was all zeros.

Tommy looked at him and he shrugged his shoulders. She increased the voltage to five volts and still nothing. She was mystified. Sighing, she turned off the power and unplugged her box and asked Bud to do the same before taking off the cover.

With this done, Tommy inspected the internal wiring and components. Her box checked out and she quickly found out Bud’s mistake in his box.

Laughing, Tommy started to unplug the ceramic blocks and turn them this way and that. “Bud, it’s my fault. I told you to put them in a specific order put forgot to mention that they all had to be aligned in a certain way, too. I must have not set them in the tray correctly, so you had them turned all around. Let’s try it again.”

Tommy turned on the power again. “One volt and one amp,” sang out Bud happily. Tommy slowly cranked up the voltage and amps, her transformer topping out at thousand volts and a hundred amps. Tommy was grinning from ear to ear

and Bud and Sandy were enjoying her glow of success.

Bud, checking out the length of the transformer leads, reached out to the PTP box and tried to pick it up to take it across the room. It wouldn't move. He tried even harder. Sandy thinking he was just pulling their leg pushed him aside and grabbed the box to lift it. Her hands slipped away from the box and it did not move.

Tommy eyes opened wide in amazement. "Well, it's not *supposed* to work that way!" she spoke more to herself than to them.

Lowering the power to just above zero did not help, as long as any power coursed through the PTP box, it was held solidly in place. Turning it off she asked Bud to walk to the front room and holding it at waist level. Standing twenty feet away, and with a wall between them, he called out and Tommy turned the power back on at the lowest possible power level. After checking for a reading he let it go. It stayed suspended in the air right where he had been holding it.

Tommy came to the front of the lab with Sandy in tow and just shook her head in dismay, still not believing her eyes. She went and sat down in an easy chair and stared at it. An hour later she came out of her trance-like state and found the lab empty and the box still in the air. She left it hanging there in midair and went off to find Bud and hopefully a little sanity.

Early the next morning, Mr. Swift and Uncle Hank were studying the floating box phenomenon. Mr. Swift was rubbing his chin and Hank was scratching his right ear. Tommy and Bud were watching them in silent amusement.

"Tell me, Tommy, what is the difference between this PTP device and the video-phone?" Mr. Swift asked as he scratched his head in bewilderment.

"Well..." begin Tommy slowly, "the video phone deals in radio waves and this PTP device handles electrons. The radio waves are just energy. Electrons have a mass and a negative charge. The device is working but it's not moveable. So... it's either the mass or the charge that's causing it." Tommy was rubbing her chin in thought. "The moving mass of electrons and the negative charge can cause a magnetic field around the ceramic dot. Maybe it's interacting with the Earth's magnetic field and causing the phenomenon."

"If that's the cause then we can't use this device in space—the sun's magnetic field is hundreds of times stronger than the Earths." Uncle Hank replied.

"Maybe it's something else we missed," answered back Mr. Swift. "Tommy, this may sound stupid but the dots are cut in half, right?" Tommy nodded her head 'yes'. "What way are they facing? Is it toward each other?"

Tommy's eyes lit up. "No, they're not. The sliced surfaces of the dots are facing up in both of these devices. Bud, could you please turn off the power so we can take this box back into the other lab."

With the power off, Tommy took the PTP box back into the electronics lab,

followed by her two Uncles.

“Bud, face the top of the PTP box toward me and I’ll hold mine toward you. Uncle Hank, will you turn on the power please? But first set it to just a few volts and one amp.” He reset the power output and turned it on.

“Okay Bud, try to move your box.” Bud tried to twist it to the right and Tommy, holding quite firmly onto her box, was jerked to the left in an arc following Bud’s box. Tommy, regaining her feet, took advantage of Bud’s surprise and pushed her box forward. Bud lost his grip and was hit in the stomach by his box. Tommy pulled the box back and wheeled it about, causing both Mr. Swift and Uncle Hank to duck out of the room.

Stopping her antics she called out, “Uncle Damon, I don’t know what we’ve got here right now, but I’ll take it!”

“Somehow,” she continued, “once you add power, they lock together as if back in one piece, and my guess is that the actual distance does not matter. The only thing I can think of is that in the sub-atomic sizes that quantum mechanics works in, particles are not affected by gravity. We’re dealing with PTP dots that—when formed—were gravity free, but the electrons flowing through them adds enough mass to cause a gravity feedback of some type that locks them together but at the specific distant that was establish when first turned on. That allows the flow of electrons to continue unabated because the distance and the alignment can’t be changed.”

Her eyes flashed with great excitement at the possibilities.

“What do you both think? Uncle Damon? Uncle Hank?”

Hank was the first to find his voice. “Missy, it’s way out of my league.” he chuckled.

“It’s as good as any right now, Tommy. There have always been inventions that work and the reasons why is not known for some time. We don’t stop using them just because we don’t understand how it works. I’m sure you or someone else will discover the reason why. For now use it to the best of your ability. This is a major breakthrough if I ever saw one. Congratulations, I’m sure a Nobel Prize is coming your way and the Professor’s too!”

Mr. Swift just stood there, smiling at his niece.

“Bud,” Tommy laughed as she turned to him, “do you know what this means?” He just grimed at her and raised his eyebrows and shook his head ‘no’.

“We now have the means to get my power turbines into the jet stream without any wings, air lift bags, ground cables or any intrusions into air traffic control space. And, I’m sure we now have a way into space, the last frontier is now open to us!”

Chapter Five: Reaching For The Sky

Tommy spent a few days working on the potential uses for the PTP device. Somehow it was renamed “HPD”, Hang Power Device by someone—she had a suspicion it was Bud—and it stuck. By the third morning she had a circular donut made of aluminum tubing. The tubing was twelve inches in diameter and the donut had a two foot hole covered with a steel mesh.

Four heavy steel boxes were evenly placed, and securely bolted, around the inside circumference of the donut. Inside, each box held the motors and computer control drive systems for rotating the HPD tracking ball and kept them in synch with all the other HPDs on the platform and the matching ones in the ground units. The four-inch solid steel ball in each box was the heart of the platform’s lifting ability.

Machined through the center of each ball was a three-quarter inch hole fitted with a cylinder that held the HPD at one end with the power leads coming out the other. The ball had to be solid—the total mass of the platform rested on the balls being lifted by the HPDs. About a third of each ball protruded from under its box and was locked in place by ball bearing rings and by the magnetic lift hub. With the HPD aiming precisely vertical, the drive motors were linked to the ball and the system could then rotate the ball ninety degrees all the way around before locking it to a stop.

The four computer controlled HPD boxes were also hooked up to a gyro sensing computer that kept the platform horizontal and through gyro feedback to the rotated HPD as it rose in its arched pathway through the sky. There were a number of other devices that monitored the speed, altitude, wind direction, and numerous other things that Tommy needed information on. A high definition binocular video camera was also on board and could be raised or lowered at will. It all fit in the donut tubing.

This was Tommy’s all-encompassing test model. She hoped it would give her all the information she need for her next size platform.

Tommy now had a new assistant to help her. Mr. Hinkle was back to work from his near death experience with the arc jet engine. He begged Mr. Avery for the job as soon as he heard about it. He idealized Tommy for the help she had given him while he was out of work and for saving him his job—especially now that his wife was pregnant.

He was short and chubby and slow in manner and speech that hid a fast and intelligent mind that somehow slipped past other people’s notice. He was good with tools and machinery and had things made almost before Tommy could finish describing them.

When Tommy asked about his schooling he just shrugged his shoulders and said, “It’s a knack, I just know how to do it,” and he wouldn’t explain any further.

Tommy knew better than to push it, but decided to give him a chance to talk on his own rather than spook him and lose a good man.

They also had to make the ground rotation half of the unit and it had to match up with its other half in all respects or it wouldn’t work, as they had already found out through trial and error—mostly error. Testing it in the lab soon became a nuisance, so they moved it all out to the jet testing pit at the far end of the complex, where no one would notice them. They could store the flying platform and the control unit in the bunker and lock it up at night.

Tommy kept the platform low in the pit, never higher than twenty feet above ground, which limited it to only twenty feet away from the ground rotation station. But it did allow them to test the lifting ability of the unit.

It seemed the lift was only affected by the strain on the motors and the firmness of the attachment of the ceramic dots. This platform could hold up to five hundred pounds before showing signs of collapsing. With better arrangement of the HPD and greater structural integrity, it had the potential to be able to haul up unlimited weight and fly at unknown distances.

After a day and a half of testing Tommy grew impatient with the limited distance, so she took a gamble. With Hinkle—that was how he wanted to be addressed—and Patches helping, they loaded the platform onto a pickup truck. Hinkle took it for a drive about a mile away, to a hay field next to the SEI property.

Patches manned the radarscope in the air traffic control tower and the radio air waves for approaching planes. It was nearing sunset when the sky finally cleared of all traffic so they could launch their flying platform. Patches would warn them of any approaching aircraft.

Hinkle had set up Tommy’s new Vid-Phone on a tripod with a wide angle zoom lens. She had added a removable throat mic to go with the ear piece. This way Tommy could watch the proceedings as well as talk to Hinkle with no one eavesdropping in on them.

“I’ve just finished un-strapping the platform, Miss Swift, and turning on the instrument package. All indicators are green, are you receiving the signals?”

Tommy quickly checked over the portable control unit and its recording devices. The Vid-Phone was producing a nice clear picture with sound. “All set here, Hinkle. Just move aside and I’ll try to raise it up a few feet.”

Hinkle jumped off the tail gate of the truck and stood near the video-phone tripod and was able to see into the truck bed. With red and blue lights blinking away as a visual indicator of a plane in flight—mandated by FAA rules—it rose to the height of the truck cab and stopped. The camera peeked over the payload of lead weights and scanned left and right, then up and down.

“Eyes are operational, and all HPD’s are running smoothly.” Tommy informed Hinkle. “Please attach the hook and CCN cable to test lift stability.” She watched as he snapped a grappling hook to the tubular frame of the platform and bolted the other end of the CCN cable to the trailer hitch. Once he backed off a safe distance from the truck she slowly pushed the lift joystick forward.

The platform rose a few feet more and stopped, it stayed level. She added more power to the motors. The cable straightened, but the hooked platform did not tilt. The balance and the HPDs held. But the temperature gauges on the rotation motors were starting to rise. Tommy was intent on the heat/motor instruments and failed to notice that the altitude indicator was creeping up.

“Tommy, Stop!” yelled Hinkle as he watched the back end of the truck leave the ground. Tommy, glancing back at the Vid-Phone let out a gasp and almost dropped the truck back down onto the ground as she jerked the joystick back.

“A little too much power there, Miss Swift,” laughed Hinkle. “I’ll unhook the fish and you can go for a longer cast this time. Try not to catch a plane.” It only took a moment to release the platform.

“I didn’t know you had whimsy in you, Hinkle.”

“There a lot of stuff in me, Miss Swift, but most people don’t want to take the time to look. They see fat and slow and then they’re out of here.” His voice had an angry yet hurt tone in it.

“Well now,” answered Tommy, not knowing what to say. “You just saw me at my worst piloting, now watch me soar!” From a mile away Tommy pushed the joystick forward, hard. At high speed, it achieved a force of over three-Gs in seconds and was quickly overshooting the intended mile high vertical mark. She reversed its course and hovered it a mile up in the air. She gave the onboard instruments time to get a good reading on all the systems and the atmosphere around it.

“Get ready for touchdown, Hinkle. I’ll try to go slower this time. Don’t want to crash it into the truck.”

Hinkle watched in amazement as the blue and red blinking lights arched back down to the ground. “It looks like an approaching UFO, Miss Swift. No noise and such a perfect arch its flying. No plane on Earth could do that! We should leave some ‘Crop Circles’ for the farmer to find in the morning. We could be in the news!” he chuckled.

“Maybe some other night,” she told him seeing it was getting dark by then. “Let’s put this baby to bed and in the morning we’ll check out the instrument readings. I’m getting sloppy at the controls. But there’s one thing I did learn tonight, and that is we’re going to have to build in a lot of safeguards into the systems before we allow people to ride on a platform. The acceleration alone could kill them!”

* * *

When Tommy opened the lab door the next morning she almost let out a scream. Plastered all over the walls was the front page of the Shopton Chronicle early edition, with a picture, luckily all in silhouette, of a man jumping up and waving his hands above his head as his truck was being lifted into the air by its back bumper. Only its front wheels were on the ground and above the truck was a small UFO with lights and a barely discernible line connecting both of them together.

The story told of two boys coming out of the woods near Farmer Dells hay field at about sunset yesterday and saw a UFO trying to steal the truck. The boys were so frightened at seeing the truck and UFO that they took only enough time to take one picture to prove their story and ran back home for help.

By the time they convinced their parents and then the police that it really happened, the field was empty. The police found evidence of a truck being there, foot prints of a person—‘presumed to be human’ by the author of the article—and that was all.

“Hinkle!”

* * *

“Bud, wait!” shouted Tommy as she ran towards the company’s new personal jet. It had been delivered to them by Astros Aerodynamics just a week ago and Bud loved to fly it. Not that he had much time these days to fly.

He held the door open he had been about to close as Tommy came running over. Out of breath she threw her briefcase to Bud and climbed aboard. “Thanks, I need to go with you. I have to talk to Mr. Zimmerman about the changes I need to do to the generator, now that I know how I’m going to keep it up in the air.”

Tommy looked at the two, out of six, occupied seats and said hello to both her Uncles who were going with Bud to a meeting with Mr. Zimmerman. “If it’s all right with you, Uncle Damon, I think I’ll sit in the co-pilot’s seat and get some time in.” He just laughed and waved her off. Even he knew that the fifteen minute trip would not help her flight time.

Mr. Zimmerman met them at the airfield in a jeep. He was glad to see Tommy and before his meeting with the other Swift team members he took them all to see the progress on the fifty foot turbine. To their amazement it was almost done. It stood upright in the middle of the hanger and looked huge. They had placed it in a temporary cradle so they could test the blades and balance.

“So,” asked Mr. Zimmerman proudly, “do you like it? Is it all you dreamed it would be, Thomasina?”

“Mr. Zimmerman, if my man was not here right now, I’d kiss you. It’s

beautiful! But I have some bad news for you. I need to have some changes made.”

“Hey, that’s the way it is with test models—better now than in the field, I say. What do you need done? Let me call over the foremen and we’ll get it straight from the get-go.” A phone call and a two minute wait brought both foremen to them in a run.

“Zachariah, what’s this? Hank asked, pointing at the two young men with a grin. “I send you two interns and you turn them into foremen!”

“Only for this job, Hank. I just couldn’t waste their talents as common laborers. Besides, they both do the work of two men. I could use a dozen of them.”

Hank’s eyes narrowed. “And, Zach, are you paying them for two jobs or only one?”

“Ahh... Mama did not raise a fool. I pay them once, but hey, I’m giving them a free place to stay, a jeep to use, and all the food they can choke down from the canteen. And boy, can they eat! This is getting out of hand,” Zach quipped, looking at them all, “Let’s go back to the office before the whole crew joins in on this discussion. That happens and before you know it they’ll be breaking out the beers and having a party!”

* * *

Zack’s conference room was like a show piece of extravaganza. The walls were covered in rich Italian marble, the carpeting was Persian, and the outside wall was etched glass from floor to ceiling. The table and chairs were the most outrageous. The table was a wing off an old P-40, Flying Tiger, and all the chairs were refurbished pilot’s seats. The wing was so highly polished that it looked like it was dipped in glass. The leather on the seats alone would probably cost the same as the original price of the aircraft!

“Sorry I don’t have more copies of these changes for the turbine,” Tommy said as she passed out what plans she had. “I don’t want to monopolize this meeting, so I’ll be quick about it. I solved the problem of keeping the turbine airborne. For now let me tell you, Mr. Zimmermann, that it’s out of this world.” Tommy reached into her briefcase and handed over the Shopton Chronicle’s story. “Have you seen this?”

Mr. Zimmermann looked it over and passed it to the interns. “I take it the UFO is yours?” He kept his face blank, but his voice betrayed his interest.

“Yes, it is.” Tommy answered back, “It has a few drawbacks, but nothing we can’t live with. And in time I may be able to eliminate the faults.”

The article was evidently new to the two interns as they sat there, goggle-eyed, looking from the paper to Tommy and back again several times.

“As for now, we have a way to keep the turbine at any altitude we want and with very little power being vamped from the generator. The truth of the matter is

that the flight ability of this device is a side effect of transmitting the electrical power from the turbine, through the HPD, then to the ground. As long as the power goes to the ground, the turbine will stay in the air.”

“And if there is no power being generated?” asked one of the interns, a tall and square-jawed man, also named Hank.

“We’ll have nano-batteries on board for backup power and the chances of all the HPDs going off line at the same time are slim. The ceramic discs that provide this miracle are so small we will be using hundreds of them.”

“How are you going to do it? You can’t possibly wire and attached them all by hand, can you?” the other intern, Arvy Hanson asked.

“No, we’re going to embed the disc into a wire mesh made out of CCN cable threads. We have two types of CCN cable. We’ll use the conductive one and let the threads act as the power leads too. More bang for the buck. Then the mesh will be bonded to the inside of the trackballs that allow us to raise and lower the platform. The trackball motor boxes and angle actuators are the next step up in size. Each additional piece gets bigger and stronger. All the forces and weight will be distributed throughout the platform and slowly work its way back down to the disc.”

“I can see that working,” Zach said, “but what about the forces on the turbine as we raise and lower it, and what about stability in extremely high or violent winds?”

“That’s part of the new design. I added two hydraulic rams to the turbine sides so it can be lowered to the platform. That will be more than large enough to let it lay flat and out of harm’s way if necessary. So, that’s it. Nine megawatts of power for each unit and if all goes well we’ll try to make the final version even larger.”

Uncle Hank let out a snort upon hearing this. The others looked at him. He held up his hands and said, “It’s her show and tell not mine, sorry!”

They all looked back at Tommy in amazement. “There’s more?” Zach asked.

“I guess I should not have said that last part. I have this plan worked out in my mind and the numbers are fantastic. If I scale this up to three hundred feet, the possible power output is over three hundred megawatts with no pollution to speak of.” Everyone was stunned.

“How? The outer blade speed would be close to, or greater than five hundred miles an hour,” If nothing else Zach knew his blade speeds. “The forces on blades of that size would be impossible to handle.”

“Not if we split it up. My hope is to make two separate rings—the inner one at two hundred feet across inside an intermediate shroud, and an outer one made of a fifty foot band that is pushed back deeper into the outer shroud. It would actually be connected to frictionless bearings in the outer shroud and simply stabilized

using thin CCN wires on each blade to connect to the central hub. That will give zero resistance to the air moving back through the inner turbine. We now have three tracks of wire coils to energize. Just the two tracks in the middle shroud, already doubles the power and the outer ring nearly equals that again. The blade speed of the outer ring will never equal the speed of the inner so there'll be no super high speeds or forces to contend with." Tommy's face looked like a Cheshire cat.

"When do we start?" whispered Sterling, the first intern, in awe.

"Tommy, my dear, you do know how to silence an audience," laughed Mr. Swift. He turned to the two interns. "Gentlemen, what you have heard here is to be kept absolutely confidential. Take Tommy's plans and start organizing the additional work that needs to be done on the turbine at hand. Thank you, gentlemen, you may leave now."

Both interns got up to leave and one of them started to gather up the plans when Tommy added, "You will note that there is a trap door in the middle of the platform and specifications for cable drums and a winch system for the trap door. Please don't modify it without calling me first, understood?"

"Yes, Miss Swift. And thank you for your confidence in us." And off they went as fast as they could.

"Now, Zach, the floor is yours." Mr. Swift nodded for him to take over.

"Thank you, Thomasina, for letting us in on your future plans. Damon, the reason I called you and Hank over is that I have a proposal for you. I'm sure that Mr. Kenworth here has your full confidence as your transportation VP. He has nothing but praise on how we're handling the turbine project. But this is more of a personal matter, and Thomasina, I'm glad you're here too.

"You both know I never married and so I have no one to leave the company to. As things were going, it did not matter. I was about to sell or just close up shop. Business had dried up. No one could afford to customize their planes like they used to. Between the price of aviation fuel, maintenance fees and storage coast..." he just shrugged his shoulders.

Tommy looked at Bud with a growing suspicion that she wasn't certain whether she was going to like this or not.

"Your arc jet, Thomasina, has saved the day. Saved this company. Once we started to offer conversion for old jet engines to your arc jet, we have more work than we can handle. The best part is that is that the owners of these planes are using the saving in putting in upgrades. The electronics that you supply and creature comforts that we do." He turned to face his old friends. "We've done a lot of over-the-top stuff, like this office, but it once was a real status symbol." He sighed. "Those days are mostly over.

"Anyways... then Hank gave me this turbine to make. Do you know how

long I waited for something like this to do? To do something to help humanity and just not living off the fat cats and their play things. I want to build these flying generators. In fact, I want to build them so bad that I'm willing to sell my company to you Damon, as long as I can be your administrator here and bring this project to fruition."

Damon Swift looked back at their host for a split second before giving him an almost-unseen nod. Zach returned the nod and continued.

"Now, Thomasina is proposing a super turbine that could power cities and put an end to so much bickering and political power play. Pollution? Not from these! Hazards and protests from nuclear plants? Ditto! This could be the start of that long lost dream of Utopia!" Zach eyes were ablaze with excitement.

"Mr. Zimmerman, please!" Tommy begged. "The super turbine, as you call it, is still a dream. Possibly years into the future, if at all."

"Yes, of course. Sorry! But, Thomasina, you will try, won't you?" he beseeched her.

"If you're a sample of how people feel, then I will give it my all, I promise you. But please be patient."

"I just wanted to impress on you how vitally important I feel this is," he replied. "And, how much I want to be a part of it. The total resources of this company is at your service. And not to push things, but I now feel that with what you have told us and with your composite materials and nano-crystal technology I would like to forge ahead with your super turbine design. Maybe just basic stress and structural computations and then we can go from there. Can you see your way in letting me try?"

"Uncle Damon," Tommy turned to him, "I'm sure we can find a way to let Mr. Zimmerman into SEI without us taking over his company. And as long as we've gone this far with him, I don't see why he can't be the first licensed company to make this present size flying generator for us. And if he wants go ahead with the super turbine, I'll gladly hand over to him my notes as long as Astros Aerodynamics sign on as a subsidiary of Swift Enterprise International."

* * *

Chapter Six: Caught!

Bud flew Mr. Swift and Hank back to the construction company after the meeting. The whole proposal had to go before the full ownership of the company and if approved, to the legal department.

Tommy decided to stay and help out. She was anxious to get her hands dirty. She called Hinkle and he had everything running smoothly. The two hundred tracking balls would be ready in a week's time and the fabrication of the actuator boxes were to be completed at the same time. It would take two day to put the whole mechanism together and test both the aero and ground rotation parts.

Hinkle promised to have it all there inside of two weeks. It was decided to hold the test flights at Astros Aerodynamics. Their location in upper New York State, near the Vermont border, put them in a heavily forested area with no large population to speak of. Mr. Zimmerman even had a cabin hideaway by a small lake some four and a half miles away, an ideal spot to anchor the ground rotation unit and to put the controls nearby.

Tommy was amazed at the efficiency of the two interns as team foremen. The workers at the plant, some who were many years older, responded well to the way Hanson and Sterling treated everyone. The two boys not only gave orders but listened, learned and worked beside them. They were the first to arrive and the last to leave each day.

The two young men also worked well together, their schooling and interest were different but by now they knew what each could do best and each one automatically gravitated toward it. And they were not afraid to ask for help when they needed it, and that did more to impress the workers than anything else.

The Astros Aerodynamics men were just as surprise at how well Tommy could handle the power tools that formed and joined the structural members and at her ability to lay out the composite sheathe. By the end of two weeks she was just one of the gang.

The last thing they needed to do before Hinkle showed up with the HPD was to wind the CCN cable to the drums that raised and lowered the trap door. This was not a part of the flying platform but a second experiment Tommy was trying out. It was part of an elevator system that could be lowered by as much as ten miles. The trapdoor weighted two tons by itself and was equipped with high pressure air jets that were designed to help stabilized it as it was lowered to the ground and bolts would shoot into the ground to anchor it so it wouldn't move.

An elevator cage was attached to the four cables and—using power that ran through two of the lines—it would climb up carrying people or equipment. If this

worked then Tommy was a step closer to realizing two more of her dreams.

Hinkle arrived late on Friday and the workers voted on working right through the weekend so they could be ready to test the generator platform on Monday. Excitement was running high and even Mr. Zimmerman joined the work force to lend a hand. A few of his employees who only knew him as 'The Old Man' were very surprised, and not ashamed to admit it, that he turned out to be a highly-skilled fabricator and electronics expert.

Midnight found a tired but happy crew going home but still ready to go back to work at eight on Saturday.

* * *

A lone figure walked out of a shimmering black rectangle that opened up in the middle of Tommy's lab. It was two a.m. on Saturday morning and the first time the building was empty for the last two weeks.

"Damn, I never thought that Hinkle would ever leave," murmured Thomas to himself. He was glad not to have to think of himself as Tom IV any more. He hated that name and the people it represented. He was the only true Thomas and all others were impostors and now out of his life for good.

He sat down at Tommy's desk and with deft fingers punched in her access codes and numbers. The screen remained blank. He tried again, nothing! In frustration he shoved the screen and keyboard off the desk. He pulled all the draws open next and found them empty. In anger he flung one across the room to smash against the far wall.

The lights in the room went out and he could hear all the doors slam shut and lock. He screamed out in anger, but he had prepared for that eventuality. He reached into his pocket and took out two devices. The small globe, he smashed onto the top corner of the desk. It broke open and a florescent light slowly filled the room. The other he laid out on the desk top, so he could look at it every once in awhile. Thomas sat back in the chair and with a smile, crossed his arms and waited.

When Thomas had entered Tommy's lab the energy surge that was created by the negative zone as it opened its portal was detected by the devices Tommy and Hardin Ames had scattered around the complex. The ongoing operation had been initiated when Tommy literally bumped into an invisible man, and the DNA testing on a piece of skin torn from the intruder's body had shown shocking results! Silent alarms sounded out by telephone and to key locations throughout the complex. Dozens of workers stopped what they were doing and implemented plan 'I' for intruder. Security personnel went to their 'I' posts and all available men were called in, all other employees were asked to leave immediately.

From four different hangers, vehicles came roaring out towing flying wing generators. In minutes they reached their assigned position at the four ends of the two runways and had the wings up and flying. Once these were anchored to pre-rigged and pre-wired connection points, they immediately went back to get more wings to launch.

Hardin for his part showed up at the complex gate within five minutes and the command truck was waiting for him. Before he even had a chance to close the door they were off to the now surrounded laboratory.

Mr. Swift showed up next and joined Hardin in the truck at the video and communication console. Combining both infrared and night vision optics with the light from Thomas's globe they had a very good picture of what was going on inside the lab, even through the seemingly solid walls of the building. They could see the intruder sitting at the desk and the computer scattered across the floor.

"Has he done anything more or said anything, Hardin?" asked Mr. Swift as he sat down next to his security chief.

"Nothing, sir. He's just sitting there. I guess it's our move now."

"Then let him stew till Tommy gets here. It's too bad that Bud is still in Europe negotiating those shipping contracts. Haz and Sandy are in New York City and won't get back here for some time. Have you talked to Tommy? Is she on her way?" Mr. Swift never took his eyes off the monitors.

Hardin flip a switch, "Mr. O'Brien, what is Miss Swift's ETA?"

"Her plane is landing now, sir. That's one fast jet Mr. Zimmerman has."

"Tell her she was right! He's in her lab. We have a jeep waiting to take her here to the command truck, out!"

Within minutes Tommy climbed into the back of the truck. She took the last chair at the surveillance console and looked over the screens.

"Is that's all he doing?" she asked.

"Since we locked him down, it is." Hardin replied. "He did try to get into your computer and you can see the results of that on the floor. Do you want to talk to him?"

"That's why we're here and went to all this trouble to lock him in. I hope he's locked in and not just playing with us. Let get this over with. Uncle Damon, your call, do you want the honors?"

"Sorry Tommy, you called this one. It looks like he wants something from you. So let's not waste time, you talk to him."

Tommy put on earphones and adjusted the mic. Taking a deep breath and exhaling to calm her nerves, she turned on the mic.

"Mr. Swift? You *are* Mr. Thomas Swift, are you not?" she asked.

Thomas lowered the front of his chair back to the ground and looked around. "What's this, no video? I can't even see you, Thomasina. I came all this way to see

you, did I not?" he laughed.

"You might have come all this way, as you put it, but in reality it's not that far away at all, is it?"

"I always knew how astute you were. Have you guessed all of it?" He was still trying to find the spot where her voice was coming from.

"No, not all of it. The key was to realize that it is possible to travel from one dimensional possibility to another. I don't know how you do it or why you would want to do it. But since you do, there must be a good reason. So let's start with that. What do I possibly have that you would want so badly that you would rather steal it instead of asking? You must know that if you came to us openly that we would just about give you anything you wanted that was reasonable." Tommy was truly puzzled over that point.

"Who said what I wanted is reasonable? And yes, you do have a piece of technology that is unknown to all us Swifts, but that is not my main reason for being here. It is you, my dear, Thomasina, it is you!" They all could hear him sighing as if his fondest wish was about to come true.

"Where's Sandra?" he asked, changing the subject. "We must not leave dear sister Sandra out of this, must we?" From his body language they could see that he was enjoying their conversation.

"She's not here, Tom, but..."

"No! Thomas, it must always be Thomas!" his shrill voice carried an unreasonable anger.

"Sorry, *Thomas*, I won't forget again." Tommy looked at the two men she was with and gestured to them. She was making a small circular motion to the side of her head. And both men nodded their agreement. Things were worse off than they thought.

"Sandra is in New York City. She wanted to see a play on Broadway."

"You imbecile, you can't lie to me! I know you are hiding her from me. Well, it won't work!" He hit the desk with his fist. He stood up so fast that he slammed the chair backwards into the wall. He walked, limped actually, into the center of the room, facing the front door with his legs slightly apart and his hands on his hips, as he called out:

"I, Thomas Appleton Swift, command three things from you. You will carry out my orders or all of you shall pay dearly for your insolences." They watched him give an emphatic nod of his head.

"First, I want all your formulas, technical papers, and plans for the power transfer device. Including all the changes you made that allow it to suspend itself in the air and the plans for your fifty foot generator.

"Second, I want Thomasina to deliver them to me personally, here in the next hour."

They saw him spin around and look at something on the desk, and turned back.

“Third, I want Sandra to be with her. No... I demand that Sandra be with her! Do all of this, and I will spare your miserable lives.” Even as an infrared image he looked so belligerent that it was laughable. But the horror of it all was that you could tell he meant every word of it.

Tommy turned off the mic so they could speak freely.

“He’s absolutely bonkers... I mean insane.” burst out Tommy, her British accent becoming quite noticeable. “How did he get control of such powerful technology? What kind of world allows that type of man the freedom to run amok?” She sat there shaking her head at the absurdity of it.

“What do you want to do now, Miss Swift?” Hardin was in work mode, so he was professional in all matters.

Tommy turned to talk to the driver of the truck who was manning the capacitor power station. “What are the power readouts on the super capacitors in the basement of the lab and how many generator wings are up?”

“We have stored over four million volts from the eight wing generators we have flying right now and we’re also pumping in all we can from the utility lines.”

“How are the capacitors holding out?”

“Their temperatures are still below minus one hundred and sixty degrees. The liquid oxygen is doing its job and keeping them cold.”

“Let me know if the status changes more than what we expected it to. And, please isolate the rest of the complex from the capacitor grid.”

The man acknowledged her orders.

“Mr. Ames, how is Uncle Hank doing in making sure that all nonessential employees have left the complex?” Tommy swing around to look at him.

“He just reported that all sections are empty and locked up. He is on his way here.”

“Good! Thomas has given us,” she looked at her watch, “fifty-five minutes and he wants both Sandy and me. So let’s give him what he wants and toss in a few surprises to go along with it.” Ames and Damon could see a gleam deep in her eyes.

“Mr. Ames, please bring up the Simple-bot truck and have the tech start to activate the Sandy and Tommy bots.”

* * *

“I’m sorry Miss. Swift, The robot is active but it just won’t walk.” The tech had the back of the Tommy-bot open and was pulling and checking one tray of circuitry after another. Tommy started to tap away at the computer control board

and was checking the mobility diagnostics systems.

“Forget it,” she sighed. “The whole sub-routine that lets the robot walk is scrambled. It must have had a major memory glitch. There is no way we can dump memory, reboot the entire system and make it work tonight.” She shut down the computer station for that robot.

“Can’t we just switch the sub-routine circuit board from one of the other robots to this one?” The tech was trying desperately to find a way out of this dilemma. He was afraid he’d done something wrong and caused the crash.

“Good idea, but each robot has its own walking sub-routine because of its size, proportion and weight distribution.” Tommy turned to Uncle Hank who had finally reached them and joined Tommy at the Simple-bot truck.

“Sandy-bot is working fine, so I guess I volunteer to go with her.”

“You can’t Missy!” he seized her by the shoulders, “You can’t risk your life. We’ll have to find another way. Let’s talk to Damon and Hardin.” He turned her around and tried to gently push her out the back door of the truck. He barely got her to the bottom of the stairs.

“No, wait Uncle Hank, there is a way!” She rattled off a list of things she would need. He nodded his understanding and ran off taking the tech with him.

Tommy went back inside the command truck and explained their predicament to Uncle Damon and Hardin. When she was done, she glanced at the time. They had barely ten minutes left.

The tech showed up first carrying a piece of fine CCN cable mesh they were using for the flying platform tracking balls, some duct tape and wire connectors. She immediately pulled her blouse off and held up the wire mesh to one of the men. They just stood there, trying not to look at her.

“Guys, surely you’ve seen women in sports bra before. Get over it and help! Now wrap this mesh around me and tape it in place really good and tight. John,” she was addressing the tech, “clamp on at least four of those wire connectors to the mesh that cover my shoulders and at four points along my waist.” John was finishing attaching the connectors when Uncle Hank showed up. He had a two thousand foot roll of one-eighth inch conductive CCN cable.

When he was finished John stepped back and Uncle Hank stepped in. Taking the end of the cable he wove it through the connectors, making a type of harness out of it. A few quick jerks on it—it all held—and he knew he could do no better.

“How does it feel, Missy?” he asked as he tugged once more.

“Good, Uncle Hank. Not exactly Paris runway fashion, but it will do.” Looking at the time and reaching for her blouse she pulled it on over her head. It got caught up in the wires.

“Knife, someone, cut the back of the blouse around the harness and then use some duct tape to hold it closed. It has to look like a regular blouse! We’re running

out of time. John, get Sandy-bot and get her to the back door of this truck. Just follow my lead when we go in.”

“Uncle Hank, you better ground the end of that cable. I suggest that fire hydrant across the way and wrap it around the take up spool on the truck’s forward winch and be ready if I need help.” Both men rushed off to do their assigned task.

Tommy gave the monitors a glance and nodded to Uncle Damon and Hardin then took a few breaths to calm herself. She put on the earphones and flicked the mic back on.

“Thomas, sorry it took so long, but Sandy is here and we have the requested paper work and schematics.” He bowed his head in acceptance.

“I knew you could do it in time, Thomasina. No more lies or my retribution will be... *Swift* and to the point, at the very least.” he chuckled to himself.

“When we get to the lab I will unlock the front door and it will open automatically. You will see us there and no one else. I am having everyone pulled back so there will be no misunderstandings.” Tommy was trying to give John time to suit up and get the Sandy-bot to the back door.

Looking at the Simple-bot truck monitor she could see that John was about ready to go. He had lowered the robot off the back of truck in its handcart storage unit and had donned the motion location straps, putting them on his chest, upper and lower arms, gloves for hand motion and straps on his legs. He slipped on the helmet that gave him sight, sound and speech. He turned on the test indicators and did a few quick motions. They all registered on the screen. He then activated the motion sequence relay to the Sandy-bot.

Outside the truck, the Sandy-bot oriented itself and walked off as if it was Sandy. John gave it motion and voice, and the computer program turned his actions into how Sandy walked and talked.

“We’ll be there in a minute or two, Thomas.” She turned the mic off. Tommy gathered the extra cable in one hand and the briefcase in the other, with the requested materials.

She looked at her Uncle and Hardin and gave them a small smile. Mr. Swift gave her a hug and quickly turned away so she would not see the tears in his eyes. Mr. Ames gave her a tiny ear piece and pointed to the Simple-bot truck monitor. It was now showing what Sandy-bot was looking at, a faint sound was coming from the speakers.

“We’re watching your back,” Hardin gave her the thumbs up.

“If things go sour,” reminded Tommy, “and he starts to open a passage way to his reality or tries for some type of weapon, pull the Master Power Switch to release the capacitors charge and duck fast. I don’t know what will happen but I’m sure it will be spectacular.” With that said, she walked out the back of the truck and handed the briefcase to Sandy-bot to carry and walked to the front of the truck to

Uncle Hank.

He gave her a kiss on the forehead and held up his hand with the winch controller in it. She dropped the extra cable and started to walk to the lab. Sandy-bot stayed at her side. As they walked side by side Tommy glanced at the robot and felt a small comfort knowing that Sandy was safe and yet she still had 'Sandy' at her side.

As they approached the laboratory's door she pointed the remote lock controller at it and could hear the door unlock and the air seals hiss. The door slowly opened.

Tommy could see Thomas glance at something sitting on the desk. He spun around to face her, fury blazing across his face.

"Tommy," Hardin's voice sounded in her ear, "be careful, he just reached into his pocket and took something out. He's opening it up and is pointing it out at you."

"How dare you!" he screamed, and with a sharp crackling sound and the reek of burnt wire the Sandy-bot fell to the ground.

"I warned you not to cross me..."

The door suddenly slammed shut and Tommy was hurled back and off her feet as the wire of her harness was taken up by the winch. She flew ten feet in the air before hitting the ground and continued to be dragged along, but at a slower speed.

The lab before her did an amazing thing. First, just for a moment, bright blue sparks and lightning bolts shot out of the building and into nearby objects. Luckily Tommy was not one of them. In less than a second the whole structure simply imploded with such a force that Tommy was once more lifted off the ground, but yanked forward this time. If for the harness and cable she would have been sucked away too.

She tried to yell out in pain as the wire mesh dug into her flesh but the air was sucked out of her lungs. Her ears popped and her limbs felt like they were being pulled from her body. When she hit the ground the second time, Tommy was out cold.

* * *

A murmur of sound assaulted her mind in ever increasing volume. The sound finally cleared up and she managed to open her eyes. *Eyeballs! Dozens of them staring at her!* She closed them and tried again. All she could see was a sea of concerned faces all around her, Uncle Damon and Hank, John, the technician, Hardin, and the truck driver. She tried to get up but her arms and legs refused to move.

“Easy, Tommy,” warned Uncle Damon as he put a hand on her shoulder to keep her down, “Give it a couple of minutes more. You’re going to have some pretty bad welts on your chest, stomach and sides. We have an ambulance coming to take you to the hospital just in case.”

Tommy felt her stomach and winced in pain. “Hey! This isn’t my blouse.” She looked at them amusedly. She wanted to ask them if it had been a good show, but didn’t get the chance.

“Sorry, Missy, but there was still a lot of electricity running around and we had to take that harness off and your blouse was in tatters anyways, so Hardin volunteered his shirt.” She looked at Hardin and he was in his T-shirt.

She rested her head back on the ground. Almost whimsically, she said, “I saw the most beautiful stars and lightning bolts—” and then the rest of it hit her. Her head popped back up. “The lab... did I really see it just disappear, sort of shrunk onto itself?”

Hank and John lifted Tommy up into a sitting position and the rest of the men stepped away. She looked. The building was gone, the large liquid oxygen tanks on the outside of the building were gone, and the liquid cooled capacitors in the basement were also gone. Sitting on the ground she could not see the big hole that was the only thing left of the basement. She could hear the gurgling and spouting sound of rushing water. Tiny whiffs of steam were drifting over the remains.

Chapter Seven: Space Launch Platform

“Bud!” yelled out Tommy as he walked into her hospital room. She pushed away her bed table she was writing on and held out her arms to him. He handed her a dozen long stem red roses in a hand-blown glass vase. Her face just glowed with glee.

He looked her over and satisfied that she was all there, he bowed his head in for a long sought after kiss... and then another. Bud started to reach for a chair but Tommy patted the bed right by her hip, and so he sat next to her holding her hands and never taking his eyes off of her face.

“Sorry I didn’t get here sooner, but I did not hear of the intruder until Sunday, your time. Mr. Samson had me sequestered in his villa on the Rivera. Talk about a gilded cage, once we started to negotiate, all outside connections were turned off. No cell phone or computers. He says they’re a distraction and if you don’t have what you need with you then you’re not prepared to negotiate with him. Go home and maybe he’ll see you again. A hard man, but to tell you the truth, he was fair.”

Bud stopped for a moment to reorganize his thoughts and continued.

“He asked a lot of question about us and the way we’re going to set up the production factories and in what countries. This took almost a day in itself. Then Mr. Samson went into the full details of the difficulties of shipping throughout Europe and Asia, their different laws and custom inspections and all he could do for us. He even had all the other shippers’ rates and their abilities to haul on time.

“On Sunday we had breakfast, took a three-masted schooner out for the day and had a sunset beach party on some deserted island off the mainland. Not once was business allowed.” Seeing Tommy’s eyes flash with a hint of jealousy, he hastily continued.

“When we got back to the villa on Sunday night my luggage was waiting for me at the door. I thought I had blown it somehow, but Mr. Samson handed me a lavish new briefcase and with a firm handshake told me:

‘Read over the contracts. You’ll find that in all the countries you have set up your production factories the deliveries will be done by the local people that know what they are doing and I’ll handle whatever needs delivering that cross different country’s borders since I already have the required papers and clearances.

‘I like the way you’re treating the people of Europe and Asia. Don’t ask; I have sources for knowing these things. The only advice that would I like to give you is be firm or they’ll take advantage of you.

‘I have a jet waiting for you. Now, get home, Mr. Kenworth. Your Thomasina Swift has been in a tussle with an unknown man and has been hurt.

Don't panic. It is nothing too serious, or I would have told you earlier.'

"By the time I'd gotten to the plane I'd talked to your Uncle Damon and Sandy. That was scary and a relief at the same time. On the flight back I watched the videos your Mr. Ames provided to me. Have you seen them?"

He could tell she had not by the look on her face. "We'll watch them together after you get out of here. And when will that be?"

"If you stick around it should be shortly. I'm waiting for the doctor to sign me out."

Bud gave her a kiss, "Great! Kenworth taxi service willing and waiting."

Tommy was happy to have him there and now knew that she hadn't realize how much she missed him.

"How did you do it, Tommy? You guessed correctly on almost everything. But was it worth losing all that stuff in your lab and the lab building itself?"

"If we're all now safe, yes it was. As for the equipment it can be replaced. Tanks and electrical equipment and be pulled from supplies. The only specialty stuff is everything for my Bucky Balls and such. Most of that is now available in the new production setup we've been building to make the ceramic dots. Once we get everything set up there I'll just incorporate the new layout of the dots into the mesh. No big deal. That hole will be there awhile. I have plans for it."

"You don't waste a thing. Turning bad into good," Bud laughed.

"The guessing right was more luck then the facts warranted, Bud. Really, would a good person go sneaking around for months? Invisible? And his technology was way beyond ours, but it struck me as strange that his cloaking device was not at the same scientific level as the reality portal he traveled by. You know, you seen it in Sandy's picture at the meeting. So two plus two equals stolen technology, and that equals bad person with bad intentions. Somehow he got a hold of it, probably from one of those other Swifts he mentioned."

"But how did you figure that the super magnetic field you established with the capacitors under your lab would stop him and that he would go there in the first place?"

"That was a long shot, but if he wanted my inventions then that was the place to go and I did place other magnetic field generators under other buildings just in case. He had to be using a wormhole or some type of micro-black hole to get between dimensional possibilities and the only way to contain one of those that I know of is with a really powerful magnetic field. Two different fields would distort each other so badly that they would collapse. I thought that it would just stop the passageway from forming, but blowing it up... I mean imploding like it did..." she stopped and shook her head.

"Is he dead? Could he have escaped somehow?" Without realizing it he was squeezing her hand tighter and tighter.

“I hope I didn’t kill anyone, but he was willing to kill us. Survive or not, that’s in god’s hands and not on mine. Hey, talking about hands, I’m the good guy. Hold the hand, and don’t turn it into pulp.” She laughed.

“Sorry.” He eased off on the grip. “But talking about pulp, how are your...your sides?” he asked turning red at his lost of words.

“The sides are fine, Bud. But my whole front is sore and red,” Tommy smiled back. “Want to see?” and before he could sputter out a word, Tommy lifted her PJ top just enough to show her tummy. It was red and swollen and turning black and blue. Her eyes were tearing with laughter watching Buds face get even redder.

At a loss of an answer, he fingered the papers on the bed table.

“Go ahead naughty boy. You can look at them without blushing.”

Hoping she was only talking about the pages, he picked them up and looked them over. At the top of the paper was written:

Altitude Adjustment Cone for the HPD

Under that were two drawings that showed a cone shaped object attached to the tracking ball system of Tommy’s HPD. Other views showed the inside of the cone with a very fine spiral track circling the cone from top to bottom.

“An adjustable bull horn to yell at me?” he asked with a smile.

“Silly man, it’s my new HPD. But if it works it will need a new designation. I, for one, am getting tired of the alphabet soup names for my new devices.”

“So this will let you soar anywhere you want?” he asked as he turned the dawning upside down to see if he could get a better view of inside the cone.

“Not soar as in airplane, but we may be able to gain or lower altitude without the arc swing we have now. The speed of ascent can be controlled also. This gives us a way to reach right out into space without a rocket.” Tommy eyes were getting dreamy and Bud knew she was not long for this world, but off to ‘La La Land’ as he liked to call it.

“In theory with the HPD we have now, we can reach out as far as eight thousand miles, the diameter of the Earth. We could use the device as a slingshot, assuming we have the base and the platform a hundred miles apart or so. With continued acceleration we could hurl an object into orbit and only need a small altitude adjustment rocket to get it into the correct orbit.”

“Wow!”

“But getting something down using this is a near impossibility. We would need both HPDs to line up perfectly and only have the length of the object’s arc above the earth to the ground to slow it down and land. That’s seventeen thousands miles per hour to zero. A high gee situation if I ever saw one. Not a healthy

proposition for a man or beast. But if this new design works, we still need the crucial hook up but we can then spiral in, taking as much time as we need to slow down safely.”

Bud was getting excited at this. He’d dreamt of space all his life. “Can we go to the moon?”

“Sure and even land, if we use a double Power Transfer Device so the cone can be run from both the ground and the ship. We have instant information transmitting with the PTD, so I don’t see why not.”

“But all that hard work on the fifty foot generator and you’ve made it obsolete even before it left the ground for its maiden flight.”

“No, it’s on hold right now, but we’ll take it up at least once. We have to test the generator and most importantly to test the elevator system. I still need to see if that will work.”

“Excuse me,” a voice spoke from the door. They both turned to look at the person coming in. It was the doctor. “It’s time for one last peek at the patient, a little final burn ointment, and off she’ll go. So, if you’ll excuse us, young man?”

* * *

“Hinkle, go home, your wife is waiting and I promise not to take off and go sightseeing with the UFO,” as the flying platform was now dubbed.

When Tommy was ready to resume work, they’d moved back to the area near the metal shop where she developed the arc jet. It was a homecoming of sorts and felt good.

That had been eleven weeks earlier and so many, many things had happened in the meantime. Not the least of which was everything that had to be changed, enhanced or replace on the UFO.

Hinkle showed up with two cups of tea and a big question. “Tommy, I know that you told me that we’re changing the design of the tracking ball system but you failed to tell me why!” He handed her the tea and pointed to their workbench stools.

Laughing, Tommy took the tea and the invitation to sit.

“The truth is, Hinkle, I overlooked the obvious. I placed the ceramic dots on a flat surface, the results is what we got, two parts of one device and no way for them to move closer or apart. What I want to do now is place them in a cone, spiraling in from the outer edge to the apex and lay in a strip of ceramic dots. You will have to add another motor to the actuator box that will spin the cone both forward and backward and it will have need to have rotational speed control. It has to stay matched up with its corresponding other half also. There be a lot of extra computer connections and programming.”

“But, that still doesn’t tell me how it works?” He was wondering if he

missed something in her explanation.

She gave it a thought for a moment and said. “Do you know how an Archimedes Screw works?”

“Sure, the spiral surfaces of the screw lift the liquid up a tube even though the surfaces really don’t rise.”

“That’s the best way to look at it. The spiraling ceramic dots lift the platform up or down, depending on the direction of the spin. And the faster the spin the faster the platform moves.”

He took a sip of his tea and looking at Tommy simply said. “Let’s get to work.”

Within a day the first two cones were shaped out by Hinkle and Tommy was bonding the continuous ceramic dot strip made out of the CCN threaded webbing to the spiral grooves. While she did that, Hinkle took the tracking ball apart and removed the old ceramic disc off the cylinder and machined that end of it to accept the cone. He then had to add and computerize the spin drive to the motor box.

At first, Tommy tried aligning her webbing by hand with the help of an enlargement monitor but that was a miserable failure. There was no way to keep it accurately spaced and facing up as it needed to be. It was like trying to glue a thread into the grooves of an old forty-five record. It took her two more days to construct a device that did it to perfection, from one cone to the next.

While she was doing that, Hinkle made a dozen more cones and fitted four of them to the actuators on the UFO and four to the ground rotation unit. When Tommy was ready to thread the cones he handed them to her in pairs and reconnected them when she was done.

By the end of the fourth day they were ready. It was later than she realized and she had other plans to finish in secret. To prove to Hinkle that she meant to call it a day, she left with him.

She just didn’t stay ‘gone’ for very long.

* * *

It was nine in the morning, two days later, and the fall air was chilly. Winter was around the corner and in mid New York State it could get really cold and snowy. Hinkle and Tommy had moved everything outside. They had modified the ground unit so that the platform could sit directly on top of the ground rotation unit. It looked like the bottom half of an old NASA Moon Lander with silver donut on top. Part for the donut was covered over with gold fabric.

It was quite a crowd that gathered to watch this launch of man’s first flight into space without the use of a rocket.

“Tommy!” Bud called out as he rushed to her once he finished talking to

Hinkle and drew her to the side of the crowd, “Hinkle tells me that you haven’t even tested this new device, are you sure it will work?” He did not want her to fail in front of everyone.

She touched him on the cheek with her hand. “Man of little faith, of course it will work. I snuck a test flight in the other night. So stop being a mother hen and be ready for the surprise of your life!”

Tommy stepped up onto the control board platform so everyone could see her and the eighty-four inch plasma monitor above it. Two more screens were located some distance to either side of her. She looked over the people she had called to watch the launch. They were all the important people in her life. Her Uncles Damon and Hank, Sandy and Haz, Bud and Patches, Hinkle and his wife, Mr. Zimmerman and the crew of the turbine build team. The rest of the employees had the option of being there or watching it over the monitors throughout the complex. Mr. Ames elected to watch over the complex with a few of his most trusted security men.

“Friends,” Tommy began, “I hope this is the first of many flights we shall have from here and other sites throughout the world. This is our secret for now and I entrust you all in keeping it. Not for a long time but for a little while.” She let the crowd murmur for a moment.

“This will be the turning point in man’s isolation from the rest of the solar system. We may still be hooked to Earth, right now, by the system’s ground rotation units, but we’ll soon go beyond the need of that.”

“The world governments have now opened space explorations to the private sector and we will use this opportunity for the good of mankind. I wish to fulfill the wishes of another person that sadly died before I had the opportunity to know him.

“Thomas Swift Jr. died before he had the chance to live out his dreams but through good fortune I found a misplaced drawing done by Tom Jr. He was only twelve at the time but his keen mind was already reaching for the stars. And it is my pleasure, at this time, to give this glimpses of what Tom meant to do in the future.” Tommy looked at the crowd for a moment, and then continued.

“Bud, if you please?” She nodded to him out in the audience. He came forward and gave the hermetically sealed drawing to both Mr. Swift and Sandra. In the silence that ran throughout the complex the Swifts accepted the gift. Tommy had arranged for a copy of the picture to appear on the monitors.

It showed a red and blue space ship zooming away from Earth. A land mass and ocean could be seen in the background. Two young astronauts were reclining in acceleration couches that were slightly tilted back. The large glass view port showed the youths in a spacesuit of sorts and their hair color was blond and black. Under the drawing was written.

“The Star Spear, the ship of knowledge, the ship of mankind’s dreams, flying off into the future.” T. Swift

“So I dedicate this flight to him and rename this UFO to *Star Spear* in the hope that this small vehicle will lead us, SEI, into space and beyond.” The gold fabric fell away and the name, *Star Spear*, was elegantly scrolled onto the side.

Solemnly, Tommy turned around and faced the controls. The monitor filled with static and as Tommy raised the periscope camera that was part of the instrument package on the ship, the monitor screen cleared up and they were looking at themselves. She rotated the lens around and pointed it to the ground.

And with no noise at all the ship rose from its cradle on top of the ground unit. When it was twenty feet high, Tommy rotated the ship and the camera was now looking down onto the crowd.

Slowly the people started to applaud, whistle and cheer. Tommy then looked at the clock on the control panel, it was nine-fourteen. At nine-fifteen—when the FAA had given them permission to launch a ‘test rocket’—she started the programmed computer control sequence and stepped down from the platform and joined Bud, Sandy and the others watching the screen.

The people disappeared as the ship soared up into the sky. The complex filled the screen, then that disappeared as the lake and countryside took over the view. The speed readout built into the bottom of the monitor showed it going over Mach-1 and still accelerating. Tommy had programmed it to accelerate at a constant one-G.

The camera angle changed and it was now looking horizontally and the sky color was changing from light blue to a light shade of purple then to black. The stars came out in an intensity not seen from Earth. The ship changed angles slightly to go into orbit and the blue and white planet slowly rose from the bottom of the screen. Everyone was spellbound by the sight.

Then slowly at first, a dot formed in the middle of the screen and grew larger by the second. It was an incredible sight. The International Space Station in all its glory and brilliance was before them. The *Star Spear* slowed down and kept pace with the station for a minute or two from about a thousand feet away.

It suddenly accelerated away and soon they were watching their first sunset and in no time at all their first sunrise. Though it seemed like no time had passed, the ship slipped from orbit and slowly spiraled down toward the ground. The spiral decent was slow enough that no air friction built up to engulf it in flame. It took an hour for it to circle the planet and then spiral down to a landing that ended where it started from.

The whole of SEI stood there and watched the entire trip. The time was not noticed and a rapture of awe that settled on everyone that was incredible. Slowly the people came back to life and a whisper of voices could be heard.

Mr. Swift gave Tommy a hug with his left arm. "Thank you, my dear." He pulled Sandy into the hug with his other arm. "I shall cherish this for the rest of my life. To see what my son had so wanted to achieve and to know it was done by his family, here at his home and at the place he loved. Thank you!"