
The TOM SWIFT Invention Series
TOM SWIFT
and His
QUIETURBINE
SKYLINER
By Victor Appleton II

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Made in The United States of America

Technical Editing: Greg Hall

THE NEW TOM SWIFT INVENTION SERIES

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Air pollution, noise pollution, crippling operating costs and an increase indissatisfaction with air travel is forcing the world's air carriers into financial ruin.

Tom is asked to help keep many of them operational and to help prevent hundreds of thousands of jobs from being lost. But a greater threat than that is the crippling effects a non-functioning airline industry will have on the United States. And, he has competition.

Another aircraft designer has their sights set on getting the lucrative contracts to provide the next generation of more efficient and quieter aircraft. And they will stop at nothing—theft and even violence are on their list of activities.

When those he loves are kidnapped by unknown thugs, Tom must struggle to balance his emotions for those he must save along with his duty to keep Swift Enterprises in the running.

Can Tom succeed? Or, is there just too much involved? Is this the task that Tom can't overcome?

This book is dedicated to my loving and ever-patient wife. She who early on in our marriage discovered that one of anything constitutes a curiosity and two are the start of a collection. Many have been the hour where she has sat across the room from me as I all but ignored her while chronicling our young hero and his adventures. Thanks, P. ILY!

Tom's heart raced when he saw the outline of the occupant of another straight-backed chair. *Bash!* **PAGE 154**

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AUTHOR'S NOTE:

Knock me over with the proverbial feather. Not only did I write *one* of these novels, right in the middle of the first one the full idea for number two came to me as I was drifitng off to sleep one night.

I took just two days off from book uno and started this one. Five weeks later the first draft was complete. A week later, draft number two and five days after that, the near final resided on my hard drive.

And then my birthday happened. The fact that I am approaching 60 attacked me and I sat looking blankly at the book for a full month thinking that I "got away with" number one, so number two must be absolutely horrible.

It was only after my wife read through it and told me—and I trust her to tell me the truth after thirty years together—that it was a good story, when I finally realized that with just a few bits to polish, I had another novel.

Now, I do have to go on a tangent here and admit that I have decided to not only take Tom farther along the road of his relationship with Bashalli, I have decided that he must age. He will no longer be the perenial 18-year-old. He will grow and mature and live with everything that comes from adulthood.

I am happy with my decision and I hope that you good readers will be as well.

Along with Amazon.com for paperback and Kindle versions, quality paper- and hardbound copies of all of this author's works may be found at the following web address:

http://www.lulu.com/spotlight/tedwardfoxatyahoodotcom

Tom Swift and His QuieTurbine SkyLiner

FOREWORD

Tom Swift has always stood for something important to me: integrity! If he gives his word on something, you can bet that he won't back down until the job is completed.

Whether the task is given to him, or comes from his own mind, Tom takes on any and everything with an energy that must be seen to be believed.

But, Tom is also human. Being just like the rest of us makes him vulnerable to all the human frailties out there. Jealousy, hate, fear, pride and love amongst them.

If you add that to the enormous strain he subjects himself to, is it any wonder why he may appear to give up at times? Wouldn't any of us do the same?

In relating Tom's adventures over the years I have always felt that deep inside of the scientist and inventor is just a teenage boy yearning to break free.

Perhaps someday he will.

Perhaps Tom will give up his responsibilities and just have fun.

Perhaps someday pigs will fly!

Victor Appleton II

CHAPTER 1 /

A REVOLUTION

"WOW!" exclaimed Bud Barclay, the dark haired, athletic best friend of Tom Swift. "This will revolutionize air racing, Tom!"

Tom Swift, blond teenage inventor and renowned scientist, smiled as he watched his friend detach himself from the 5-point harness that secured him to the sleek midget jet aircraft he had been test flying around the perimeter of Swift Enterprises.

Bud patted the long, thin aircraft affectionately.

"How do you like the way she handles?" Tom inquired.

"She's great on the flat and pretty good going up and down," he said thinking back to the racecourse of inflated obstacles he had just been piloting over, under and around. "I felt like she wanted to slide a bit out of control on the sharp corners, though," he said.

"Yeah. I had that same impression," Tom replied. "I'll get everything under control before that new air racing league needs to have the first test models. With your help, that is."

Bud slapped his pal on the shoulder. "Count this fly boy in, skipper!"

Just five weeks earlier Tom had been approached by a well-known financier from Las Vegas who had dreams of creating an aircraft version of motocross. As he described it, each course would accommodate six aircraft at a time that would maneuver around a two-mile-long oval sky track. Like the motorcycle version, the pilots would ride on top of, rather than inside of, their aircraft.

Unlike traditional air races that frequently saw pilots losing control at speeds greater than 300 MPH, too often losing their lives in fiery accidents, the 'sky cross' planes would fly at a speed under 100 MPH.

Like their two-wheel counterparts, the sky racers would bob and weave around a course filled with inflatable obstacles and show that maneuvering skill was more important than outright speed or power.

As the man had spoken, Tom immediately envisioned a combination of the military's Cruise Missile, and a low-slung racing bike. "But you understand that it must look thrilling and still be as safe as possible!"

In the end, Tom built the first jet-powered prototype to be more

like the aforementioned Cruise Missile, 15-feet long with a 12-foot wingspan, a motorcycle-style racing saddle and low windscreen. The rider's body reclined face down into an indented area on top of the 15-inch wide by 27-inch tall fuselage. The legs rested in troughs along the sides with the feet up against a set of traditional airplane foot pedals providing steering control.

The pilot's hands would reach inside of the fuselage with one controlling flight characteristics via a joystick and the other operating the throttle and raising and lowering the landing gear via a hand crank.

For safety, pilots—or riders, as Tom referred to them—would wear a harness similar to a parachutist that would be anchored and automatically tightened to a central point in the saddle, and the aircraft would have a built-in parachute recovery system that could be engaged by the pilot or automatically by motion sensors that would activate if the plane began to fly out of control or lost power.

He believed he had everything handled including the 7-inch full-color display to provide the pilot with all typical instrument readouts: speed, artificial horizon, fuel state, oil pressure and exhaust temperature.

The only problem was that what worked fine on paper and in simulation typically had issues when exposed to the real world. Such it was with the steering control of the SwiftRacer-1 as Tom had named it.

He was sure that an auxiliary computer and sensor array could measure and fine-tune the flight characteristics and keep the little racer under control but had run into a problem with the racing league organizer.

"Oh, gosh no, Tom. The whole thing about this league is that it is pilot controlled. All the way. That's why we couldn't even allow you to make these fly-by-wire," he had insisted, referring to the way newer aircraft were controlled by sending electrical impulses to servo motors that did all of the steering and control surface operation rather than the old-fashioned cable and pulley system that had been in use since the Wright Brothers first flight.

Tom had agreed to keep the aircraft as simple and traditional as possible but had, in the end, insisted that it would be mandatory to put some sort of 'power steering' equipment into the aircraft so that the joystick would be able to be operated under the G-force stresses the pilots would experience.

He was certain that an increase in the length of the wings or even wing tiplettes—like those used on airliners—would help but wasn't

sure that either would be the complete solution.

The next day he asked Art Wiltessa to run up a new set of wings incorporating only 24 degrees of sweep instead of the 27 degrees of the original wings and featuring an additional 11 inches of length each. He included small tiplettes in his design, but he asked that these be detachable for testing purposes. “The designs are in the computer system.”

His chief model maker, Arv Hanson, the man responsible for hand-building most of the models and prototypes of Tom’s smaller inventions, was on temporary assignment to the U.S. Air Force, so his number two man, Art Wiltessa agreed to have them finished in four days, the following Monday. “I could do them sooner if it weren’t for the weekend and a top priority project your dad has us doing today.”

“I don’t want you to take any time away from dad’s work. That Defense Department project is vital to the new surveillance satellite system dad designed. If you need an extra day, or even two, take it!”

But, good to his word, Art Wiltessa had the new wings and tiplettes delivered to the Barn—an open-ended construction building where Tom had been working on the midget racing plane—four days later.

Tom already had the old wings detached and they were leaning against a workbench. With Art’s assistance he positioned the new wings on padded benches below the hanging fuselage of the airplane.

They lowered the airframe and soon had the wings attached using high-strength aircraft-grade steel bolts.

Standing back to admire their work, Art remarked, “She looks like a little flying demon. Besides SR-1, has she got any name?”

Tom though over what Art has just said. “You know, Art? That ‘demon’ remark gives me an idea. How about calling these ‘Imps’?”

“Like the mythical beings? I like it. What do you think the buyer’s reaction will be?”

“We’ll deliver them as SR-1s and call them Imps in house.”

After checking all of the systems, Tom dragged the jet out of the Barn using a towrope. He returned the rope to the workbench and then slipped into a flight suit and harness.

Sitting astride the saddle, he attached the safety umbilical from the aircraft to his harness and then activated the mechanism. As it retracted into the fuselage he laid face down. It clicked into place and locked.

Tom lowered the visor of his helmet and placed his hands into the holes on either side of the fuselage. He soon had the display turned on and the starter motor activated. The built-in Swift solar battery turned the starter motor which began spinning the small jet turbine engine. In less that 15 seconds it was up to the proper speed where Tom could start the fuel and spark process.

Seconds later the little engine was revving up on its own. Tom glanced at the readout screen and was satisfied that everything appeared to be normal.

Waving at Art, who had waited around to watch Tom take off, he thumbed the throttle up a little and the small craft began to taxi forward.

Because the small aircraft didn't have the electrical power or the space to include a built-in radio and antenna, Tom's helmet featured a radio. He flexed his jaw against the chinstrap and activated the radio circuit.

He contacted the tower and told them of his intent to fly around the Enterprises perimeter several times and then to do a high-speed run straight out to Lake Carlopa. His flight plan was designed to circle the lake and then return to Enterprises.

"Have a fun time, skipper," came the controller's cheerful voice.

"Wilco, Mike," Tom replied and then flexed his jaw, placing the radio in stand-by.

The little aircraft taxied out to the main east-west runway situated to the north of the main buildings area. Tom checked the joystick and pedals one more time and then thumbed up the throttle all the way. The little jet streaked down the runway and was airborne after using only about 1,100 feet of the runway.

Pulling slightly back on the joystick he put the aircraft into a shallow climb. He hand-cranked the landing gear up and was soon steering to the right following the basic route of the outer complex wall. He reduced the throttle and cruised along at 80 MPH.

"How are things working, Tom," the controller radioed.

Tom replied, "It's looking good. Please relay to Art Wiltessa that the new wings and tiplettes seem to be doing fine. Out."

He circled the vast Enterprises complex three times trying out the up-down and left-right controls in the straightaway. Satisfied, he finally turned the jet toward the lake which formed a beautiful azure blue patch about twelve miles away.

Might as well see what she can do opened up, he thought moving the throttle to full. The jet shot ahead from the 80 MPH he had been

traveling to its top speed of just under 110 MPH. Tom found that he needed to keep his head tight against the chin rest or it was buffeted too much by the wind.

He neared Lake Carlopa. Seeing more than a dozen yachts lazily sailing around the island that sat in the middle of the lake, he decided to go down and fly close enough to see if he recognized anyone.

The only craft he recognized proved to be that of the parents of an old school rival, Thurston Jones. His father had made millions speculating in the oil markets. Some whispered rumors said that he may have been involved in illegal manipulation of prices, and that he had profited when oil prices had suddenly shot up for no well-explained reason.

Shrugging, Tom decided that he had seen enough. A glance at the readout showed that he still had more than half a tank of fuel, so he pulled up and was soon turning back toward Enterprises. Partway through the turn the little airplane shuddered and then lurched to the right.

Tom turned his head in time to see the right side wing tiplette tear away and go spinning down toward the lake. Once it broke free the plane seemed to regain control.

Tom radioed in that he had lost the tiplette but he thought that he would be in no trouble. As he approached Enterprises he began his final left turn to line up with the runway.

Without warning, the little jet flipped upside down and began plunging toward the ground!

CHAPTER 2 /

AN INQUIRY

TOM QUICKLY radioed a mayday while he pushed the joystick as far forward as possible and increased the throttle back to full power.

He knew that all control surfaces worked opposite when an aircraft is upside down. Normally, you push forward to point the nose down. Inverted, push forward and the nose would now point higher in the sky.

"Tom! What can we do?" the radioman asked. "Do you want the crash equipment sent out?"

"Give me a minute, Mike. I may be able to right her!"

Tom gained altitude finally leveling off at about 2,000 feet. Once in level flight he ran through his strategy. "I got in trouble turning left with the nose slightly down. Let's see what happens in a starboard turn, nose down."

He applied the opposite controls. With barely a shudder the little jet flipped back upright. Possible causes of this phenomenon ran through Tom's mind at lightning speed. He would have to find out the reason before anyone could take another test flight.

Taking a deep breath and getting his bearings, Tom dropped the airspeed and lowered the landing gear. "Enterprise tower. I'm going to make a very slow turn and then come back. Are the winds okay to land opposite on runway two-eight?"

"Winds are slightly across the runway at about two. Reverse landing will be okay!"

Tom wanted to take a very wide, slow turn but he looked down at the readout screen only to discover that he had barely enough fuel for another two minutes of flight.

He turned as quickly as he dared and then landed with only a slight bounce. He taxied toward the Barn and was able to eek enough time out of the dwindling fuel to make it right up to the entry.

Tom immediately clicked the shut-off switch and the little jet engine began winding down. He pushed the release button and the security umbilical began to extend back out of the saddle.

As he was disconnecting himself, Bud drove up in one of the micro electric cars that Swift Enterprises employees used to get from location to location.

Running up to his friend, he asked, “You okay, Tom? You sure had us all panicked when we heard about the flight problems.”

Tom brushed off Bud’s worried comment. “Just a little bug. I’ll figure it out,” he claimed.

“It should have been me up there. You’re too precious to waste on test flights!”

“Relax, chum. I’m okay. I think I would have been fine but one of the new wing tips broke off.” He walked over to the end of the wing and examined the damage.

“I see what happened.” Tom was looking at the torn area at the original wing tip. “I spec’d out the overlap a bit too narrow so the bolts holding it in place sort of tore out the very tip of the wing. That will teach me!”

Art Wiltessa arrived as they were examining the wing. He looked down in horror at the ravaged carbon fiber wing. “Tom. I am so sorry. I almost killed you.”

Tom refused to let the man take the blame telling him that it was a simple accident.

“Then I must have read the plans wrong,” Art said.

“No, Art. It was my boner. I had you build the tiplette sheath too short. It meant that the bolt holes ended up only a few millimeters from the edge. They should have been at least a half inch!”

“But I should have caught that, Tom. I *should* have.”

“Listen, Art,” said Tom. “The day something doesn’t go slightly wonky with one of my prototypes is the day I set up a plaque stating, ‘T Swift… Perfection Machine’.”

Only somewhat mollified and still blaming himself for Tom’s near tragedy, Art promised to have a complete new set of wings made up with fully incorporated tiplettes within the next 36-hours.

“And, then I take her up for the test,” insisted Bud.

“Oh, Art,” Tom called out as the man was getting ready to depart. “Can you also pop open the side of this thing and put in a larger fuel tank? I was only airborne for about 30 minutes and she was running on fumes.”

The engineer reminded Tom that the flight time limit was one imposed by the league owner. “I’ll put one in that will give you three times as much capacity for testing purposes,” he replied, “but I’ll save the old one to put back in once you get ready to deliver. Okay?”

“Okay!”

Tom left and went to the main administration building where he had a shared office with his world-famous father, Damon Swift.

As he walked past the desk in the front room he nodded to the dark-haired, well-dressed man sitting at a desk. “Hi, Trent,” he greeted the man who was the Swift’s long-time and efficient secretary.

“Hello, Tom. You’re just in time. Your father is on a phone conference with several representatives from the airline industry. He could probably use your input.”

Tom walked into the office and his father motioned him to a chair in front of his desk. Damon Swift spoke into the receiver, “Gentlemen? My son, Tom, has just walked in. Allow me to put this call on speaker phone.” He pressed a button and Tom could hear a low noise coming from the stereophonic audio speakers.

“Hello,” Tom said.

After brief introductions, the man who appeared to be leading the conversation got back to business. “As we were telling your father, we are in a real bind. Because of all of the different factors that none of use really understand, the price of our fuel has skyrocketed in recent years. We are under increased pressure to fly faster to overcome delays on the ground, and we have nothing but headaches, both the legal and the merely threatened kind, from people claiming that our jets cause damaging noise pollution.”

“But, the aircraft manufacturers have actually lessened the noise levels in newer aircraft by more than ten percent in the past few years,” Tom said. “Right?”

“True. True. But as builders keep planting housing developments closer and closer to airports, we are getting more and more complaints. The airports have been there decades and the houses, months or years, and *we* are supposed to be the bad guys! Frankly, we are in a terrible fix. Do we charge what we really should to buy newer and newer aircraft and perform all of the maintenance on them? We can’t. The public won’t stand for it. The last time we tried to agree on everyone raising prices to pay for an upgraded fleet the government came down on us for alleged price fixing!”

“If I may ask, sirs, what is the priority order for, let’s say, the top four items you need to see addressed?”

Another voice that Tom recognized as Stephen Peabody from Unified Northern Airlines piped up. “Tom. We can’t seem to agree on anything other than the top two items. Those being the need to drastically drop our per customer per mile costs, and then the whole range of issues surrounding airport noise pollution.”

The others murmured their agreement.

"I suppose that we are not just talking about erecting higher barriers to keep the noise inside the airport proper, are we?"

The unified response was that such measures had some positive effect for take-off and landing noise, but that the complaints now revolved around the noise once the aircraft took off or was on final approach. "From thirty to a thousand feet, Tom," Peabody said.

"Tom? Robert Shelton with CanPacific Airways. I've been on the phone more hours a day than I spend with my family trying to get the jet engine makers to work harder and harder to quiet their engines and to make them more fuel efficient. Thing is, the big two claim that they are just about at limits already!"

"They made strides with the large-body bypass turbines we all use on our long-haul jets," Mr. Peabody added.

Mr. Swift asked, "Can we assume that such reductions only work in the larger engines?"

"That's correct. Once they drop the size down small enough to be used on the other eighty percent of our planes, up goes the noise level!"

"I'm sure you have all tried the trick of keeping your aircraft as clean as possible to reduce friction?" Tom inquired.

"We do try, Tom," Mr. Peabody answered, "but we can ill afford to take each aircraft offline every day or two for the several hours it takes to do a complete clean and polish job."

Tom was beginning to see their problems. In the case of Swift jets like their cargo planes and the *Sky Queen* and *Super Queen*, each aircraft was cleaned after each major flight. But, Enterprises aircraft rarely did 30-minute turnarounds like the airlines.

Tom had designed a huge automatic cleaning machine months ago that featured a series of armatures with rotating brushes, water jets and warm air nozzles. It could be programmed for each aircraft type, and would clean even a craft the size of the *Super Queen*—more that 320 feet long and triple decked—in under twenty minutes.

Mr. Swift asked, "I know this only puts a bandage on the 'wound' but have you thought of a spray-on slippery coating to help reduce friction? There are several on the market for private aircraft."

"CanPacific tried two of them, Damon. They work for about a month and the savings in fuel are only just recovered after costs. About that time they seem to lose effectiveness. Plus, the aircraft have to be pulled for two days to allow for application and curing

time. We are really hoping that you two geniuses can pull our fannies out of the fire on this."

All of the other participants agreed. Tom and his father offered to study the matter but could not offer any guarantees regarding success. After hanging up, Damon turned to his son.

"Tom. For the time being I can't take this one on. I know you have your racing jet project but I'm hoping that you can spend a few brain cycles on this."

"The SR-1s are just about perfected, Dad. I'd love to give this a crack. The only thing is, I'm kind of stumped where to begin. Fuel or noise?"

"Why not both at the same time?"

Tom thought for a moment and then agreed. "Sure. Why not?"

He spent more than a week researching everything there was to learn about jet turbines. He also considered that the shape of the aircraft plying the air today had been dictated by engineering stresses and materials available decades earlier. Perhaps, he pondered, part of the economy equation might be overcome with a change in the actual shape of the aircraft.

Day after day, he built Computer Aided Design models of different aircraft in his computer testing stress, durability, lift and drag characteristics. It became clear that the current approach using a long tubular body had its advantages. Namely, equal pressure and stress distribution when planes pressurized and depressurized for each take-off and landing.

He knew how important stress management was to aircraft durability. A British airplane had been designed decades earlier that did not take a number of stress features into account. It had been plagued with a rash of mid-air breakups that had killed hundreds of passengers before the government and the manufacturer had grounded the fleet.

Lessons were learned and future aircraft were built to handle thousands of up and down cycles. Tom now believed that this had led to both safety as well as a lack of aircraft lift and handling capabilities. Fuel was burned every second to overcome these issues.

Tom printed out the different design models so that he could take them with him for study. Over the next few days he made so many notes, changes and computations on the printouts that he finally grabbed a sketchbook and created an entirely new set of drawings.

On Thursday, after lunch, Tom stretched and stood up. "I need a

break, Chow," he told the roly-poly chef who had brought Tom his lunch. Charles "Chow" Winkler had first met the Swifts during an early trip to New Mexico where they were developing their nuclear facility, the Citadel.

He had been so taken by the then sixteen year old boy that he had hauled up stakes and moved to Shopton to become the Swift's private chef at Enterprises, and Tom's ready-for-action cook on many of the expeditions the youth undertook.

"You git out of here, youngin'," he had said. "As they say, go take a hike!"

"Good idea, Chow. I think I'll just do that. See you tomorrow, old-timer!"

And he had departed, driving his sports car into the heart of downtown Shopton. Tom spent a nice afternoon walking around, acknowledging greetings from a number of people who recognized him, and even posed for photos with a group of Italian tourists.

He strolled though the Shopton Township Park, a six square block area that had been a present to the town from his great-grandfather, the man for whom Tom was named.

The original Tom Swift had insisted that the park not be named for the family. He, and succeeding generations of Swifts, took pleasure just from seeing how it had improved the town and how many people enjoyed using the open space.

The change of scenery did Tom some good. Sitting in the park had helped him clear his thoughts. Plus, he had always enjoyed watching young children feeding the ducks in the pond. He strolled over at one point and a small girl shared a piece of bread with him. They played a game trying to get closest to a particular duck. The girl won toss after toss.

Tom knew her secret; ball up the bread first, then throw. He let her win, and it made her giggle.

Looking at his watch and seeing that it was nearly seven p.m., he decided he had better get going. His car was parked a few blocks away so he headed along the main avenue running at the side of the downtown area.

He was within a block of his car when he first heard the sound. He stopped and listened. It came again. A muffled sound, like someone struggling to yell out but with their mouth covered.

His heart beating faster, Tom scanned the surrounding buildings. He sprinted forward and could hear the sound coming from somewhere down a side street. He failed to notice that there was

nobody else on this side street for many blocks.

An open door a couple buildings down caught his attention. As he approached, the noise—which now certainly was coming from within—stopped. He walked cautiously up to the door.

Two men, hardly older than Tom, jumped out of the doorway. One tried to grab Tom's shirt but was rewarded with a quick kick to the solar plexus. As he doubled over his partner yanked one of Tom's arms to the side, spinning the young inventor around. He smacked Tom in the jaw with his fist staggering the youth.

As Tom recovered from the vicious punch the first attacker straightened up and brought both hands down hard on Tom's collar bone. Pain shot through Tom's head and he saw a bright flash, almost blinding him.

He wanted to swing out to protect himself, but another blow to his head finished the job. He slumped to the ground, unconscious.

CHAPTER 3 /
FIRST BRAINSTORM

TOM FOUGHT his way back to consciousness. When he could focus again, he discovered that his attackers were nowhere to be seen. Instead, a Shopton Police cruiser had just pulled up and its two officers jumped out.

"Call for backup and an ambulance, Ben," shouted the driver. His younger partner immediately radioed into headquarters.

"Jeez. It's Tom Swift," the older officer said as he knelt next to Tom and checked his pulse.

Giving a lop-sided smile, Tom said, "Yeah. That's me."

The officer smiled back. "We were just driving past when I saw a couple of thugs pounce on you. Can you tell me what happened? Any idea who they were?"

Tom slowly shook his head, but regretted it. His collarbone sent a fresh jab of pain through his upper body. "No idea, officer. I heard a noise over here. Sounded like someone crying for help, so I ran to this door." He pointed to the now open door.

"Ever see those two?"

"I never got a really good look at them. Just the fact that the first one had red hair and the other one had black. Both about six feet tall with powerful builds." He thought a moment then added, "and the redhead smelled strongly from that men's cologne they advertise on TV all the time during football season. Captain Sailor or something like that. That, and he had very noticeable BO!"

He was unable to add anything more other than to describe the brief fight. The officers took a look inside the open door but their flashlight beams only shown on a pile of old chairs and tables in the middle of what had once been a restaurant.

Tom heard the siren of an ambulance approaching and lay back. He was lifted onto a stretcher and covered up even though he protested that he was okay.

Just as the attendants were placing him in the ambulance another car screeched to a halt. Harlan Ames, head of Enterprises security, jumped out and rushed over to Tom.

"Gee, Tom. What happened? I was listening to the police scanner when I heard your name mentioned. Got here as fast as I could."

Tom related the recent events, then asked the security man to

meet him at Shopton General Hospital. “I’ll need a lift back here to pick up my car,” he finished.

“Nah. I’ll get Phil or one of the boys to come by and drive your car home. I’ll pick you up and do the same. It’s probably best that we don’t alarm your folks or Sandy until we get you home, though.”

The checkup at the hospital showed a microscopic fracture of the collarbone but no other injuries. “A couple aspirin twice a day for a few days and no tackle football for a couple weeks and you’ll be right as rain,” the on duty physician had told Tom before Harlan took him home. As they were leaving the doctor handed Harlan a small plastic vial. “This might be a clue,” he said. Harlan looked at the contents and smiled.

Tom’s mother and father rushed out the door when they heard Harlan’s sedan pull into the driveway. His car had been delivered an hour earlier.

“It’s okay, Momsie. Just a little roughed up. The doctor says that I only need some aspirin,” he winked at Harlan, “and a good dinner.”

Harlan verified that Tom’s was basically uninjured, then he declined Anne Swift’s invitation to stay for the meal. “I’ve got to get a few calls in tonight, but I will take a rain check.”

When Tom walked into Harlan’s office the next day the security man was humming a popular tune. He looked up and invited Tom to take a seat. “Got something for you to look at, skipper.”

Tom glanced down as Harlan slid over a pair of photos, obviously police mug shots, of two people. His jaw dropped.

“Ah. Thought so,” Harlan said. “This one,” he pointed at a sullen looking red haired teenager, “is Frank Harris. This was taken just before he spent his eighteenth birthday behind state prison bars. The other guy is Billy Grandlin. He also spent his eighteenth through twenty-second years of life behind bars. The two of them were in and out of juvenile hall a couple times starting back when they were both fourteen—purse snatching and petty theft—and then got convicted on Harris’ birthday for a strong-arm holdup of a liquor store.

“Not a very nice pair.”

“No. Chief Slater already had an arrest warrant for them on his desk when I called last night. Seems our boys were released from State Prison last week but failed to report to their parole officer. If they get convicted of your assault they’ll both get the three-strikes minimum of twenty-five years. It is just a pity you didn’t get a good look at them. Everything is mostly circumstantial right now.”

“Wait, Harlan. Harris. Harris? I remember a news article about the son of Adolph Harris out at Lexington Propulsion having a brush with the law. His father’s pleas for leniency went unheeded. He even began to perjure himself but then recanted his claim his son had been at home. The kid went off to prison and Mr. Harris paid a hefty fine to the court for lying under oath. The same Harris?”

“The exact same,” Harlan said. “Sad case. Rich parents, fairly famous father and rotten friends. Good thing Bud Barclay isn’t a bad influence on you,” he smiled.

Tom left Harlan’s office feeling better for knowing the identity of his assailants, but sad for the CEO of a respected jet engine and marine turbine manufacturer.

Reaching his private office Tom set about making a list of everything he knew about the typical jet turbine engine. He devised a chart of all major turbine upgrades through the decades and how they affected thrust and noise.

One thing became evident from the start. Jet engines had progressed rapidly in the 1940’s and 1950’s and then stagnated for over two decades when high-bypass fanjets were first built. The first engines had relied more on the generation of hot gases than the thrust of air as it was pushed out of the engines.

The advent of high-bypass engines meant the turbines created an enormous amount of thrust while the hot exhaust accounted for less and less thrust. It was used to spin the turbines.

But as thrust increased and fuel use decreased, the noise levels remained relatively the same. There were quieter versions of these fanjet engines, but they were most effective when used with the super carriers rather than the short and medium haul planes.

He was deep in thought when he received a call from his sister, Sandy. “Hey, Tomonomo. I’ve got a favor to ask you.”

“Shoot, sis,” he replied.

“I don’t think you know her, but I’ve got a friend named Daisy who just got a new jet ski. She has had it out on Lake Carlopa a couple times, but it has a small engine and doesn’t go nearly as fast as she wants. Can you do something to add a little zip to it?”

“I’m not sure, Sandy. You see, those little engines only put out so much horsepower and a lot of that goes to turning a little internal propeller way up inside of a water chute. Half of the power is wasted in sucking the water into the chute and the rest goes to pushing it back out the rear end.”

“Tom,” Sandy said sternly. “I do happen to know how those things work. Now, it’s your job to make it work better. Okay?”

“Well, without tearing the thing apart and giving it a larger water inlet, and then a larger propeller, and then probably the need to replace the engine with a more powerful one…”

“Uncle! I give,” Sandy sighed. “So there’s nothing you can do?”

Tom asked whether the girl could trailer the jet ski to Enterprises. Sandy believed so and agreed to ask. Tom told his sister he would take a look to see if there was any way to increase the water output, but made no promises.

“Brother dear… I love you,” Sandy said as she hung up the phone.

Tom chuckled. He returned to his lists and diagrams and tried to determine where there might have been development paths not taken that could be beneficial.

The following afternoon a guard at the main gate called. “Tom? I’ve got a girl named Daisy Brown who is trying to bring one of those water jets in here. She says you’re expecting her. Are you?”

“Oh, gee, Davey. I forgot to let you guys know about her. She’s my sister’s friend. Give the machine a quick check to make sure everything is okay and then have her escorted over to the underground hangar.”

Tom hung up and then left his office to go up to ground level to greet the girl.

Daisy Brown proved to be a strikingly attractive but slightly overweight brunette with her hair in a pair of pigtails. The summer dress she was wearing had obviously been designed to meet with male approval rather than being female-friendly.

“Hello. You are Sandy’s brother. I recognize you,” she gushed. “You’re just about the most famous person I’ve ever met. Sandy said you’d be able to get my little jet ski running at the speed of sound, practically!” All of her words came pouring out so fast that Tom could swear that each one overlapped the previous one.

“Hi,” he said. “You must be Daisy. Pleased to meet you.” He held out his hand. She walked over to him and took it giving it a delicate shake. She got even closer and placed her other hand on Tom’s chest.

“I’m so very please to meet you, Tom,” she purred. “I just know you’ll do absolutely everything necessary to make my little jet ski go like crazy!”

Letting her hand go and stepping back from the girl, Tom said,

“Uh, Sandy may have oversold my abilities, here. I only told her that I would take a look and see if anything could be done short of a total rebuild. I assume that you wouldn’t want to do anything like buying a larger engine?”

“Are they very expensive?” she inquired. When Tom told her the general price range her eyes opened very wide and her mouth formed a perfectly round ‘O.’ “Oh. I couldn’t spend anything near that. I just thought that you might have a few tricks, you know?”

Tom unhooked the little trailer on which the watercraft rested and pulled it over to the service elevator. Leaving it there, he offered to accompany Daisy back to the main gate. “I’ll give you a call in three or four days. I’d like to get to it sooner, but I have a project I’m trying to get off the ground so it will take a bit longer.”

She waved goodbye as she drove out the gate. Tom smiled to himself, thinking, *Sandy sure doesn’t have very many unattractive friends!*

He took the trailered jet ski down to the main floor of the underground hangar and parked it near his office door. He intended to spend the rest of the day deep in concentration on the fuel and noise problems but soon bogged down. *I need a diversion*, he thought.

Within ten minutes he had the seat, engine cowling and access panels removed from the jet ski. He noted that the engine was a compact two-cylinder four-stoke type. The engine plaque stated that this was a 500 cc model capable of putting out just 30 HP.

“And that,” he said out loud, “is about half what this water skate really needs.” He guessed that it had been a matter of economics that had gone into her buying this low-powered model. “I can get the horse power up with a little tinkering and then I’ll see what else might be done.”

“Becoming a garage mechanic?” Bud asked as he approached a second later.

“No. Sandy has a friend…”

“Let me guess. Daisy? Touchy, feely Daisy?”

“How did you know?” Tom inquired.

“I heard that she bought this little unit so she could pick up guys. I think the idea is that she gets it out in the lake and then sort of ‘breaks down’ if you know what I mean.” They both laughed.

“That might have been her original intent, but she evidently now finds it to be a little slow.” He described what he was planning to do to increase the power and speed of the little craft. First, he told Bud,

he would do a thorough tune-up including increasing the air capacity of the twin fuel injection ports. “I’ve got some larger ones around here somewhere that should fit.”

Next, he planned to either tune or rebuild the impeller responsible for moving the water through the system.

He and Bud spent the following few hours up to their elbows in the little machine. As Tom suspected, the small engine was quite capable of providing more power. After the tune-up and new injectors plus a little rebalancing of the camshaft, Tom measured a respectable 40 HP. A 33% increase *and* the engine was running a little quieter.

Bud had tried tackling the impeller blades. This compact fan-like propeller spun at high speed drawing in and pushing out the water at a tremendous rate. “We have a little problem,” he finally stated. “The inlet tube is only capable of handling as much water as can be pushed out the back. And that gets restricted to increase the water pressure. If we go much higher the tube might split. It’s only a molded plastic waterway.” Tom had Bud pull the entire assembly out and then looked at the water tube. As Bud described, it was a fairly thin-walled plastic tube. The restrictor plate and steering nozzle assembly were made of cast aluminum, as was the impeller blade.

“I’m going to make a DuraStress plastic tube to replace that one,” Tom said and left the hangar for an hour.

When he returned it was with both the old and the new tubes. Bud cleaned the mounting points and applied new high-strength waterproofing while Tom installed the impeller and drive shaft. Finally, they worked together to reassemble the little watercraft.

“Let’s take her over to the water tank for a static test. “ The water tank was where Tom had tested the watertight integrity of his Jetmarine and Diving Seacopters along with the Fat Man suits that had come in handy on so many underwater occasions. Watercraft could be either tethered or hard-mounted for testing. He chose to tether test the jet ski.

“Want to strip down and give her the run through?” he asked Bud.

Bud went into the control room and changed into a lightweight wetsuit then returned as Tom was unhooking the lift harness he had used to lower the jet ski into the tank.

The test went very well. Bud emerged twenty minutes later and proclaimed the jet ski to be, “amazing!”

Tom brought out the analysis report. He read off the numbers as

Bud hoisted the ski back out and onto the trailer. It was pulling at the tether as if it had more than 70 HP and was doing the equivalent of about 45 MPH, “A full fifteen miles per hour faster than the manufacturer’s specifications,” he concluded.

“Daisy ought to love you for that, Tom,” he remarked. “Just don’t let you-know-who hear about it!”

Tom did, indeed, know who Bud meant. Bashalli Prandit was a close friend and steady date of Tom’s. The two had been introduced months earlier and had immediately hit it off.

She had been part of many of Tom’s adventures since that first meeting in her brother’s coffee shop, The Glass Cat. Bashalli was Sandy Swift’s best friend and was thought of as almost a member of the extended Swift family.

Dark haired, dark eyed and with a quick wit, she had moved with her family from Pakistan years earlier. Although Pakistani customs dictated that she should have already been in an arranged marriage, her parents realized that their daughter had become an American at heart, so they gave her a little leeway. She had become very, *very* fond of the young inventor.

Tom called Daisy the following day. She was amazed at the rapid turnaround but promised to come by near closing time to pick it up.

Deep in the back of Tom’s brain was the germ of a concept. Something that had passed briefly as he and Bud were rebuilding the machine. Minutes later he believed he had it.

The impeller works a lot like the primary blades in a jet turbine, he considered. It turns and pushes air out the back and into the combustion chambers and then through the rear blades that keep it spinning. But, he thought, the blades can only spin so fast and only so much pressure can build up before you stand the danger of blowing out the side of the engine casing.

Could it be that easy? Could just making the engine stronger allow for a faster-turning turbine that created higher pressure? Would that mean equal thrust with lower fuel consumption?

Tom knew that he would have to build a test engine to see if his theories held any water.

During the next two weeks he worked closely with Hank Sterling, Art Wiltessa and a group of enthusiastic engineers designing and then hand building a test turbine using the highest strength materials Tom could find. Many parts were made from DuraStress plastic, much stronger millimeter for millimeter than steel. The fan blades were remade using a core of MagneTanium alloy for

lightness and strength and then coated with DuraStress. Several different designs were tried.

Time and again, the new fan blades worked well, but were not significantly better than blades made primarily from titanium, the traditional fan blade medium.

Even the high-strength casing he had constructed added nothing to the rotation speed limits of the blades.

For all their strength, Tom was unable to create a turbine that ran at a significantly higher speed or that would put out more than an increase of about 6-9% additional thrust.

Disheartened, he headed home on Friday ready for a weekend of relaxation.

I won't give up on this, he thought. If I do, I might never be able to complete a project again, and I'm no quitter!

CHAPTER 4 /
PENNSYLVANIA 65,000

TOM THREW himself into work with an increased fervor the next Monday morning.

After an unproductive six hours he finally set the turbine plans aside and pulled over a series of airframe sketches he had made a week earlier.

He glanced through the eleven different aircraft body designs represented in the drawings. Many featured fairly standard fuselage shapes while others sported exotic wings or positioning of the engines. After going through them three times he decided to make a set of three stacks.

In the first he placed those designs he believed to be too conservative. These were mostly derivatives of current aircraft that had already proven to not provide the solutions he searched for.

The second stack held the three designs he felt were too futuristic and would potentially be either the most difficult to construct or the most difficult to convince the flying public to embrace.

"Too bad," he muttered to himself setting aside the page featuring a downscaled version of his Flying Lab in the second pile.

The final stack consisted of the final four designs. These Tom considered to be the more likely candidates. Setting the other two stacks aside he spread out these possibility designs and sat back to look at them.

He was still sitting there when Hank Sterling, Enterprises chief pattern maker, dropped by. "What have you got there, Tom?" he asked.

"Just a small set of dreams," Tom replied sighing.

He knew that Hank understood what Enterprises was being asked to do for the airlines, but Hank inquired, "Aren't you just doing the new turbine for them, skipper? I thought that the main task was to give 'em a quieter, more efficient engine."

Tom explained that his thoughts kept going back to a dual solution.

"My gut keeps telling me that a new turbine addresses only about sixty percent of the issues. There have been so many generations of jet engines designed and built while the basic tube they drag along hasn't really changed. Somewhere there has to be a balance between them that will provide the answer."

“I like that one,” the engineer stated pointing at a flying wing design.

“To tell you the truth, Hank, I like that one too. The problem is, it will have far too much drag. In order to build a wing large enough to transport, say, a hundred and fifty passengers it would need to be about four times larger than the all-wing bomber the Air Force flies. They can’t get theirs to top about 600 MPH and at that they only have a range of 5,000 miles.”

“Isn’t that pretty good?”

“Sure, except a four-fold increase in size would require a five-time increase in propulsion. My calculations show that it would require engines so large that they themselves would provide too great a drag. Or, you need to increase the wing length by greater than eighty percent. It just isn’t possible with today’s engines.”

“What if you overcame the propulsion issues?”

“Then,” Tom said chuckling ruefully, “you’ve got the whole balance problem. The higher the passenger load—numbers as well as weight—the more you need to balance between left and right. Current flying wings carry eighty-five percent of their total weight in or within five feet of the central body area.”

Before he left, Hank pointed to a stubby V-tailed design and told Tom it would be his top choice.

Tom moved the all-wing design to his #2 pile and looked back at the remaining three. His eyes kept going back to the V-tail design.

“Maybe I’m getting the horse before the cart,” he said to himself. “I’m not even sure that I can crack the fuel and noise issues yet. I hope we get some positive results from the turbine over in engineering.”

He went home for a nice dinner with his family followed by a fitful night of sleep.

Arriving at Enterprises, he called his design engineers in for a meeting. “I’m thinking that we need to start testing little things to see if we are heading down dead-ends or making progress. I’d like to have a test bed turbine built.”

“Can you detail how it will help us?” the lone female engineer, Dianne Duquesne, inquired.

“I’m glad you asked. This new turbine will have a clamshell case to allow us to quickly—well… fairly quickly—swap fan blades in and out, change fuel injectors and most other internal components without needing to completely disassemble the thing.”

He spent the following hour going over details of the new turbine

and its unique hinged-case design.

In the end, it was agreed that it should be possible to construct one in about three weeks, basing it on the famous Swift J9 turbine engine that was used on many of the smaller and business jets produced at The Swift Construction Company.

It required only eighteen days for the team to finish their work and to show it to Tom. He checked it over from end to end and finally gave them the thumbs up. “Great work, folks. While you’ve been busy with this, I have created a new set of blades.”

He described how his new set featured greater blade angles to provide higher-pressure into the turbine, but would use only three blade sets in the front and two in the rear to reduce both weight as well as to—hopefully—allow the turbine to spin at higher speeds.

“I’ll get them over after lunch. Can you get them put in before you head home?” he asked.

They agreed that the new turbine would allow them to replace the blade set in under two hours.

The next day Tom arranged to have a special armature installed in the hangar of the *Sky Queen*. Tom’s giant jet, often referred to as the Flying Lab, was the first major invention of Tom’s and had helped him overcome rebel invaders when he was asked to assist a South American country locate deposits of uranium.

As he watched the crew bolting the extendable arm to the floor he noticed Hank Sterling and Bud walking his way.

“Getting into the sky crane business, skipper?” Hank asked with a smile.

“No, Hank,” Bud said with a wink. “Tom’s going to offer sky high bungee jumps.”

“Ha – ha,” said Tom. “What you two jokesters are seeing is a retractable arm that will be outfitted with the test turbine.”

“Why, Tom?” asked Hank.

“I need to see how it operates at various altitudes. This way, we go up to, oh… say ten thousand feet and extend the boom with the turbine out behind the *Queen*. I have a complete set of controls up in the cockpit so I can start the turbine, run it at various power settings and measure thrust, vibration and that sort of thing.”

“And then you go up a way and do it again, right?” Bud wanted to know.

“Yep. All together I want to test the turbine every five thousand feet up to beyond normal operating altitude.”

“Like what?” asked Hank.

“Oh, sixty or even seventy thousand feet. I really feel we need to torture test this. One set of computer simulations says that it will not run very well at lower altitudes, but may be a superior design for higher altitudes.”

The work team finished and gave Tom the OK sign. He and the other two climbed up into the *Sky Queen* and headed back to the hangar compartment.

Here, they examined the installation. Approving of the work done, Tom mounted the test engine and made the final connections to the control system and fuel lines.

They sealed the inner hangar door and proceeded to the cockpit where Tom sent the giant jet skyward.

Hank was stationed at a video display showing two camera views; one from the side wall of the hangar and the other a camera mounted just outside of the hangar door. The first would show the turbine when retracted and the other when it was in use.

“Where are we headed, Tom?”

“Unless you and Hank object I thought we’d head out over the ocean.”

Bud held up one hand. “Yes, master Budworth?” Tom asked.

“I vote we head inland. It gets boring flying around with nothing but water to look at.”

Tom laughed. “You feel that way, Hank?

“Well, skipper. My favorite color is green, not bluish gray. I guess I vote for an inland route.”

Tom called up a navigation chart on the large front panel display. Pointing at a spot southwest of Shopton he inquired, “This area okay for you two?”

They agreed and soon Tom had the *Queen* arcing through the skies heading toward northern Pennsylvania.

The first five tests went well but provided no outstanding results. As predicted by the simulations, the turbine proved to be inadequate in the thicker air.

Tom retracted the arm and headed up to 30,000 feet. Once the turbine was at operating speed Tom noticed that it was putting out a slightly better thrust than any of the lower tests.

This held true for the following three tests, but beginning at 50,000 feet the turbine’s power output dropped dismally.

Disheartened, Tom decided to continue the test at several higher altitudes.

"Doesn't seem to have enough to push us along now," Bud remarked as the reached 65,000 feet.

Tom shook his head and then shrugged. "Guess design number one is a flop, guys."

Before calling off the tests, Tom decided to try a larger diameter set of fuel injectors. He had brought several sizes along but had not yet installed any of them.

When he returned to the cockpit he fired the turbine up one final time.

"Well," Hank remarked. "That's a little better. I can feel it starting to move us forward. Maybe that's the solution."

"No. I wish it were. That injector is pumping about fifteen percent more fuel into the turbine than a typical turbine consumes but is only putting out about eighty percent the thrust."

Tom began to shut down the turbine in preparation for bringing it into the hangar for the final time.

Bud had picked up a pair of binoculars and was scanning the sky when he shouted out, "Tom! Missile trail coming up from below and about twenty degrees to starboard!"

Tom immediately pushed forward the *Sky Queen's* throttles and the jet shot forward. As they streaked westward Hank swiveled the aft camera to look down at the incoming missile.

"Get some close-ups if you can, Hank," Tom yelled over his shoulder.

A few seconds later Hank yelled back, "It's starting to drop back, Tom. The exhaust trail just petered out!"

"Where is she?"

"Below our altitude—barely—maybe 64,800 feet and a full mile behind. Now it's starting to fall back to Earth."

Bud had been scanning all around the aircraft but saw no other missiles.

Hank's screen suddenly went bright white and then dimmed. When it stabilized he turned to Tom and said, "The missile just blew up, Tom."

"Can you get a location where it might have been fired from?"

"Give me a minute." Hank checked his instruments and conferred with Bud.

"It was coming up at about a seventy degree angle from maybe four miles out. Does that help?" Bud asked.

Hank nodded and went back to his calculations. A minute later he stood up grabbing a paper chart from a rack. He stepped up between Tom's and Bud's seats and unrolled the map.

"It most likely came from around here, Skipper," he said pointing at a large green area. "Sproul State Forest," he said.

"Get on the radio and call the FAA. Report that missile. I'm going to set down and see if we can find any debris."

While Hank made radio contact, Tom sent the Flying Lab in a wide spiral dropping down to the potential impact point. Passing over the spot he could tell that there was nothing to be seen of any reasonable size.

As Tom headed back to Enterprises Hank reported that the FAA would contact the state Department of Forestry as well as the Civil Air Patrol in the area and have them search for clues.

Once they were back on the ground, Tom requested that the turbine be removed from the *Sky Queen*. "Just leave the arm installed. I hope I will need it for more tests in a week or so."

The next day Hank and Harlan Ames came to visit Tom in his private lab. "Take a look, Tom," Hank suggested handing Tom a set of photographs.

His jaw dropped in amazement at what he saw. "This is the missile?" he asked incredulously.

Hank and Harlan nodded. Ames added, "That's some interesting design, Tom. What do you think?"

Though slightly blurred, the photos plainly showed a missile of about twenty feet in length sporting a confusing array of angles, bumps and indentations. It looked like something that should never get off the ground.

"I believe," Tom said soberly, "that we are looking at a high-tech stealth missile. All of these angles and shapes seem to be designed to scatter any radar reflection. We never did get a blip on the radar, did we?"

"Nothing," Hank verified.

"I think this is one of those things we need to report to the Pentagon. If there are more of these out there who knows what damage might be done to civilian aircraft!"

Tom agreed and picked up the phone. Within minutes he was speaking with Bernt Ahlgren, an old acquaintance who worked with

various governmental agencies.

"Send me those photos, Tom. Sounds as if this is absolutely something we don't want out there." Tom sent the files directly to Ahlgren's server.

Hank and Harlan departed and Tom sat down at this computer.

He had an idea, and wanted to see if it might pan out. He began typing:

TS to Collections. Are you there?
I've got a little problem to tell
you about.

He thought then added:

...unless you already know about the
flying object.

He waited for several minutes and then tried another message:

I need to have my taxes working
right now. Can you assist?

After waiting ten more minutes he gave up. His mysterious contact who only identified him or herself as 'Taxman' or as 'Collections' seemed to be able to contact Tom via his computer whenever the mystery person wished, but never when Tom tried to initiate contact.

On a number of occasions this 'Taxman' had been able to steer Tom toward solutions and had even managed to intervene a few times saving the young inventor's life.

He looked at this watch. It was after 5:00 p.m. so Tom decided to call it a day. He picked up the phone to let his mother know he would definitely be home for dinner.

When the receiver was picked up at the other end, Tom said, "Hey, Mom. I'm coming home. Can I pick up anything on the way?"

He could hear the sounds of sobbing.

"What's the matter?"

"Your sister went out to run an errand hours ago. But, *she never came back!*"

CHAPTER 5 /
GIRL INTERRUPTED

"TOM! Oh, I'm so worried. Worried sick. I can't locate Sandy anywhere!" Tom's mother's voice was trembling with evident fear. "She left the house three hours ago and promised to be back an hour later."

Tom felt a gnawing fear growing in the pit of his stomach. He had certainly fallen victim to foul play on many occasions as his enemies had waylaid him, kidnapped him and even shot missiles at him, but he had never thought they would stoop so low as to harm his younger sister.

"Okay, Mom. I'll make all the necessary calls. You just need to stand by at home in case she calls. It must be something like she lost track of the time." Inwardly, Tom believed there might be a more sinister reason for her not coming home when she stated she would.

"But she has her cell phone. She would have called," Mrs. Swift sobbed.

"Mom," Tom said sternly. "I need to get off this call and onto the others, and you need to clear the line for when Sandy does call." *If she can call*, he thought.

Tom checked his watch. 3:27 pm. He put his first call in to Bashalli. "Bash? Tom. Is Sandy with you or have you seen her today?"

"No, Tom. To both questions." Her voice trembled as she asked, "What is the matter? Is Sandy okay?"

Tom took a breath and replied, "We don't know, Bash. She left the house earlier and told Mom she would be back in an hour. That was now about three and a half hours ago."

He let the girl know that there wasn't anything she might do at present, "But if she calls you, have her phone home right away. Mom's in a panic right now."

Bashalli promised and asked if she might call for an update later. "I'll call you, Bash. No, wait. I'll try to call you in two hours. If I don't, go ahead and call my cell phone."

Tom next called Enterprises Security and asked to speak with Harlan Ames. Ames' stocky assistant, Phil Radnor, answered. After hearing of the missing girl he told Tom he would immediately contact the local and state police agencies and get them to throw out

a dragnet. “We’ll find her, skipper. This has to be one of those circumstances where we’re all panicking and she’s probably sitting in a movie house with her phone off.”

No news came in the rest of the early evening. Tom frequently checked at Enterprises in hopes that any possible kidnappers had phoned or sent in a ransom note. But, when 7:00 p.m. came and went with no word, Tom headed home.

His father was sitting on the sofa with his arms around his mother. They were slowly rocking back and forth. Mrs. Swift’s face was streaked with makeup, evidence of her tears.

He quietly sat down and filled them in on the little he knew. As he was finishing detailing the lengths the police were going to, the doorbell rang. Tom answered it.

Doc Simpson stood on the porch clutching his medical bag. “Your dad called me, Tom. He thinks I should give your mother something to calm her and help her sleep.” Tom motioned the medico in.

“Oh, dear,” Anne Swift said when she saw the young doctor. Dabbing at her face with a tissue she said, “I must look a fright. Please sit down and I’ll go make some coffee.” She started to rise but her husband placed a hand on her forearm and pressed her back down.

“Anne. You stay right there. I’ll get the coffee going. That is, if Doc Simpson wants a cup,” he said looking at the doctor.

Sensing that the proper thing to do was to decline, the doctor replied, “No. I just had dinner and a cup. Any more and I’ll be up all night. Thanks anyway.”

Damon Swift sat back down and put an arm around his wife’s shoulders.

“Anne,” the doctor ventured. “I know that this is a stressful time right now, but I really believe that you will do yourself more harm than good if you don’t get a good night’s sleep. Besides, everyone out there looking knows to phone here at the first sign.” Reaching into his bag he withdrew a small vial of pills

“No sleeping pills, Greg. Please,” she said.

“Don’t worry. These are just a mild anti-anxiety pill that will just take a little of the worry edge off. Your own body will tell you when it is ready to sleep.”

Tom got up and went to the kitchen to get her a fresh glass of water.

She took the glass and then allowed the doctor to place two tiny pills into her hand. She took the medicine then asked, “Will I really notice a difference?”

“Give those about ten minutes and then take a little walk around the room, just to get the blood flowing. You should notice something in less than fifteen minutes,” he told the distraught woman. He looked at Tom and then his father. “I’d recommend that you both consider doing the same. If you feel anxious, that is,” he added seeing the elder Swift slightly shake his head.

He stayed at the Swift home for another twenty minutes; long enough for Anne Swift to begin to relax as the medication took effect. Presently, she even looked up and gave a slight smile.

“Gosh,” she said. “Those actually helped. Thank you.”

Doc Simpson departed but left the pill vial behind. “No more than one of those every four or five hours and only if you need them,” he cautioned.

As Doc was getting into his car the Swift’s phone rang. Tom jumped up and grabbed the receiver. “Hello?”

“Tom. It’s Bud. I just heard that Sandy’s gone. What happened? Have you heard anything? I’m coming over!” With that, the line went dead.

Five minutes later Bud’s convertible screeched to a halt in the driveway. His door had barely closed when he burst in through the kitchen door.

“I’m here,” he almost shouted.

“Calm down. Bud,” requested Mr. Swift, “and let’s go into the den and sit down. We’ll try to bring you up to date.” He motioned his wife to stay in the living room. Before leaving the room he gave her a quick kiss on the forehead and whispered a few words in her ear. She smiled wanly and nodded.

Bud was pale and looked distraught. Tom brought him a cold soda from the kitchen and then sat next to his friend.

Mr. Swift closed the doors to the den and sat in his favorite chair. He recapped what they knew and also what they didn’t know. Bud tried to sit still but leapt from the sofa and began pacing as Tom’s father finished the story.

“Okay,” he said getting a little worked up. “She’s not here? She hasn’t called? We have no idea what’s going on?” He sat down and sagged into the sofa. “What can I do?” he asked meekly.

Tom knew that his pal was feeling emotional pain. Sandy was Bud's frequent date and the pair had been *close* friends for more than two years.

"The best thing to do right now is to let the authorities do their jobs, Bud." He held up a finger to stop the youth from speaking. "Harlan has the entire security team out right now as does Captain Rock and Chief Slater," he said referring to the head of the local state police office and the Chief of Police for Shopton.

"The phone company is trying to do a GPS location for Sandy's smart phone, but that will only work if she has it on." He didn't want to add his thought of, assuming that she even has it with her.

"But, what can they want, Mr. Swift?"

"Bud, we don't even know if there is a 'they' right now. All we do know is that Sandy hasn't called us, she isn't answering her phone, and she isn't here. That's it."

They sat in silence for a few minutes and then Bud rose and headed for the door. "I've got to do something or I'll go crazy, Tom. Mr. Swift. I know about a dozen places she sometimes goes. I'll drive the most likely routes from here to there and see if I spot anything."

Tom and his father suggested that Bud remain at the Swift residence, but the young athlete's body was so tense that Damon Swift eventually gave in. "Let him run off some steam, Tom," he said as Bud departed with a squeal of tires.

Bud drove straight to The Glass Cat to see if Sandy was visiting Bashalli. Neither girl was there and Bashalli's brother, Moshan, told Bud that she was not scheduled to work until the following day.

Bud's next stop was the Shopton Mall. He first went to the mall security office and asked to speak with the manager. He explained the situation and allowed the man to photocopy a picture of Sandy he kept in his wallet.

The man radioed the three security guards on duty to return to the office to pick up Sandy's photo and he promised that they would scour the mall and all the stores.

Bud thanked him and headed into the mall to do his own search. Half an hour later he climbed back into his car, discouraged, but not out of options.

Place after place he knew Sandy to frequent turned out to be dead ends. It was almost eleven that night when he gave up and returned to Tom's house.

“We haven’t heard anything either, Bud. Sorry,” Tom told the dejected youth. He offered Bud the guest room for the night, but Bud declined.

“Thanks, Tom, but I’m not going to be able to sleep, so I might as well go home and wear out my own carpet, pacing.

By morning there had still been no word. Anne Swift had awakened at about 2:00 a.m. feeling the worry creeping back into her mind, She had gone downstairs and retrieved another pill. At 7:15 she was back out of bed and downstairs ready to fix her men a breakfast.

But Tom and Damon Swift had left the residence more than an hour earlier heading for Enterprises. She finally noticed the note they had left promising to return by 9:00 a.m.

At Enterprises they went to their shared office and placed several calls each.

Tom called the local police and State Police dispatchers while his father contacted Harlan Ames and the local FBI office. Neither were told any good news. In fact, there was an amazing lack of any news regarding Sandra Swift’s disappearance.

“I’m not sure what to tell you, Mr. Swift,” the FBI agent in charge told him. “By this point we generally have heard from any abductors.”

Chief Slater at the Shopton Police had a similar comment to Tom. “And, we’ve completely checked all streets and roads in and around Shopton for any signs of an accident or Sandy’s car. Nothing!”

The two Swifts returned to their home just when promised. Mrs. Swift was sitting at the kitchen table nursing a cold cup of coffee. Damon took it from her hands and poured it into the sink. He refilled the cup with fresh coffee and placed it in front of her.

“Anything?” she asked vacantly. Though she had been able to get some sleep, her eyes were red with exhaustion.

“Nothing yet. But that could be a good sign.”

“A good sign? Good sign,” she asked disbelievingly. “Our daughter is missing and you say it could be a good sign that we haven’t heard from her?”

Damon sat down and took his wife’s hand. “Anne,” he said softly, “what I mean is that no call may mean that she hasn’t been kidnapped. Harlan tells me that kidnappers almost always get in contact with the relatives within ten hours of taking the hostage.”

Anne Swift flinched at the word 'hostage' but looked up into her husband's eyes. "Sorry I snapped."

The three sat in silence for almost a full hour before Tom heard the slight squeal of brakes from a car pulling into the Swift driveway.

Before he could get up to see who it might be, Sandy flung the kitchen door open and stumbled in.

The three immediately jumped up and swept her into their arms. For several minutes they were all weeping and proclaiming their love for one another. Finally, Tom broke out of the group hug and asked Sandy:

"What the heck happened? Were you kidnapped?" Sandy nodded her head. "Who kidnapped you and why did they let you go?"

"What a dumb thing to say, Tomonomo. Why let me go, indeed," she huffed, but then smiled at him. "Don't you think I'm a worthwhile hostage?"

They all went into the living room and Sandy recounted what had happened during the previous twenty hours.

"I got a call from a guy telling me that he was a good friend of one of the boys I go to school with. He said that Nick was in serious trouble and was thinking of running away… or worse. The guy told me that Nick respected me and that I should go see him and talk him out of anything rash."

"Sometimes you are just too nice, Sandy," Mr. Swift opined.

"Anyway, I drove to the address he gave me but it turned out to be a trap. I went up to the door and they grabbed me."

"Are you hurt, dear?" Mrs. Swift asked.

"No, Mom. I said grabbed but they actually sort of just each took an arm and dragged me into the house before I could resist."

"Who?" demanded Tom.

"I don't know, Tom. It was so bright outside and so dark inside that all I could see was that there were two of them and they were both fairly tall like you. Anyway, they put a gun against my head and told me I would die if I didn't just sit down and let them tie me up. So, I did."

"Then what happened, honey?" her father asked.

Sandy thought a moment. "Then, they went into another room and just left me there. A little after dark I heard a back door open

and close and then a car drive away. I was going to wait an hour or so and then try to wiggle my way over to the door to see what was happening, but I guess I fell asleep."

She looked sheepishly at them. "Some Swift I am. Get nabbed and take a nap."

Everyone chucked at this revelation.

"When I woke up it was daybreak. Gosh but my arms and legs and fanny were stiff and sore. I guess I forgot about the ropes because I stretched. They just fell off, like that," she snapped her fingers.

"Had you tried to see how strong they were earlier?" Tom asked.

Sandy was going to stick her tongue out at her brother but instead she answered, "Of course I tried them. They must have sort of come loose while I was asleep. Maybe I wiggled so much they just went limp."

"How did you get away, Sandy?" her mother asked.

"I checked the kitchen after I untied my feet and then looked into several of the other rooms. I guess they both left when the car drove off. So, I picked up my purse and looked for my cell phone… sorry Daddy. I lost that beautiful phone you gave me for Christmas."

"The absolute least of our worries. How did you get home?"

"My keys were gone so I walked most of it. I ran into a friend and she brought me the rest of the way. I was going to stop and call from a phone booth, but the two I walked past were out of order. By the time I found a working one I also discovered that they had taken all the money from my purse."

"Do you still have the address?" her father asked.

"Sure. Right here in my purse," Sandy replied opening her handbag and rummaging through its content. She eventually upended it on the kitchen table.

"It's gone," she wailed. "They must have taken it when they stole my money and keys."

"Calm down and think, honey. Can you remember the address?" her father asked.

Sandy closed her eyes and tried to imagine the address. Slowly she recited, "One… three… seven… five… Bartholomew Way." She opened her eyes and smiled.

Tom called Harlan Ames and the security man and told him of Sandy's return, and the address.

“It’s probably too late to catch the bad guys, but we’ll see if they left behind any clues.” He promised to call all other agencies. “Chief Slater will want a full account. How about I come over with a tape recorder and get Sandy’s story down? That way she should only have to tell it the once more. At least until we catch those creeps and this goes to trial.”

He arrived minutes later and he and Sandy retired to the Swift den so they could have both privacy and quiet. A half hour later they emerged.

“That’s going to help us a lot, Sandy. Even if you didn’t get a good look at them.”

“What will help?” Tom and his father chorused as Ames left.

“Oh. I remembered that one of them smelled from really cheap aftershave and the other one of cherry breath mints. Yuck!”

Tom was thunderstruck. “That aftershave. Was it that Captain Sailor they advertise?”

Sandy thought a moment and then shook her head. “I don’t think I know what that smells like.”

Tom suggested that Sandy take a shower and have some food while he went to the store.

When he returned, he held out a bottle filled with brilliant red liquid. “Admiral’s Choice,” he stated. “I got the name wrong, but give this a whiff.” He unstoppered the bottle and held it under his sister’s nose.

Tears began filling her eyes. Tom, seeing her reaction pulled the bottle away and began apologizing to her. She started to laugh.

“Tomonomo. It’s only that awful stink. And, yes. That’s the stuff one of them was wearing!”

Tom called Harlan and related the news. “It’s the same aftershave one of my attackers was sporting. *Frank Harris!”*

CHAPTER 6 /
INSIDE AND OUTSIDE

OVER THE NEXT three days it became obvious that Sandy's ordeal had affected her more than she wanted to let on.

It was Bashalli who brought the matter to Tom's attention.

They were left alone while Sandy tried on a new dress at a department store. Bashalli leaned over to Tom and said in a low voice, "Have you seen how Sandra is always looking around her? How she pauses before going past a doorway, Tom? I even had difficulty convincing her to come shopping today. And, you know how she loves to shop."

Tom admitted that he hadn't. "We guys just aren't as observant as you are, I guess. Why do you ask?"

"She hasn't said anything, but I sense that she is afraid. But, being a Swift, she thinks that she can't mention her fears. I suggested a party, but she claims that she doesn't feel like it."

"Hmm. I don't know, Bash. She seems fine at home, but I'll keep a watch."

Bashalli leaned over and gave Tom a quick kiss on the cheek just as Bud walked up.

"Look what I found," he exclaimed holding up an oversized shirt filled with purple and gold planets and solar systems arching over a desert scene. "Is this 'Chow' or what?"

Tom and Bashalli laughed and admitted that it was exactly the sort of thing the roly-poly cook would wear.

Sandy came out of the dressing room in time to see Bud holding the shirt up against his body saying, "Gol danged niftiest here shirt I ever clamped my ole Texas eyes on!"

"Wahl, brand my sagebrush underwear," Sandy said laughing, "it's Tex Frisco, San Francisco Cowboy."

The foursome laughed at her impression of Chow's gravely voice.

Bashalli turned to Tom's sister and admired the new dress she was sporting. "Oh, Sandy," she said as the girl twirled around, "it is just perfect on you. I wonder who the lucky boy is that you will wear this for." Both girls looked straight at Bud who slightly reddened.

Bud and Tom both knew that they were delinquent in dating time with the girls. Bud had been staying close to Sandy since her return but knew that he really should take her out to a nice dinner and

maybe a dance.

Tom remarked, “San? I think it’s too nice to wear around this scruff.” Pointing at Bud he continued, “Just look at the shirt he picked out.”

Sandy went back to the dressing cubicle and soon appeared in her original clothes, the new dress draped over her arm. She and Bud went to the cashier to make their purchases, Bud having decided to buy Chow a gift.

Bashalli took Tom’s hand and turned to face him. “You will watch Sandra’s reactions, won’t you?”

“Promise, Bash.” He made a criss-cross on his chest and held his right hand up in a Boy Scout salute.

That evening, Tom discussed Bashali’s concerns with his mother and father. “I’ve noticed how tentative she is outside the house,” his mother said.

“I don’t know how she will react to it, but I think we should try to get Sandy to see a trauma therapist. Somebody who deals with people who undergo ordeals like Sandy’s but suffer no physical effects.”

As he expected, when he brought up the subject that evening at dinner, Sandy outright refused to believe that anything was wrong. “I’m a Swift. I am strong,” she proclaimed.

The next morning Mr. Swift visited Doc Simpson in the infirmary and brought up the subject. “It’s tricky, Damon,” the young medical man explained. “Sandy probably does need some counseling so she can put the incident behind her, but you can’t force her into it. That might backfire.”

“Then, what do we do? She’s what we used to call skitterish right now. I suggested that she take up a *Pigeon Special* for a little flight this morning and she just said that she wasn’t in the mood.”

Simpson raised his eyebrows at that revelation. “That’s definitely not Sandra Swift. Let me make a few calls. We may have to couch this as part of the ongoing Police investigation. Part of their normal procedures. That sort of thing. I’ll let you know.”

Mr. Swift left the doctor’s office and returned to the shared office in the Administration building. “Good morning, Trent,” he said as he passed the secretary in the front office.

“Good morning, Mr. Swift,” Munford Trent replied getting up and following the scientist into the office. “You have the usual bunch of mail. This, that and the other thing that I always take care of,” he said showing his boss the large stack of correspondence in his right

hand, “and these are for you,” he said handing over five envelopes with the other hand.

“Any of these need immediate attention?” Mr. Swift inquired.

“Just the top one. The others could wait until tomorrow if you wish.” With that, Trent departed the office and quietly closed the door behind himself.

Mr. Swift opened the top envelope and read the letter. He sat considering the contents for a moment and then reached for his phone. Calling Tom’s number at his underground lab, the elder Swift considered how he might handle the subject.

“Tom,” he said when his son answered. “I just received a letter from one of the country’s largest aircraft manufacturers. Seems they heard about the project you are deep into and are feeling a bit … left out.”

“Gosh, Dad. It’s not like we’re doing anything behind anyone’s back, it’s just that not everyone was part of the original request party.”

“I know. There’s one part of the letter that surprised me, thought. Let me read that to you:

We have been informed that you intend to go into production with an aircraft that will directly compete with our Series 500 jet aircraft.

“What do you think so far, Tom?”

Amazed, Tom asked, “Where would they get that idea? We’ve never announced any such intentions.”

“I know. But here’s the other part of the letter:

We must rethink our commitment to purchasing Swift Enterprises products and devices if this turns out to be true. Your contracts include sections precluding you from direct competition with us.

He paused, waiting for Tom’s reaction.

“What a bunch of hooey! The type of aircraft I might consider would not compete with theirs.”

“Wouldn’t it?” asked his father. “Think carefully, Tom. I need to have the legal eagles here at Enterprises look over each contract to see where we really stand. Pending their comments I think it might be prudent to make a little trip out there to mend fences. “

“If you think that would help. Sure. But I’d like to know where

they got their information."

His father agreed and said he would report the possible breach of confidentiality to Harlan Ames.

The next afternoon Doc Simpson asked Tom and Damon Swift to meet him at his office. When they arrived he motioned them to chairs opposite his desk.

"I'll get right to the point. We all know that Sandy has been affected by her kidnapping. She had begun to exhibit little changes in personality and in her everyday functionality. I've spoken with several colleagues, most with many years of experience in these matters."

He let his opening statements sink in before continuing, "Here is what everyone says. Sandy needs to have one of two things occur. And soon, if she is to get past her issues."

"Just tell us what we can do, Doc," Tom requested.

"Okay. One—get her into counseling now. Nothing horribly extended, perhaps three or four private sessions might do it, followed by a few weeks of group therapy."

"Or?" Damon asked.

"Or, two—get her away from Shopton for a few days and into a totally new environment. Somewhere she has never experienced so that everything she sees will be new and positive and will occupy her mind. Anybody other than Sandy and I'd say 'take em into space,' " he chuckled. "But, Sandy has been up there more than I have."

"Dad," Tom said turning to his father. "Maybe I should take that trip our west and visit Wright-Lindbergh Aviation. I can sit down with them and discuss the contents of that letter they sent, and then Bud, Sandy, Bash and I can take in the sights around the Seattle area."

Doc Simpson leaned forward and said, "That sounds like an outstanding idea. The seeing the sights part. I'd leave her out of any situations that might result in… let's say strong discussions."

Mr. Swift concurred. They left Doc's office and headed to their shared office. Damon Swift called his wife to tell her of the doctor's suggestions while Tom called Bud to see if he was up for a little trip.

"As long as I can get someone like Art Wiltessa or Slim Davis to make a jet delivery for me, count me already on board, Tom," Bud replied. They discussed a possible departure of that Friday, two days hence. "You have Bashalli coming, don't you?" he asked.

"I'm hoping to get Dad to help me on that. You know how her

parents are hesitant to let her travel unchaperoned. And this is really a pleasure trip, not one of our big adventures, so I had planned on it being just the four of us."

"Good luck on that, skipper. At the very least you ought to invite Chow along. He's the only person I've ever seen bring a smile to Bash's dad's face. They really got along at that barbecue Chow and your mom staged last summer."

In the end, Tom's father made the suggestion that they both approach Bashalli's parents regarding the trip. They were greeted at the Prandit home with smiles and an offer of a drink and snacks.

They allowed their hostess to bring them tall glasses of Rooh Afza, a strong fruit and vegetable beverage mixed with milk. It was a very pleasing flavor and Tom complimented Mrs. Prandit.

After observing pleasantries, Mr. Swift got to the point. "Mr. and Mrs. Prandit. As you know, my son and daughter have become good friends with your daughter, Bashalli."

The Prandits nodded, cautiously.

"I am also certain that you have heard of my daughter's recent kidnapping incident."

Again, they nodded.

"Our doctor has very strongly suggested that she be taken on a vacation trip to a new area and that she be kept as busy as possible for at least three or four days. My son," he indicated Tom, "must go out to Washington State for a business meeting the day after tomorrow."

"And you wish Bashalli to accompany your son on this trip?" Mrs. Prandit asked, eyes looking slightly worried.

"Actually, ma'am," Tom offered, "Bash is Sandy's best friend. Nobody is as close to her as Bash. We would like to have her come with us for Sandy's sake."

The Prandits looked from Tom and over to his father. Damon Swift nodded. "That is correct. While it is true that Tom and Bashalli have become… closer… recently, I would be making this request even if Tom were not going. Sandy has suffered an emotional shock and several doctors have told us that she either needs to undergo therapy or to take such a trip away from the area where she was kidnapped. She must be kept busy and we all feel that Bashalli will help keep her occupied."

They discussed certain matters involved in such a journey including accommodations. Sensing that the Prandits were wavering, Tom added, "And, we will be taking along Chow Winkler

as both our chef as well as chaperon."

At the mention of the Texan, Mr. Prandit's face split into a smile. "Ah, Mister Chow. If he is to chaperon, we give our agreement. It is not that we do not trust your son, it is just," and Mr. Prandit raised his voice a little, "that our beloved daughter is often giddy with her affections. Isn't that correct, daughter," he said turning his head and speaking toward the stairway.

The four in the living room could hear muffled retreating footsteps upstairs. Mr. Prandit smiled and nodded at Tom.

"I promise to try to not do things to make her giddy, sir." They all laughed. Soon, the Swifts departed after inviting Bashalli's parents to come to Enterprises for the send-off.

The next morning Bud walked into Tom's private lab. The inventor sat at his computer looking at a series of equations, rubbing his jaw in thought.

"You'll have the skin off pretty soon," he told Tom.

"I'm just going over the numbers. I'm darned if I can see where the design has gone wrong. I'm sure that it is just a matter of one or two little things that still need to come together."

"If you ever get these things off the drawing board and under the wings of a jet, what are you going to call them?" asked Bud.

"I usually wait until I figure out how something is going to work before letting you have a potshot at it and give it a nickname," Tom answered.

"Is something different this time?"

"Well," Tom sighed, "I'm still not sure how the turbine is going to work. All I can think of is that it is supposed to be quiet."

"A nice, quiet turbine, then," Bud said seriously. "You can't use Whisper Jet, can you?"

"No. That was the brand name of a three-engine jet back a few decades ago. Keep tossing them at me. One might stick."

Bud tried several possibilities but Tom declined each one. Finally, Bud was about to give up when he said, "If it's going to be so quiet, why not make it a ShhhhhhTurbine?"

Tom rubbed his chin in thought. "It can't be that easy, Bud. Sorry. Maybe for the Mark II version, okay?"

Bud grinned at his friend. "You tell me, Tom. But I need to know the real name pronto so I can come up with a smart pun name."

Both boys shared a good laugh. Tom knew that no matter what

the official name of most major Swift inventions, his pal could be counted on coming up with a nickname that stuck to it like glue.

While Bud went to check on the *Sky Queen*, the aircraft they would fly out to Seattle the following morning, Tom printed out a rendered drawing of his basic turbine. He placed a piece of tracing paper over the picture and began drawing the inner workings of the turbine.

Each page he discarded had a variation of blade set, blade alignment, pitch and blade size.

Oversized blades, he thought, would be too hard to turn at high speed. Blades that were very small and thin would turn at tremendous speeds but would not pull through the massive amount of air a turbine would need to do to be effective.

Finally, Tom picked up the discarded sheets and went back through them. He pondered the possibility of combining several of the features he had sketched.

One possibility included a slightly enlarged blade set in the front fan with two thinner, more acutely-angled fans directly behind. Tom knew that these smaller blades would compress the air drawn in by the foremost fan and prepare it for the combustion chamber.

But what then? Burn the fuel to send hot, pressurized gases out the rear of the turbine, but first through several small fans that would be turned at high speed by the exhaust. Standard.

Like any high-bypass, fuel efficient design, this turbine took a large portion of the air coming in from the front fans and ran it out the rear of the turbine bypassing the combustion chambers. The simple thrust of the air provided a fair percentage of the overall thrust.

Perhaps, he considered, I could use an entirely different intake for the combustion chamber air. Everything the front blades bring in go out as bypass thrust.

He made a note to investigate this possibility.

Near quitting time, Tom tossed the latest set of pages onto his desk. He leaned back and was deeply in thought when he heard a throat being cleared.

Startled, Tom looked up and saw Bud standing there with a grin on his face. “Wakey, wakey, skipper.”

“Oh. Hey, Bud. Already finished with the *Queen*?”

“She’s fueled, cleaned and ready for passengers. Has been for about five hours. Before I forget, I had the guys load one of the four-

seater micro cars into the hangar. Figured we would use it to drive around. I hope you don't mind."

Tom smiled. "That's perfect. And we can take the SwiftStorm too so I can get to my appointment and back while you still have something to drive."

The SwiftStorm was one of the newer models of Tom's ultrasonic cycloplanes, vehicles that practically floated on air but could fly forward with jet-like speed.

"It's already on board," Bud announced. "Say. What's this? You come up with the solution?"

Tom looked down at the pages on the desk. "No. Just a set of drawings. Nothing seems to be jelling in my thick head.

Bud looked back at the drawings. Several layers shown through the thin drafting paper. He pointed at the top page. "So, what is this? I thought you only put turbine fans inside the engine. It sure looks like you're planning to add one to the back of this new turbine."

Tom looked carefully at the drawings. He saw what Bud had pointed out. A random drawing of a fan had ended up outside the aft end of his main turbine body drawing. It looked for all the world as if a large fan had been mounted to the back of the turbine.

"You just spotted a random alignment, although… mounting blades out there may help with tests. Unfortunately, I don't think you've found our answer."

Bud became sad, more for his friend than himself, but asked, "So if you add the extra large fan to the back, what would it do?"

"If I could get it right, it would act like a big, powerful propeller. We'll still have the original thrust of the high-bypass jet turbine but it will come with the added thrust from the fan."

"Does having blades inside and outside solve any of the problems the airline big-wigs dumped on you?"

"If it allows us to create a turbine that is smaller than today's turbines, then it will be more fuel efficient. They can run it at slightly slower speeds and still have all the thrust of the big jets. Might be worth looking into at that."

They discussed the prospects for another hour before Bud begged off. "Have an appointment tonight before I go jetting off with you guys tomorrow," he stated mysteriously.

Tom said good night and then put his drawings away, locked the office and drove home.

He wasn't at all surprised to see Bud's red convertible sitting in the street in front of his house when he arrived.

"Big, important appointment, Bud?" he inquired.

"Listen, Tom old buddy old pal. Your mom is making her fried chicken and mashed red potatoes tonight. She invited me and I'll be hanged if I'll pass up some of the best food in Shopton, New York, USA! Heck yes, it's an important date!"

Mrs. Swift had also invited Chow and the man arrived just a few minutes after Tom.

"Golly, Mrs. Swift," he complimented her as the food was placed on the dining table. "Yer about the only person I know who makes fried chicken as good as the old chow hound. Heck! I tell a lie. Yours is better!"

They all ate a hearty meal finished off with a hot compote of pears, apples and fresh figs topped with chopped pecans and streusel, supplied by Chow.

Knowing that Chow would be at the dinner, Bud had brought along his gift shirt. When the Texan opened the box a glint of a tear came to his eye. "Why you young galoot. Shucks, Buddy boy. This is one purty shirt. I'll wear it with pride, I surely will!"

Bud and Chow departed around 10:00 that evening promising to be in the hangar at 8:00 a.m. sharp.

Most of the next day's flight went well and quickly. As they approached the western portion of Montana the clouds ahead began to thicken and turn gray. Tom felt a shiver run down his spine.

Bud looked over from his co-pilot seat in time to see Tom shudder. "What's up, Tom?" he asked

"Just a little of the colly-wobbles, Bud. It's clouds like those that I flew into before my jet broke apart a few months back!"

CHAPTER 7 /
YOU CAN'T DO THAT

BUD KNEW that Tom was speaking about the last time he had flown to Washington State. A misfitted bolt in the tail of his one-man jet had broken and the plane crashed to the ground. Tom had been able to parachute to safety but had been lost for more than a day.

He couldn't blame his friend for feeling uneasy.

"Want me to take her, skipper," he offered.

"No. I need to get over this. After all, isn't this the 'get over past experiences' trip?"

They were interrupted by a call on the intercom. Sandy's voice came through. "Hey, boys? We just felt a little bump back here. Do I need to come up and show you how to fly this thing smoothly?"

"Ha, ha, San," Tom replied. "We're going to head into what looks to be a ten or twenty minute thrill ride through a storm ahead. Bud is radioing for permission to jump up above it, but in the meantime, you two and Chow strap yourselves in, please."

In spite of the brief, bumpy ride through the edge of the storm, the *Sky Queen* landed safely at SeaTac airport and parked near the north end of the airport grounds. The foursome and Chow would be staying on board rather than checking into a hotel.

While Tom rolled the SwiftStorm out and prepared for his afternoon meeting, Bud and the girls lowered the microcar from the hangar. Bud drove to the airport manager's office to retrieve the passes they would need to get in and out of the airport grounds.

By the time he returned to the Flying Lab, Tom had already taken off.

Tom's meeting began on a strained note. He was ushered into the President's office where he stood, waiting while Andrew Maxwell sat behind his desk pretended to be engrossed in paperwork. Finally, Tom cleared his throat and said, "Sir? If your schedule can't accommodate our meeting today, I would be happy to return tomorrow."

With a scowl, the head of Wright-Lindbergh dropped his papers and looked at Tom. "You can't imagine how angry I am right now, young man," he said.

Trying to smooth over the rough beginning, Tom replied, "Sir.

Before your anger at Swift Enterprises gets out of hand I need to ask you how you came to the opinion that we are going into competition with you?"

"What do you mean, how do I know?"

"Well. For starters, we have no such plans. We have made no such announcement."

Looking baffled, Mr. Maxwell asked, "You mean to tell me that you're not going to be building a new super airliner?"

"That's almost precisely what I am telling you. In truth, and as you are aware, we have been approached by the airline industry and asked to find a solution to both the fuel economy and turbine noise issues plaguing them. As part of that we are considering building a totally new class of aircraft."

"That's competing with us!"

"No. Not exactly. You have nothing currently in production nor anything you have announced that will be in the same class. Besides, what we really want to do is create a solution that everyone can share in. Besides, we might only build one as a test bed."

They talked about Tom's attempts to create a new turbine engine with less than 60% the decibel output. "Good luck on that," Maxwell snorted. "That's the holy grail for the engine manufacturers. If they can't do it, what makes you think you can?"

"We are trying a new approach. I can't tell you what it is right now, but our initial tests have shown almost a ten percent reduction in noise."

Maxwell slowly came around. Finally he told Tom that he believed that there was no intended or probable conflict on interest.

Before leaving, Tom requested, "Can you tell me who it was that told you we were going to compete with you?"

"Well, tempest in a teacup and all that. Perhaps I shouldn't say. No. No. You deserve to know. I received a brief email from an anonymous person at Lexington Propulsion."

On his way back to the airport to meet up with Bud and the girls, Tom radioed Harlan Ames and informed him of the Lexington connection. "Frank Harris' father's company. I'm not liking this, Tom," Ames stated.

After storing the SwiftStorm away, Tom walked to the main terminal building where he planned to meet his friends. They were waiting for him across from the terminal near the entrance of the

parking structure.

"Couldn't park out here, skipper," Bud exclaimed. "Security and all that."

After a round of hugs the four reclaimed their car with Bud in the driver's seat and headed north toward the city of Seattle.

They spent the remainder of the day at the old site of the 1962 World's Fair. The highlights of the day included a trip to the top of the Space Needle—Seattle's most notable skyline feature—and visits to both the Science Fiction Museum as well as the Rock and Roll Museum.

Although slightly bored with the first both girls were fascinated by the amazing collection of musical memorabilia at the second.

"Can we go to the famous market now?" Sandy asked.

"I thought we'd start there tomorrow morning, if that's okay. We can make it the beginning of a full day."

"So, Thomas, what *do* we do now?" Bash asked.

"I don't know about you three but I'm getting really hungry. Chow said something about wanting to check out a restaurant south of here. In old downtown Tacoma. He says the daughter of an old New Mexican friend is the chef there and promised to visit sometime."

They agreed that this would be a nice thing to do so they headed back to the airport, a 35-minute drive.

The morning after a wonderful dinner at the small local restaurant—they filled a quarter of the seats available—Chow begged off from Tom's invitation to join them in Seattle.

"Nah! Got me a little explorin' ta do. I hears how there's whole other city underneath See-attle. Full o' ghosts and dead pirates and such. I'll take the light rail into town and see ya all back here tonight. Plan on some fresh seafood, cause that's the speciality here abouts."

Tom drove the cook to the terminal and then returned to pick up the others in the SwiftStorm.

They found a parking space on the top floor of a parking garage only a few blocks from their first destination.

Pike Place Market proved to be lots of fun as well as an education. Sandy and Bash squealed with delight at the fish market where skilled fishmongers tossed large fish around between themselves and even to selected members of the audience that always gathered around.

Bud tried his hand and was rewarded with a face full of wet salmon tail and a consolation kiss from Sandy.

The girls were amazed at the flowers available in another part of the market.

“I’ve never seen that flower so large,” Bash said pointing at a huge chrysanthemum.

The rest of the day was spent wandering around the city seeing both the sights as well as soaking up a bit of history. They visited the original site of a national coffee chain as well as that of its prime competition in the Northwest.

“Not as homey as The Glass Cat, huh, Bash?” Bud asked.

“No. Also not as big a menu.”

“And, not as beautiful a staff,” Tom commented earning him a hug.

Sandy, who had begun the trip the day before looking pensive and slightly drawn into herself absolutely blossomed by the time they were ready to head back late that afternoon.

Meanwhile, Chow had taken the train into the heart of the old town area. Before looking up the underground city tour, he took a walk around the two new stadiums, home of the Seattle football and baseball franchises.

The underground city tour both intrigued and slightly puzzled the grizzled Texan. There was, indeed, part of the old Seattle that had simply been built on top of when money and an influx of people had demanded growth. *Why build on top,* he pondered, *instead of tearing down the old stuff and building on the old site?*

As he was leaving the nondescript doorway where the tour ended, he was startled to look across the street and see a tall red-haired young man. The man spotted Chow and immediately turned away.

Chow has seen the pictures of Frank Harris and his accomplice on Tom’s desk, and Tom had told him how both were now wanted men.

“Hey! You thar!” shouted the cook as he started across the street. “You! Harris. Stop, gol dang ya!” Chow started to jog as the man began running away.

After a block, Chow gave up. The redhead had disappeared around a corner and was nowhere to be seen by the time Chow got there. Looking around, Chow spotted a storefront on a corner a block away with a neon ‘POLICE’ sign in the window.

“Guess I oughta tell them they got a real galoot in their

neighborhood." He marched up to the office and walked inside. A bored-looking young officer looked up and inquired how he might be of assistance.

Chow told the man about Frank Harris and his attack on Tom. The officer was skeptical until he heard Tom Swift's name. Before Chow left, three other officers had been called in and given the story and description. They promised to get in touch with Harlan Ames back at Enterprises if they spotted or apprehended Harris.

He took a taxi to the Pike Place Market and enjoyed the 'fish show' before purchasing the ingredients for that evening's dinner.

On the way back to the airport, Chow decided that he would only tell Tom about his encounter and not worry the others .

Dinner that night was a Texas take on bouillabaisse, a hearty French fish stew, served with thick-crusted French bread. Everyone retired early and all slept like proverbial logs.

Chow did join the foursome the following day as they spent time flying south to see Mount St. Helens. Bashalli shuddered as Tom and Bud told the story about how the entire top of the mountain had blown off during an eruption several decades earlier.

They then looped back north flying to within a few hundred feet of Mt. Rainier. Sandy and Bashalli proclaimed it to be a much happier looking mountain.

By the time they had toured the Puget Sound—including spotting a pair of whales at the northern entrance—it was time to return to the airport and to fly back to Shopton.

Sandy took Tom aside while Bashalli supervised Bud and Chow as they stowed the cycloplane. "Tomonomo? Thank you for being about the best big brother a girl could ever want. I know that Mother and Daddy wanted you to get me out of Shopton. And, it worked. I feel almost a hundred and ten percent back to normal…"

"Whatever *that* is," Tom concluded and they collapsed into each others arms laughing.

They refused to let the others know the source of their laughter. "Let's get this road on the show," Bud suggested.

It was almost 11:00 that night when the *Sky Queen* descended to the tarmac at Enterprises. Bud offered to drive Bashalli home and Tom helped a very drowsy Sandy into his car and headed to the Swift residence

The next morning Tom walked into the spacious shared office and politely coughed to get his father's attention.

“Dad. I need to get your opinion on this. I’ve been speaking with Jake Aturian at the Construction Company about what might need to be done in order to fulfill large-scale orders for our new turbine equipped jet. He doesn’t think we have the facilities or the financial wherewithal to do it.”

Pondering the information for a moment, the older inventor replied, “If Jake says we can’t, then that is really about it.”

“But, dad. The whole system relies on being incorporated into the new aircraft design. If we can’t scale up to build the planes, then I can only work on the noise issue, not the cost. Unless you can help with an idea I’ve had.”

“I’m all ears, Tom. If you have a way to continue developing your new quieter turbine system without bankrupting us, I’m open to your suggestions.”

Tom sat down on the edge of his father’s large desk. “Okay. Here goes,” he said. “First, we need a full-size airliner to use for development purposes. He believes that we can scrape enough cash together to custom-build a new design I have on the drawing board.”

His father asked, “What are the basic characteristics of this new jet that make it special… and necessary?”

Tom recounted some of the design specifics including the need stated by many airlines for an aircraft that could carry about 200 passengers on routes of more than 8,000 miles. “What I have in mind is a wide body jet that will feature four of the improved turbines, one under each wing and two attached back near the tail.”

“That’s rather a strange configuration, isn’t it?” Damon Swift inquired.

“There is a sound aerodynamic reason,” Tom responded. “Having just one engine per wing cuts drag by half. Having the other two near the tail means that they enjoy protection from the slipstream of the body. Appropriate number of engines with only sixty-five percent of the drag. That, combined with the wider body will allow us to create a shorter overall length plane. It will have more stable flight characteristics and would allow for a wider landing gear base for feather-smooth landings. I think I’ll call it the Swift SkyLiner.”

After a discussion about other aircraft details, Tom’s father cleared his throat. “So, give me the bottom line. Why do we need an entirely new aircraft for this?”

Tom looked at his father. “Because, if we can’t build actual

aircraft for the airlines, we're going to need to build new turbines for most of the aircraft models. And that means at least four models from each of the three world leaders. My new plane will be able to be reconfigured to match the build specs of most of those."

"So," his father continued, "we would basically build strap-on conversion kits?"

"A bit more refined than that, Dad," Tom replied with a smile. "In fact, I think we should build the turbines for both existing aircraft as well as making them available to the jet manufacturers for units they are building now and in the future."

"You couldn't do that by leasing an existing jet? Or even buying an older model?"

"I've done the numbers with Jake's help. We can build for the same cost as buying an old plane, and have a more stable aircraft in the bargain. Plus," he said, smiling slyly, "if we create what I believe will be a very desirable aircraft, maybe we can license the design to someone and still make a little money from each one built!"

"You've sold me. I'll call Jake tomorrow morning and talk to him. If he agrees, then I say you'll have your test airliner!"

Tom left, elated, and went to his office in the underground hangar to finalize the designs for the new aircraft. Tom spent the remainder of the day deep in a series of problems in trying to finalize his design.

"Dad?"

"Yes, Tom," his father replied when Tom walked into their shared office the next day.

"I feel like my head is stuffed full of so many little details and problems that it just might explode unless I can get totally away from things."

Looking thoughtful, Mr. Swift asked, "Do you mean getting away on a vacation? Back to Seattle?"

"More than that, I think," said Tom. "I believe I need to get so far away from everything that nobody can find me. I need a lot of space. That's why I'm thinking of taking the *Challenger* out into space and just sitting there sorting through everything until I get back on track. What do you think?"

"Well, I know that when I was your age I use to go away on fishing trips by myself for a week or two just to re-center myself. I don't suppose I could just buy you a split cane rod and reel and a can of worms?"

Tom chuckled. “Sorry, dad. I think I need to get even farther away than some stream or lake. These days you can just about count on running into a dozen people at those ‘only I know about it’ fishing spots.”

Mr. Swift suggested that Tom consider taking a crew with him. “Just in case,” he cautioned.

But Tom was adamant about his need for solitary. In the end, his father agreed but made Tom promise to devise a radio system that he could simply press a button every twelve hours so that people knew Tom was okay.

“Thanks, Dad!”

Tom made a few phone calls to arrange for a week-long absence. He then drove downtown to The Glass Cat coffee shop to talk to Bashalli. After he explained his reasons for going away, she sighed and said, “I wish that I could stow away on your *Challenger* spaceship, Thomas. It would be—pardon my pun—heavenly to be able to spend a week with just you. However, I understand. I will remain with my boots planted in the ground hoping that you come home sooner.”

Before departing, Tom gave her a big hug much to the dismay of her older brother. Tom knew that Pakistani customs frowned on public displays of affection, but felt the need to hold onto the pretty girl even stronger.

That evening he flew to Fearing Island along with Bud.

“You sure I can’t hitch a ride, skipper?”

“Sorry, Bud. Solo flight this time, but I do have something for you to do while I am gone.” Tom detailed a design issue that he had not found the time to look into regarding the little SR-1 racing jets. “I thought that I had the stability issues cracked, but Slim Davis took an unintended parachute trip from a thousand feet to ground zero yesterday when the test plane stalled and spun out.”

Bud promised to have everything ironed out before Tom’s return.

Following a short countdown, the *Challenger* lifted off and zoomed skyward. Tom had decided that he would take the strange-looking craft to a position exactly opposite from the moon in Earth orbit. Once there he set the automatic controls to keep the huge ship in its orbit.

For an hour or so he wandered the decks and cabins of the ship touching a bulkhead here and patting an air vent or piece of equipment there. Finally, he had an idea.

Donning his custom-fitted spacesuit, he lugged a large tank of breathing air to the hangar floor and connected it to his suit. He grabbed a large metal crate used to store extra suit helmets. Depressurizing the space, he opened the large garage-like door exposing the hangar to the vastness of space.

He picked up the crate and the tank and took them out onto the wide porch-like area. He sat down on the crate and leaned back against the outer bulkhead of the ship.

Tom let out a satisfied sigh and looked out into the depths of space. *This*, he thought, *is solitude. If this doesn't work, then I'm in trouble!*

Day after day Tom repeated this process returning to the interior of the ship only for food, rest and to press the 'I'm okay' radio beacon button. He found himself becoming so relaxed that he even took naps in what had to be the biggest outdoor bedroom ever.

On the eighth day he decided that it was time to head home. Before leaving orbit he put a maneuvering backpack on and took a flight around the *Challenger*. He stopped a few hundred yards away and snapped a series of high definition photos of the *Challenger* with the Earth in the background.

"Always wanted one of these on the wall of the office," he told himself.

He returned to the ship and stowed his 'front porch' equipment before heading up to the control center.

"*Challenger* to Fearing," he radioed.

"Hello long distance voyager. How was the raft trip down the starry Mississippi," came the reply.

"Bud! What are you doing at Fearing?"

"Well," his friend replied. "I had this premonition that you would probably find that this was as much Tom time as you could enjoy, so I came out here this morning in hopes of being able to fly you back home."

"That's great. Bud. By the way, I've sort of lost track. Is it 9:23 a.m. or p.m.?"

"Anti meridian, Tom."

"I'm coming home. See you in about an hour!"

Tom disengaged the autopilot program that had held the ship in its far orbit and fed in the necessary coordinates to send the ship back to Earth.

When he had landed and climbed down the access ladder, he was surprised to see not only Bud but Sandy, his parents and Bashalli. The latter ran up to him and gave him an enormous hug and a kiss.

He turned red as he saw his mother quietly smiling with her mouth partially hidden behind her fingers. His father winked at him and Sandy gave him the thumb-and-forefinger 'okay' sign.

He and Bash walked over to the group where Tom received another hug from his sister, one from his mother and firm handshakes from both Bud and his father.

When questioned about his activities he merely smiled and replied that he had sat and watched the universe in action.

That evening he was happy to take part in a welcome home celebration. Anne Swift, known for her cooking, and Chow shared the duties of putting on a steak and lobster dinner for Tom, Bud, Sandy, Bashalli and a half dozen other friends. Everyone agreed that Chow's deft hand at the grill with both the steaks and the whole lobsters, flown in from Maine that morning, was a perfect match for Mrs. Swift's roasted root vegetables, corn on the cob, home-made buttermilk biscuits and a dessert of fresh fruits with a tangy sweet drizzle.

While the adults cleaned up from the dinner, Tom and the others danced and talked out on the patio.

Suddenly, the Swift's alarm system began blaring. Sandy immediately stopped the compact disc player while Tom rushed into the house. His father was just checking the alarm panel and had determined that there must be someone at their front door.

The two went to the door. Tom peered out through the peephole.

Standing in the light was a teenage girl. Tom pulled the door open.

"Daisy?"

"Oh, hi, Tom," she said. "I was just in the neighborhood and thought I'd drop by to thank you for working on my jet ski. It really zooms now!" She tried to peer around Tom. "Are you having a party? I'm sorry. I'm so sorry to bother you. Boy, I feel like a real party crasher."

Tom looked into her face and could tell how desperate she was to be asked to join in. Hoping that Sandy and the others would keep her occupied, he asked her if she would like to come in.

"Oh.... no. Really. I shouldn't. Not really. Should I? I mean, I really shouldn't but if you want me to, I guess I could for a little...."

Tom smiled. “Come in, Daisy. I insist.”

She swept past him and headed for the back yard. Tom raised an eyebrow and looked at his father who only smiled and walked back to the kitchen.

The party broke up an hour later with everyone taking home a second helping of the dessert. All agreed that it had been a wonderful evening.

Tom had a fitful night of sleep. He had become accustomed to the near zero gravity conditions aboard the *Challenger* and the return of full Earth weight meant that he felt as if deeply pressed into the bed.

By the time he arrived at Enterprises he was ready to get back to work.

He had had some marvelous thoughts while on his ‘vacation’ in space and was raring to get going with them.

He called a meeting of all of the different employees who were working on the new turbine and airliner. He filled them in on everything he had come up with while away. Many took detailed notes while leaders from each team gave reports and drew diagrams on white boards.

In the end, Tom sat back and was satisfied. He and the team would now resume development. He felt sure that he had ironed out everything.

He was soon to be proved wrong!

CHAPTER 8 /
QUESTIONS AND NO ANSWERS

TOM WORKED through the weekend concentrating on the design and plans for the airliner. At one point out in space he had reconsidered the flying wing aircraft, something that aerospace engineers had been trying to promote for years.

Such a configuration meant a very wide cabin, perhaps as many as twenty seats across and only about ten rows. He had even tinkered with how to overcome some passenger's desire to look out of a window. Large screen flat-panel television screens could be connected to a series of cameras on the outside of the craft, but he was afraid that many people would find the view of empty air and clouds rushing toward them to be too disconcerting.

A second, multi-deck design—basically an adaptation of the *Sky Queen*—had shown some promise but he remembered that the aircraft was really meant to utilize its jet lifters and was not designed to take off and land down a long runway unless absolutely necessary.

"Besides," he told Chow as the cook was serving him lunch that day, "can you imagine how the flying public would react to a plane without real wings?"

Chow had scratched his bald head and replied, "Wahl. I'm not so sure that I would unless o' course I'd already been up flyin' in her. Don't worry, son. If Swift Enterprises builds it the public is sure to wanta fly in it!"

"That's just the problem, Chow," Tom explained to the cook. "Swift Enterprises can't build them. At least, not more than one test plane." He explained to Chow about both the cost and legal reasons.

Chow left but not before patting the young inventor on the shoulder. "I got nothin' but faith in ya," he told Tom.

Tom went back to the desk with the designs. In the end he had decided that the design Hank had liked was the best one for his purposes.

What he wanted was an aircraft that could slip through the air better than traditional jets while providing extra lift allowing the overall aircraft to be shorter than most long-haul jets yet offering increased seating capacity.

He closed his eyes trying to recall a fleeting aspect of the design that had come to him while he floated around up in orbit. He

sketched out the shape on a pad of paper, looked it over and grinned. Now it all came back to him.

He spent the rest of the week using a Computer Aided Design program on his computer. He created the basic shapes for the fuselage, wings and tail assembly and then let the program compute the proper skeletal structure necessary to support the outer skin design.

As layer after layer of structure was realized, structural information was automatically fed into another computer which provided weight and stress information.

The more Tom saw, the happier he became. By using a combination of lightweight materials like DuraStress and carbon fiber, the plane would be built in a series of ultra-strong layers. Sandwiched together, structural members like the wing spars would be about two-thirds the thickness of traditional aluminum and titanium pieces, but would weight only half as much and provide better than 25% greater overall strength.

By the time he left for the evening on Friday, the jet liner was beginning to look like he wanted it to. It would be more than twice as wide as current short and medium range jet aircraft with three pairs of plush seats across in the first class cabin and a three four three configuration of seats across each row in the main cabin. He imagined four rows up front and twenty rows in the back for a total passenger capability of two hundred twenty-four in the same length of jet that would traditionally carry just a hundred twenty-four to a hundred fifty passengers."

"That already lowers the per passenger costs by forty percent even if you don't take weigh savings into consideration. "Hopefully," he told himself as he drove home, "the added lift of the more aerodynamic, lighter fuselage will increase that."

He told his father about the design, over dinner.

"Well, son. Let's hope that pans out. Even if you don't come up with a quieter jet turbine, I'm sure that one or more manufacturers might want to license and build your design."

"I'm going to ask Arv Hanson to build a model we can put into the wind tunnel. I need to know if we actually get the aerodynamics and performance I think we'll see."

Arv arrived at Tom's underground lab Monday morning, shortly after being called on his TeleVoc. "Just happened to be close by, skipper. What's up?"

Tom motioned the man over to his computer. As Tom moved the

fully-rendered aircraft around on his screen, Arv let out an appreciative whistle.

"She's a real beaut, Tom. How big is she in real life?" he inquired.

"The overall length and width should be able to be scaled up and down, but the one I want to build for all our testing and demo purposes will be about 150 feet long, a wingspan of 128 feet and a cabin width of just over 21 feet."

He described the greater number of seats per row to Arv.

"Those engines look like they're hung a bit close to the fuselage," Arv commented. "At least, closer than most wing-mounts I've seen. I kind of like that split tail, skipper." Then he noticed another feature and pointed at the screen. "Four engines?"

"Yep," Tom replied. "Two on the wings and two at the aft end." He explained how the combination of engines would allow two things: on take-off and landing all four engines would be used. Once at altitude and cruise speed, only the rear engines would be running at full speed.

"We'll only run the wing engines at about thirty percent power. Enough to keep them warm and giving a little thrust, but dropping total fuel consumption by almost thirty-five percent."

Arv promised to have a one-tenth scale model created out of vacuum-formed DuraStress plastic, complete with controllable surfaces, by the following Monday. "Sorry about the lengthy build, skipper," he said, "but I need to order some special servos for this."

Tom opened access for all of his design files to Arv's computer and thanked his chief model maker. "You always come through in record time, Arv. I can give you a few extra days on this."

Tom and Bud headed over for lunch in the Enterprises canteen a couple hours later.

"Jetz, Tom. I'm so happy you got the design to come through. Never had a doubt," Bud complimented his friend.

"It's a huge load off my mind," Tom replied. "At least, for now. I guess I can relax until after the weekend and then get the gastric juices stirred up come Monday when we test it out."

First thing Monday morning Arv called Tom to announce the completion of the model. "I'm having it moved to the wind tunnel building right now. We should have her hooked up and ready to test in about an hour."

A few minutes before the appointed time, Tom arrived at the test facility. The wind tunnel was a 100 foot long circular tube with an

internal diameter of about 20 feet and powered by a pair of counter-rotating fan blades capable of air speeds of over 800 MPH. In the center of the tunnel sat the model of Tom's new jet aircraft mounted to the control pedestal.

A pair of technicians were just closing access panels in the pedestal and preparing to seal up the tunnel.

"Ready, Mr. Swift," the younger tech announced as she locked the high-pressure door.

"Let's get this going," Tom said.

After final safety checks the high-speed electric motors that powered the fans started up.

"Bring the speed up to a hundred knots, please," Tom requested. He wanted to check the overall stability of the jet at runway speed. As he hoped, the new design showed an amazing level of stability and lift.

"Can we add a little turbulence now?" he asked.

A tech punched in a request on the master controls. "I'm giving it the equivalent of a variable five to fifteen knot side wind at a two to twenty degree angle."

Again, the craft proved to be stable, so Tom called for the pre-set program that would simulate a full take-off and flight to altitude simulation. "Top flight speed of 400 knots for now,"

He watched the model through he large view window in the side of the wind tunnel. Everything seemed to be going well. He glanced at a set of dials showing different dynamic stresses being placed on the fuselage and the wings.

As the air speed reached 360 knots a shudder began running through the model. With alarm, Tom saw that the aft engine mounts were undergoing tremendous stress.

"Back the speed off to three hundred," he requested. As the air flow dropped below 340 the shuddering ceased.

"Looks like we have a problem. Bring up the smoke, please and let's try this again."

On command from the tech a "T" shaped assembly rose from the floor about 20 feet in front of the model. Soon, wisps of smoke came trailing out of a dozen small nozzles.

The air flow, now highlighted by the smoke, ran backward across the model. Immediately, Tom spotted the problem.

"Let's shut her down, Dianne," he told the technician. "I goofed up."

“What happened, Tom?” Arv asked.

Sheepishly, Tom admitted, “You spotted the problem in my lab before, Arv.” Seeing a questioning look cross the man’s face, Tom added, “It’s the wing engines. You said they looked a bit too close in, and it seems you’re right. There is so much turbulence flowing off them that the air is hitting the aft turbines like a brick wall.”

“Too much drag, Tom?” he asked.

“And, then some. My guess is that in the real world getting up to six hundred or greater would pull the aft engines right off!”

Tom thanked the tech and asked that they dismount the model and get it back to Arv’s workshop.

“Can you remove the wing mounts and reposition them about twenty percent farther out?”

“Sure. It’ll take a day or so. I’ll need to cut them off, put them back on and then glue in patches where they were. Don’t worry, though. The new mounting points and the patches will be as strong as the originals.”

Late the following day Tom returned to the wind tunnel to watch the model being retested. It successfully passed the previous speed with no vibrations. Even though the aircraft would never fly at mach speeds, Tom requested that the test go to the full speed of the tunnel.

“It works!” Tom was jubilant. He shook hands with Arv and the technicians. “This proved the design can take it. How much lift did we get?” he inquired.

“According to computations, if we take away the lift capabilities of the wings, the fuselage alone creates enough lift to support over sixty percent of itself,” Dianne replied. “That extra width and the way you’ve tapered the back end down almost make it a wingless lifting body.”

“Arv,” Tom said looking pleased, “can you make another set of wings, please? I’d like to have you test out a number of other positions for the engines. I want to make sure we have the absolute best location for them possible.”

Arv promised to have the new wing assembly with a set of sliding engine mounts in the tunnel in two days time. “We’ll wring every bit of speed and lift we can, skipper,” he replied.

Tom headed for his shared office. There, he filled his father in on the model and its successful tests.

“Wonderful, son,” Damon Swift replied. “I knew you’d pull this

one through."

"Thanks, Dad, but this is just half the battle. I now know that I can design a more advanced airframe that should require far less thrust to fly, and that should mean less fuel, but it doesn't attack the sound issues."

"True. True," his father replied. "But, don't let that stymie you. People have lived with aircraft noise for decades; they can live with it longer if need be. It's the airlines that can't live for much longer unless you find a way to save fuel. This really meets that expectation head on."

"So, it's like great grandpa Swift said, 'Be happy with your discoveries but never be wholly satisfied with the results.' Something like that?"

"Something like that," the older Swift agreed with a knowing nod. "It doesn't, however, help for existing aircraft."

Tom slowly nodded. He knew he had to find some way to help current jets save fuel.

With the aircraft design now behind him, Tom plunged deeper into the problems of a quieter jet turbine.

He spend several hours each day with the team of propulsion engineers pouring over data and old research materials, then trying design after design of new fans.

In a week's time, the team had designed and rejected more than three dozen different possibilities.

"It keeps coming back to the issues of rotation speed, amount of fuel and explosive combustion necessary to support that speed, and then material durability," he admitted at a Friday afternoon meeting.

"In order to move enough air through, you just need to find that magic formula to give us the spin without as much ka-boom inside, right?" Bud asked after he had picked Tom up from the meeting. They had promised the girls a dinner and movie evening and Bud wanted to make sure Tom didn't forget.

"Sure," Tom replied. "One problem is that without the 'ka-boom' we can't get the rotation speed."

"How about gears?" Bud asked.

"You mean, like we take rotation speed of, say, ten and gear it up to a final speed of twenty?"

"Yeah. My racing bike has gears that more than double my efforts. Could that work in your turbine?"

Tom thought for a minute before answering. “Hmm. There may be some possibility, but I don’t know of anything that could be used to make the gearing that would be hard enough to withstand that kind of torque and pressures.” He got a far away look in his eyes.

Bud, sensing that his pal’s mind was about to leave the room—mentally—nudged Tom in the ribs.

“Make a note of it and play with the thought tomorrow. For tonight, we dine!”

They shared a laugh. Tom agreed to meet Bud at the main gate in an hour. “That will give us each enough time to get showered, shaved and deodorized and to pick up the ladies.”

The evening turned out to be more fun than Tom would have imagined. Sandy and Bashalli both turned out in colorful and shapely summer dresses. Sandy had her hair back in a pony tail as was her normal style while Bash had pulled her hair into a complex but attractive bun.

They dined at Chez Pierre, a swanky French restaurant on the opposite side of Shopton from Enterprises. Within minutes of reaching the restaurant, Tom had completely put thoughts of work behind him.

The four joked and laughed throughout dinner, drawing attention from several nearby tables and earning them a scowl from a matronly woman at the table behind Bud.

For most of the meal they relived their trip to Seattle. This came about when Bash ordered the bouillabaisse and commented that it was not quite as good as the one Chow had made.

“We just don’t get the same seafood out here, Bash,” Tom said. “The stuff we do get from the Pacific comes in frozen. Not quite the same as caught-that-morning out there.”

The movie was a light comedy that the foursome greatly enjoyed. Sandy and Bash walked arm-in-arm behind the boys as they left the theater discussing how cute the leading man was.

“Whispering about other men and giggling behind us is no way to encourage us,” Bud stated, looking back.

“Bud,” Sandy said. “You have enough ego to sustain both you and Tom for a minute while we talk about that dreamy Australian.”

They drove out to Lake Carlopa and had a soda by the beach next to the Yacht Club. A beautiful clear night sky arched overhead, and soon they were sitting in awed silence.

“I think I can now understand why you found such peace when

you were alone in orbit," Bash commented quietly, taking Tom's hand in hers.

Too soon it was time to leave. Bashalli had the opening shift at The Glass Cat and needed to get home.

"Besides," she teased, "the more times you get me home before curfew the better my parents like you!"

Tom drove them all to Bash's home where her parents were both surprised as well as please that she had arrived home before they had gone to bed. Her father kissed her forehead and went upstairs while Bashalli and her mother closed up the downstairs.

"I like your young man, Bashi, dear," her mother admitted. "I wish he was Pakistani, but I am coming around to accepting that fact. And, I can see that you truly like this young man."

Bashalli blushed, but kissed her mother and went up to bed feeling happy that attitudes were changing. And, for the better.

Tom and Sandy dropped Bud off at Enterprises so he could pick up his car, they then headed for home.

The next morning Tom arrived at his office before 8:00 am. Even the ever-present Munford Trent had not yet arrived, he noted.

Entering the shared office Tom spotted the steaming cup of tea on his desk and the note which read:

Thought you might like this. I'm running an errand over to Purchasing. Be back with a Danish by 8:20. Trent

Tom shook his head in amazement. It was exactly what he had been wanting since waking up. How did the man know? Did he have ESP?

The answer arrived along with a cherry Danish pastry and a short stack of letters when the secretary came back fifteen minutes later.

"Your mother called after you left the house," he told Tom. "She said to remind you that your cousin Ed is stopping by for a quick lunch between flights today and that you are to pick him up at the airport at 11:54."

Tom acknowledged the message with a smile.

He was shuffling through the envelopes, most containing requests for him to speak with civic and school groups around the country, when the phone rang.

"Tom Swift," he answered.

"Skipper. Harlan. Listen, I came in to a message on my phone from an agent at the FBI. They have Frank Harris in custody and

want to know if we would like to be there for the interrogation session."

"What time?" Tom inquired.

"They suggested 1:00 p.m. today."

"Oh," Tom muttered. He explained about Ed Longstreet's upcoming and brief visit.

"No problem, Tom, I'll phone them back and suggest, maybe, three?"

Tom agreed. He would be dropping his cousin off at 2:00 and would swing back by to pick up Ames.

Ed Longstreet was the nephew of Tom's mother's, son of her older brother. Ed had enjoyed a wealthy upbringing and had enough family money to sustain himself without the need for a full-time job. Instead, Ed journeyed around the world indulging himself in his favorite pastime, archaeology.

Tom pulled into a parking space across from the Shopton Airport and hopped out. He entered the terminal just in time to spot Ed heading toward the doors from the gate area

"Hey. Ed," Tom called out waiving his arms.

Ed spotted his younger cousin and broke into a smile. He walked over to Tom and embraced him in a bear hug.

"Ah, Tom. Great to see you. How's auntie Anne and your dad and my most beautiful cousin—no offense to you—Sandy?"

They left the terminal as Tom replied to Ed's inquiries.

They arrived at the Swift home twenty minutes later. Anne and Sandy Swift received gentle yet firm hugs and kisses. Tom's father had called to beg off the lunch. "Washington calls, dear, and I must answer. See you for dinner," he had told his wife. "Give Ed my best."

As Mrs. Swift served up a light lunch of spaghetti with Bolognese sauce and a small salad, Tom and Sandy were asking Ed about his latest adventures.

"Well, after you and Rick and everyone rescued me when you were building your aquadisk, I've been traveling around a number of the towns and cities in the far eastern Europe area."

Ed was alluding to his adventures when Tom had teamed up with young detective Rick Brandt and his sidekick, Scotty. A crazed enemy of Tom's had taken Ed captive. His plans had been foiled by Tom and his racing aquadisk.

But, ever the adventurer, Ed had declined suggestions that he

travel to safer locations.

"I traveled along the Black Sea through Bulgaria and Romania before finding an interesting trail of lost Soviet art works in Moldova."

He told them of an old census ledger he found at the library in the capital city of Chisinau. In it had been a piece of torn note paper with a crude map and many overlapping notations.

"The only one I could actually make out was pretty free of details, but it translated into something like, 'CCCP art in below ground holding where Petru lies'."

Wide-eyed, Sandy asked, "What does that mean, Ed?"

"It took me a couple weeks of asking around, It turns out that a former president there had the first name, 'Petru.' The real problem came when I discovered that after the fall of the Soviet Union, many of the graves of communist leaders were either destroyed or had their headstones moved. Petru Licinschi was one of the latter."

"Did you ever find it, Eddy?" Mrs. Swift asked.

"No, auntie Anne," he replied. "What I did eventually find out was that the government really doesn't like having people asking around about their old leaders. I was, let's just say, that I was escorted to their seaport town on the Black Sea and placed aboard a ship heading to Turkey."

He shrugged and smiled. "Guess I'll never know. I am now persona non grata there."

"What's next then?" Tom asked.

"I'm hot on the trail of a giant gem reportedly in Lithuania. It is supposed to be cursed."

He told them that his search meant that he needed to do some research back in the U.S. and was that day heading to a small town in Michigan to interview a woman who evidently once had possession of the 100-plus carat gem.

Lunch over, the four went into the living room where they helped Ed catch up on the comings and goings of different family members.

"One of the things I miss is being able to just pick up my phone and hear family at the other end. Unfortunately, many of the places I travel have no cell phone service. Ah, well," he sighed.

Tom dropped the adventurer off at the airport a few minutes before 2:00 and then headed to pick up his chief of security.

He and Harlan entered FBI headquarters and asked for directions to the interrogation room. They were escorted to a waiting room

where their contact, Peter Buckley, was waiting. He was accompanied by a serious-looking man in a dark business suit.

Tom recognized the man as Adolph Harris, father of his alleged attacker. He nodded curtly at the man and then asked the agent, "When do we begin?"

Harris rose from his chair and glared at the youth. "Begin? BEGIN? You've accused my son of some sort of hooliganism—obviously to get to me for some reason—*and* you are trying to put me out of business, and you have the nerve to ask when 'We' begin?"

Harlan stood up in the middle of the man's tirade. By the end Tom could sense the outrage in his friend's face. Ames put one huge hand out and pushed the aircraft manufacturer backward and into his seat. "You will not shout and bluster at Tom here," he declared. "Your son is a career criminal and that's a fact. You have been caught lying under oath before and that is also a fact. And if you ever raise your voice to this young man I'll knock you down so hard that you won't want to get back up, and that's a promise. Understand?"

Mr. Harris had begun to shrink back into his chair. By the time Harlan was finished he was visibly cowering. He said nothing, just nodding his head in agreement.

"Now that the pleasantries are out of the way," Agent Buckley said, taking a breath, "I'll take the three of you to the observation room. You can watch, but you won't be visible to the suspect." He described the procedure for the interrogation.

Finally, Tom asked, "Will I be allowed to stand in front of him?"

"Why?"

"If I can just look at him from close up I might be able to identify him better."

The agent apologized but said that he would be unable to accede to Tom's request during this initial questioning. Tom was disappointed, but understood.

Entering the room with the suspect, Agent Buckley sat down and began asking questions. The redhead only glared at him not answering anything. Ten minutes later the interview halted and the suspect was led back to his cell by another agent.

Adolph Harris had begun chuckling part way through the interview and even laughed out loud at the end when Buckley gave up. "Smart boy," he commented and might have said more except that Ames stepped closer to him. He immediately closed his mouth.

Entering the observation room, Agent Buckley apologized to Tom

and Harlan. Winking at them he said, “we aren’t allowed to beat it out of them anymore!”

Harris blanched at the comment and was about to sputter his objections when Tom asked if he could go into the interrogation room.

“Now?”

“Yes. I need to check on something, and I think I may be able to do that now that he has left.”

Tom was allowed into the room. Harlan, Buckley and Mr. Harris stood in the doorway. Tom walked over to stand behind the chair Frank Harris had just vacated. After a few seconds he smiled and said he was ready to leave.

“What was that all about?” Ames asked as they left the building.

“I wanted to see if he smelled of the same aftershave my attacker wore.”

“And?”

“Admiral’s Choice. One of my attackers, the red-haired one, and one of Sandy’s kidnappers wore it. *And Frank Harris is reeking of it today!*”

CHAPTER 9 /

FIRST FLIGHT

BUD WAS JUST entering the Barn the next day as Tom finished climbing out of the odd, squat aircraft sitting near the hangar doors.

"Hey, Tom," he called out. "What in the world have you done to the Toad?"

Bud was referring to the twin-engine commuter jet craft the Swift Construction Company had been producing for about a year. Bud had nicknamed it based on its wide, squat body that seemed to hang, almost invisibly, under the swept wings each with a top-mounted jet engine giving the appearance of bulging eyes.

In reality, the SE11 Commuter was becoming one of the better-selling jet aircraft produced by the Swift companies. Featuring seating for two pilots along with six passengers, the canopy was made entirely from TomaQuartz except for the two high-strength DuraStress bands that held the fuselage to the wing structure.

Wide enough to provide for a narrow aisle between the side-by-side seating, passengers and crew had a virtually unobstructed 360-degree view. And, the high-power Swift J9 jet engines provided enough thrust to power the jet at almost 600 MPH and up to a ceiling of 38,000 feet.

Bud was pointing at the upper portion of the jet.

"Oh," said Tom. "That's one of our prototype fan blades. I had the Construction Company pull our original FAA test plane out of storage and fitted one engine with our most recent test blade. I need to see if they hold up under spin stress but I really don't want to risk having it fly apart and tear up the actual engine. That's why it's outside for now. Want to take a taxi around the grounds with me?"

"You know that I can't resist anything with wings," Bud stated. "You going to take her up today?"

"No. We'll do slow and high speed taxi tests and bring the nose up, but I don't plan to break the bonds of gravity just yet. I'm really interested in finding out if our static test bears out once the new turbines and fans are on a real plane."

While Tom filled the main tank with aviation fuel Bud attended to hooking up the small, low-slung tug vehicle that they would use to tow the test craft out onto the warm-up area. Moments later the two boys climbed into the aircraft, an easy job due to the low nature of

the fuselage and the flip up canopy, and performed all of the normal preflight tests and checks.

Tom flipped a pair of switches and waited for the green lights to show that the turbines were ready to start. He stared in consternation as the lights first came on and then slowly faded out. He turned the switches off and then back on. Again, the lights went green for a second and then faded out to nothing.

“What gives, skipper?” Bud asked.

“I’m a real brain box, I am,” replied Tom. “All of the preflight work and all of the testing in the Barn and I never thought to hook her up to recharge the battery.”

He and Bud laughed and then climbed back out. Tom jogged back into the Barn and Bud pulled the jet back inside. Tom hooked up the high-capacity recharger unit and suggested they grab a soda while the 30-minute charge cycle completed.

Back in the aircraft after their ‘break’ Tom flipped the switches on and was relieved to see two steady green lights on the instrument panel. He pressed a button just below the left light and turned to watch over his left shoulder. Though the turbine was mounted on the top of the wing, the fan blades in back hung well below the wing so he could see them begin turning slowly, then increasing in speed until the jet engine caught and fired up sending the blades into a blur.

He repeated this with the right-side turbine. Soon he was able to switch on all of the instruments—many required the electrical output of the engines along with the auxiliary battery power of the aircraft to operate.

“Ready for taxi tests,” Tom radioed the Enterprises control tower.

“Roger, skipper. Be aware that Slim Davis is bringing in a cargo jet from Loonaui. He just radioed in and should be touching down on runway one-four north in about twenty minutes,” the duty controller radioed back.

“Thanks, control. We’ll keep to the taxi lanes and runways on the opposite side of the complex until he’s down.”

Tom ran his index and middle fingers up the sliding throttle scale on the touch-sensitive control screen. Both engines reacted immediately by revving up to more than 9,000 RPM. The squat jet moved forward easily and soon reached the main taxiway on the south side of Enterprises,

He let the craft move down the taxiway taking his hand off of the

side-mounted joystick that provided all of the controls of a traditional yoke plus thumbwheel control of the flaps and the aircraft's pitch.

As he expected, the extra thrust from the external blades made the plane veer off the center of the taxiway. He corrected.

"Those fans sure make a different sort of noise from a propeller or even a jet engine," Bud stated.

"Quieter, I'll admit, but I was hoping for a lower level of noise than we're getting," Tom replied. "I hope they'll be quieter once we put them inside the casing."

Over the next hour they drove the aircraft all around Enterprises grounds, twice bringing up the nose gear and once accidentally lifting the small jet off of the ground by about three feet.

"They give us a lot of speed," Tom said, excited about the overall performance of the new fan blades. "I think all that tinkering with the angles and length of the blade tiplettes is paying off. I calculated that we should be getting up to about eighty five knots at nine thousand revs and we exceeded that by better than five percent."

They taxied back to the Barn and soon had the plane parked and the chocks under the wheels.

"Tell me about those little tip things," Bud requested.

"Well, remember how adding the wing tiplettes to the SR-1 made it more stable? I thought that it might do double duty on the fan blades. Redirecting the air that normally gets flung off the end of the blades and sort of blocks up in the turbine, and also to stabilize the blades at the ends."

"What's next, genius boy?" Bud inquired.

Tom pondered for a moment and then told his friend that he wanted to do some real world noise testing. "I'll hook up an exterior decibel meter next to each fan and then repeat the taxi tests. It'll be tomorrow morning. Care to come along?"

Bud reminded Tom that he had a delivery flight of a *Racing Pigeon* in the Wilmington, North Carolina area and wouldn't be back until that evening. "Have fun," he suggested.

The following day Tom tested the aircraft solo and was disappointed to discover that the noise level had only gone down from its normal 132 decibels to 121 decibels. It was immediately noticeable, but not enough. "I really wanted to get it down to under one hundred," he muttered to himself. He returned to his lab and called up diagram after diagram of all of the fan variations they had

tried. Rather than producing each variation, and there had been more than one hundred, he had opted to let the computer tell him what would be the best overall balance. That was the fan blade he had just tested.

"Looks like I'm going to have to build a few and give them real world tests," he told Chow one afternoon as the cook was clearing away lunch dishes.

"I'm shore that you'll git it right, Tom," he had said softly. "You always do."

"It's nice to have someone believe in you, Chow. Thanks!" Tom had told the older man.

Art Wiltessa responded to Tom's request for a meeting.

"If you had to make a guess, Art, which four or five of these designs would you build to test out. I think there is something that the computer is missing when it does its mathematical estimates of the noise."

Pointing at a basic fan featuring no tiplettes but outfitted with a surrounding ring at the outer edges he said, "Well, this one for starters—looks sort of like a self-contained ducted fan—and I'd also do one without the outer ring for comparison. I also like the one with the progressive twist to the blades. Guess I'd test those against the current set and see what happens. That might point us in a better direction that just guessing."

Tom concurred and asked that a set of each type be produced as soon as possible.

"We can have them cast and balanced by this time day after tomorrow," Art promised and departed.

The three different blade types were given a full taxi test. It became very apparent that the blades with no outer ring produced a fractional wobble that Tom felt was not only a potential hazard but also proved to be noisier than a traditional jet engine by more than 3 decibels.

Testing also showed that the computer had been correct about the blades with the full outer ring. They produced less noise, only 118 decibels, but the overall power output was under 80% of the original test blades.

Bud had accompanied Tom on the final test of the day, arriving wearing his latest electronic gadget toy. "These headphones are great, Tom. They sample the outside noise and then add an out-of-phase version to what you hear inside the cups. Takes away all of

the external stuff. Too bad you can't do that with these turbines," he had said.

"Not without pumping a lot of noise out through giant speakers on the wings, I can't," came the reply.

But, that evening Tom pondered whether Bud's wisecrack might not have some merit. He discussed it with his father after dinner.

"Of course the speaker approach is out," his father stated, "but you are right. Perhaps pitch-tuned engines? There might be something there. I'm sure you'll find it."

Tom appreciated the faith his father had in him and his abilities. He was now determined to work twice as hard on the problem.

Following a fitful night's sleep Tom returned to Enterprises for a hardly-rare Saturday workday. There was another matter he wanted to see to. He wanted the speed at which the turbines spun to greatly increase. Perhaps as high as 25,000 RPM. The amount of torque caused by those speeds tended to want to spin the aircraft on its axis. Even more than a propeller aircraft with a single engine on the nose.

On the occasion when the aircraft had briefly broken ground, he had felt the slight twisting of the torque that wanted to drive the port wing tip down and into the ground. Bud's comment kept coming up in his mind and he tried to chase it away by running complex math equations through the computer.

He suddenly stopped and stood up. "Right in front of me!"

He sat back down and keyed in a new series of numbers and measurements into the simulation program he had been running.

"I knew it!" he practically shouted.

The solution was so simple. If both of the turbines were rotating clockwise then the normal tendency of the aircraft would be to rotate counter to that. But, if he built one engine and blade set to rotate counter clockwise and the other clockwise, the torque of each would cancel each other out and the aircraft would naturally want to maintain level flight.

That would account for almost a 2% fuel savings over traditional jet aircraft that needed to run their port side engines at a higher spin rate to provide enough additional lift to overcome the torque roll. Plus, the additional thrust made the left side of each jet fly slightly ahead of the right side, effectively making the plane slightly sideways, increasing drag.

Elated at his discovery he phoned Art Wiltessa. Receiving no

answer, Tom was about to walk over to the engineering building when he remembered what day of the week it was.

He did take the short walk over and let himself into the building. He wrote out a detailed explanation of what he needed and left it in the mail slot assigned to his assistant model maker.

Three days later a new set of turbine blades had been installed in one of the test engines and the gearing had been reversed so that it now turned in the opposite direction from the first turbine.

Tom was moderately happy with the results. The opposite rotation did cancel out any torque roll and thus provided some small amount of fuel savings, but there was no difference in the overall noise levels.

"Well," he said to Bud as they finished running the test together, "I guess that is a little something. Plus, I took your idea and added a noise cancellation circuit to the interior of the Toad. It samples the noise and pumps a canceling wavelength out of small speakers in the cabin. It's now cavern-quiet. Did you notice?"

Bud replied, "Oh. *That's* what was different. Anything helps, right? I mean, I'm sorry that your new fan blades aren't completely working, but you've told me that little steps lead to giant strides."

"Sure, but only if you start in the right direction. I may be missing something here, Bud. I keep getting this nagging feeling in the back of my brain that I've sort of started out on the wrong foot. But I can't for the life of me figure out how to get back on track."

Bud consoled his friend and they talked about several of Tom's thoughts. As usual, Bud was being fairly quiet and smiling while Tom did a 'brain dump' to him. Many times in the past this method had born fruits. Today, however, Bud left with Tom still pondering the basic question of how he should restart the designs.

Sandy and Bashalli dropped in on Tom early that afternoon. "We're off on a window shopping excursion, Tom," Bash told him. "Sandra is borrowing one of your duck helicopters and we are off to the big city of Oswego."

When Tom inquired why that particular city, Sandy laughed. "You'd never guess it, Tom, but one of my absolute favorite chain stores has a clearance center there. 'Over two acres of amazing deals... drive in, fly in, even boat in,' " she said trying to emulate the male voice in their television commercials.

"Ah. That's right. They have their own little landing field and they provide a shuttle bus from the docks on Lake Ontario. Have fun!"

After the girls had departed Tom sat in thought. On a hunch he called Harlan Ames. “Harlan? Sandy and Bash are heading toward Oswego in a Whirling Duck to shop. I’m a little worried because of Sandy’s kidnapping. Can you call ahead and ask the local police to keep a quiet eye on them, please?”

Ames agreed to make the call. The Oswego police dispatcher told him that they were a bit stretched for officers but would try to do their best.

Tom returned to the blade design. He felt that two of the designs still held promise, but the propulsion team hadn’t been able to get them spinning at the higher speeds without inducing vibrations. “Maybe I need to heat treat them,” he said to nobody as he was alone in his lab. “Perhaps even super-heat treat them?”

He made a phone call to the Citadel and asked to speak with one of the scientists who dealt with metallurgy.

Doctor Timothy Slade answered the page from the switchboard.

“Hello, Tom. What can I do for you today?” the scientist asked.

“Hi, Doctor. I’ve got a little problem that you and your current field of study might help me tackle.”

Tom told the man about his desire to super-heat strengthen a set of tungsten-titanium blades. He mentioned the rotation speed and the amount of torque and other stresses he had computed.

“Let me see,” Dr. Slade replied. He muttered a few things to himself. Tom knew that the man liked to think out loud so he did not interrupt.

Finally, Dr. Slade cleared his throat and said, “We may be able to do it. As you know, your father helped us design a new high-temperature chamber that sits right against one of the smaller reactors out here. It absorbs heat up to about two thousand, nine hundred degrees. I think that we might set up your blades in there and give it a try.”

Tom suggested that he come to the New Mexico complex the following Tuesday, and the scientist agreed to have everything prepared.

Tom and Bud flew a Swift cargo jet out to the western state. They brought with them three different sets of blades for treatment.

Dr. Slade greeted them and ushered them to his office.

“I may have some bad news for you, Tom,” he said lowering his eyes. “I did a few more computations and looked up some of our

own tests, and I have the feeling that the heat treatment is only going to give you about fifty percent of the added strength you need."

They discussed the process and Tom soon understood the reasoning.

"We need to have the blades as thin as possible, but your process only is effective on metals greater than triple that thickness. We might as well give it a try. At least I'll have something to test and know why I am discarding it."

The process required a full 24-hours so Tom and Bud left the blades with the doctor and headed into the little town of Tenderly for a little shopping and dinner.

They found a few trinkets to take back to the girls at a small marketplace featuring local artists.

"Bash is going to love these," Tom declared. "She's told me several times that she wants a pair of jade earrings. These will look great on her."

Bud found a colorful lace shawl hand-knit by a local artist who also spun and dyed his own fibers.

At 5:15, they headed back toward the Citadel and the local spot frequented by Citadel employees, Darlita's. Both enjoyed spicy but tasty Mexican-style treats like tamales and a fried tortilla-wrapped sweet bean, braised pork and cabbage dish. "It's not authentic," their waitress admitted, "but we sure do sell a lot of it."

During their meal, the attractive middle-aged owner came by their table and asked them to say hello to Chow. "Tell that old stew wrangler that I still want a rematch."

"First go-around didn't satisfy you?" Tom inquired.

Months ago Darlita had challenged Chow to a cook off. Even though she cheated, Chow triumphed. Since then, she had been demanding a second try.

"I bet that old so-and-so my entire recipe collection against his. I know I can out cook him in any sort o' burrito or tamale he cares to name. He told me he'd be back this way months ago to take me up on it, and he hasn't showed. You tell him Darlita is callin' him a big, fat chicken!" With that, she laughed and went back to the kitchen.

Tom stopped by the reactor control room when they got back and checked on the progress of the metal work.

"Coming along right on schedule, Tom," the man on the control

panel reported. “We will begin the long cooling period in about,” he glanced at the digital clock on his panel, “thirty-two minutes and ten seconds.”

Tom joined Bud in the two-bedroom apartment that the Swifts kept on the grounds. They spent several hours talking about the turbine project and the girls and about Tom’s trip into the solitude of space.

“You know that I could never have stayed up there as long as you did, pal,” Bud told Tom, “but I sure wouldn’t mind giving it a try for a couple days some time.”

The next day they dropped by Dr. Slade’s office to pick up the blades.

“Here they are,” he told them pointing to the three packing cases Tom had originally transported them in.

“We had a real problem with the set that is very thin at the tips. You’ll need to take a good look, but we think that the tips might have twisted a few degrees out of true. I didn’t have the equipment to check for any balance problems.”

Tom assured him that he’d make a thorough check of the different treated blades before deciding whether to use them. “At least we’ll know what thickness—or thinness— to avoid if any of this helps.”

After thanking the doctor, Tom and Bud arranged to have the cases loaded on their jet, and departed.

The flight home was uneventful. They landed at Enterprises about closing time that evening and took the cases to Tom’s underground lab and locked them up.

At breakfast Sandy announced that she and Bashalli had met a most intriguing man while on their trip to Oswego.

“What do you mean by ‘intriguing,’ San?” Tom asked.

“For starters, he had three legs!”

Tom almost spit out the orange juice he had been swallowing.

“Three!”

Sandy giggled. “Two were his and one was for a friend.” She explained that the man had been walking down the street in Oswego carrying a prosthetic leg. His friend turned out to be his twin brother who had sent the high-tech leg in for a tune-up.

“It has a little computer in it, Tomonomo, that senses how fast the person is walking, whether the foot is on a flat or rough or tilted

surface and a whole bunch of other things. Then, it controls the amount of force the knee and ankle require to operate and how stiff the foot needs to be. Everything runs off of a Swift Solar Battery. Pretty neat, huh?"

She went on to explain how the man had offered to take the girls to lunch. They had accepted but Sandy excused herself for a minute to walk over to the plain-clothes police officer she had spotted following them.

"You *could* join us instead of skulking around," she suggested to the man. She looked at her brother for any reaction.

There was none—surprise or guilt.

"At this point, Tom, you might have the decency to blush or look uncomfortable about having us tailed."

"Sorry, sis. Harlan and I thought it would be best since you were heading too far away for us to get to you two if there was any trouble."

Sandy leaned over and touched her forehead to his cheek. "It's okay. I'm kind of flattered actually. Anyway, he did join us and we had lunch at a little café downtown. It turns out that Gary, the three-legged man, is a jet boat racer. So was his brother until he had an accident and the propeller took off his leg just above the knee. He's a champion water skier, now."

"Sounds like an interesting man," Tom admitted.

"The reason I found him so intriguing is that he and his brother have experimented with high-speed turbine designs for their racing boats along with—get this—both internal and external turbine blades!"

"I wonder if anything they have done might be applicable to my project," Tom mumbled, a little sadly.

"Well, I didn't say anything to him, but he told me that if you ever wanted to get into racing boat building to give him a call." She handed Tom the man's business card.

She then told Tom how the discussion had turned to Sandy and Bashalli's reason for shopping in Oswego rather than some place like Manhattan or Boston. When Sandy had told him of their intended visit to the clearance store he had offered to give them his employee discount.

"Turns out he's the store manager, Tom. And he's a really nice man. He has a beautiful and very sexy secretary and his wife doesn't even care."

“Let me guess. The secretary is also his wife?”

Sandy laughed. “I knew you’d figure that one out. He showed us some new products they are just starting to carry and Bashi found the cutest pair of jade earrings you’ll ever see!”

Tom sank into his seat. Jade. Great!

He explained to Sandy about his purchase for Bashalli. “I’m sure that your pair are even nicer than the ones she found,” she tried to reassure her dejected brother

“Anyway, here is the real kicker. As Bashi and I were leaving, I spotted someone I have had dealings with. He was hanging around outside of the store and started to follow us when we left, but he ran off when we turned a corner and went into the local police station.”

“Who was it?” Tom asked

“It was that cherry breath mint creep, *Billy Grandlin*!”

CHAPTER 10 /
UP IN THE AIR, JR. BIRDMAN

"WHAT?" Tom practically exploded out of his chair. Frank Harris' accomplice?"

"Yes," Sandy replied evenly. "We started to make a report to the police and they said they were already on it. Our plain-clothes tail alerted them just before we spotted that… that… miserable—" Sandy was suddenly at a loss for words.

"You okay?" Tom asked worriedly.

"Sure. I just wanted to use some pretty strong swear words, only they wouldn't be at all lady like."

Tom gave his sister a rueful smile. "Sometimes it's permitted, sis."

Sandy let off a stream of invectives, some that even made Tom blush. He really hadn't thought his little sister might know such words.

"Tell me what happened next."

Sandy, whose face had suddenly reddened upon the realization of what she had just said, sat down and took a couple of calming breaths before continuing her story.

"About a dozen police ran out of the station right after the Captain made an announcement. It was all Bashi and I could do to keep from getting run over. Anyway, the Captain stayed behind and took our statement. We hadn't even finished when they all came back in practically dragging that Grandlin guy between them."

"So, they got him?"

"They sure did. And if you thought my little tirade was blue you should have heard the things coming out of his mouth." She stopped and giggled. "Until he saw me. Then he shut up real fast!"

Tom was about to suggest that she call Harlan Ames when she informed him that she had done just that even before they had left Oswego and flown home.

Tom gave her a long hug. Sandy relaxed a bit, the tension easing out of her. "Love you, big bro," she whispered into his ear. "Thanks for caring."

Once at his office, Tom called Chow in to relate the insult and to reiterate Darlita's dare. The old ranch cook blushed mightily and mumbled something that Tom didn't catch.

"I'm sorry, Chow. What was that?"

In a slightly louder voice Chow told Tom, "Miss Darlita is some woman. I git so infuriated around her I don't think I could cook my way outta a paper sack."

Tom laughed and patted the older man on the shoulder. "Chow? My guess is that her wager is just a way to get you to come around more often. I think she's sort of sweet on you, old-timer. And, a bad loser. Besides. Don't you already have a lady friend?"

Chow blushed again and excused himself to attend to a batch of apple pies he had in the oven.

Bud dropped by a few minutes later. Tom told him of the capture of Grandlin. Bud was, at first, angry that Sandy might have been in jeopardy but soon softened. "But, don't worry, skipper. That jerk will get what's coming to him!"

"I really hope so," Tom stated.

"So, professor. How about getting out of this stuffy office and watching a feat of daring do?"

Tom looked at his friend with a puzzled look.

"You to do daring do, Bud-oo?"

"Right. Get up and come with me," Bud directed Tom. He took Tom's hand and pulled him up out of the chair and began dragging him toward the door.

"Should I even ask?" Tom inquired.

"Nah! Just follow like a good little scientist and inventor."

They took the ridewalk down the hall and the stairs down to the ground floor. Exiting the building, Bud led Tom over to the microcar he had waiting.

Tom laughed when he saw the hand-written sign on the windshield:

Reserved for Barclay and Mister Grumpy Pants.

"Have I been grumpy, Bud?" Tom asked.

"Well, you haven't exactly been Chuckles the Clown, Tom. Hop in and buckle up."

Bud drove the little electric car at top speed around the cluster of buildings at the heart of Enterprises and then headed out toward the northern runway area.

As they neared the closest taxiway Tom broke out in a smile.

“Hey. Sandy and Bash. And, what’s that they have under the tarp?”

Bud didn’t say anything. Just patted Tom on the arm and brought the car to a halt in front of the two girls and the mystery object.

Bash came over to the passenger side and opened the door for Tom. She looked at the ‘Reserved’ sign in his lap and said, “I understand the meaning of most of the words on that sign, Thomas,” as he was getting out of the car. She took the sign from him and turned it so that Sandy could read it.

“But, can you please tell me what in the world ‘grumpy pants’ means?”

“It is one of the many strange American sayings that we have that are very vague, Bashalli,” Bud stated with mock seriousness. “In this case it means that your young friend is having a lot less fun than he should.”

Bashalli nodded in understanding. “And so today he will lose his grumpy pants and put on happy pants. Correct?”

They all laughed as Bud agreed.

“Okay. So you have me out here in the sun and a slight breeze and there’s a big something under a tarp over there. Now, can I know what this is about?”

Bud motioned the two girls to move to the object where they soon stood at opposite ends each grabbing a corner of the covering sheet.

“As they say in the magic business,” Bud announced pointing to the girls, “Ta-daaa!”

With that, the girls pulled the tarp off exposing one of the finished versions of the SR-1 racing jets.

“Oh, wow!” Tom exclaimed. “Beautiful, and—” he almost choked when he saw the tail of the sleek little jet.

“Bashi did the paint job, Tomonomo,” Sandy announced.

Tom looked from the plane to Bashalli and back to the plane. On the tail was a detailed portrait of Tom, and along the body was the motto, “The Race Goes to the Swift-est!”

“Gee Bash. Guys. It looks great! How did you ever manage to do all this without me catching wise?”

“You, Thomas Swift,” Bashalli told him, “have been so wrapped up in everything that we could have done this out in the open right under your office window!”

“You asked me to take care of the final details weeks ago, so I have

been busting a hump working with the engineers and Swift Construction Company to make sure that these are as perfect as they can be."

"This is the first one off the line," Sandy announced, patting the vertical stabilizer fondly. "Daddy says it belongs to you. Bud will demonstrate."

"And, now, dear friends. Please watch as young Budworth Newton Barclay climbs into his racing finery and attaches himself to this wonder of flight," Bud said. He went behind the plane and picked up his flying suit and harness from the right wing and began climbing into his gear.

A few minutes later he came back around and insisted on getting hugs from Sandy and Bashalli. Tom shook his hand and Bud marched stiff-armed and stiff-legged back to the jet. He straddled the saddle and attached the harness to the connection point.

In minutes he was racing down the runway and jetting up, almost vertically, into the blue sky. Leveling off moments later he began flying back and forth along the runway putting the racer through its paces.

With sudden horror, Tom watched as the little plane completed a tight turn and then flipped upside down.

"Oh, no," he shouted. "That isn't supposed to happen!"

But seconds later he watched as Bud flipped the jet back upright and waggled the wings.

Tom's TeleVoc beeped and Bud's voice came through. "Sorry if that one startled you, Tom. We've got it set up so that she will only do that when you want it to."

"And my heart has recommenced beating," was all Tom could send back.

Ten minutes later Bud brought the little jet back to a feather-soft landing and taxied back up to the waiting threesome.

He offered to taxi it back to the Barn while Tom took the girls in the microcar. After it had been put away, Sandy announced that the four of them would be going to a party at a friend's house that evening.

"All four of us," she stressed.

Tom grinned and promised he would be ready by 6:00 p.m., then Bud took the girls home while Tom went back to his office.

The remainder of the day was spent pouring through screen after

screen of new research material that Tom had found on the Internet. He accessed dozens of reports on university websites regarding both aerodynamics as well as jet propulsion.

He realized hours later that he knew most of what he was reading already and that there were only a few truly unique experiments that had been made to improve jet propulsion in the past several decades.

Of these, the most unique was a huge jet that had been investigated decades earlier by the U.S. Air Force codenamed the *Steambird*.

What made that aircraft unique was that it was meant to be nuclear-powered.

A reactor would be located in the middle of the fuselage surrounded by minimal shielding and would be used to heat water, or possibly liquid metal, in a closed system where the water would be turned into high-pressure steam that would be piped through the wings and into four or six turbines.

The turbines would turn a series of gears that would drive massive propellers. Then, the steam would be condensed and returned to the main fuselage where it would be recycled back into the reactor and again turned into steam.

“The initial idea,” Tom explained to Bud who had returned to ensure Tom’s availability for the party, “was to have a bomber that could fly for days or even weeks at a time without refueling. Fully stocked with nuclear bombs, no doubt, because of the Cold War.”

“So, why didn’t they build it?” Bud asked.

“Simple,” Tom replied.

“Just the sort of explanation I can handle.”

“The simple fact was that the reactor could not be shielded enough to protect a crew and still allow access to any part of the plane. The best they could manage was a lead-lined cockpit. Otherwise, it would have been too heavy to have all that shielding to get airborne.”

“What about once it landed?”

“That, too. The entire plane would be radioactive. Anyone flying it or working on it would have been exposed to deadly levels of radiation. Of course, none of that takes into consideration what would happen if it ever crashed.”

“So, they just dropped that idea, I guess,” Bud stated.

“Yes and no. In later years a variation was looked at where the reactor would be used to super-heat air causing it to expand and then shoot out the back of the system powering the jet forward. “

“And, that one… “ Bud asked.

“Too heavy for the amount of power it provided. Also, no reasonable amount of room for weapons. There is a theory that someone is working on a variation that will use a small reactor to super-heat and ionize some sort of fuel, but my money is that it won’t be any more successful than the others,” Tom told him.

“What about Enterprises? You have all the Tomasite and Intertite shielding available. You make small nuclear reactors that can practically be carried around by hand. Could you use that type of system with your newer, lighter technology?”

Tom was thoughtful for a full eight minutes. Bud was about to tip-toe out when Tom shook his head and looked at the dark-haired test pilot.

Slowly, he said, “It’s not that far out, Bud. I mean, it’s not the sort of thing that most people would choose to fly in—people are still needlessly frightened by most things nuclear—but the technology could work.”

He seemed to focus on Bud’s face, then continued, “If I could find a way to make a small enclosed turbine around one of our smallest reactor pods—” he trailed off.

Shrugging, Tom dismissed the thought. “Some day, Bud but not today. Let’s go to that party.”

The gathering turned out to be at the home of a City Councilman whose daughter went to Shopton High with Sandy.

There were a total of ten couples along with the girl’s parents and the mother of another girl. Everyone had a fun time dancing and chatting. Dinner was a buffet of burgers, hot dogs, homemade buns, potato salad and a cherry cobbler. By the time dinner was finished, most of the attendees declared themselves too full to dance.

The host’s mother suggested that they bring out the family karaoke machine and have a singing contest.

Everyone was keen on the idea except for Bashalli. “Thomas!” she whispered to him with a hint of desperation in her voice. “I have never sung in front of anyone. Not even my family. What should I do?”

Tom rested an arm over her shoulder and whispered into her ear, “Just do what I do. Smile a lot, try to follow the words on the screen,

and pretend you know what you're doing."

In the end, even Bashalli agreed that the contest had been a fun idea.

Sandy had an especially fun time as she was declared the winner.

The girls all crowded around to congratulate her. Though a little embarrassed by all of the attention, Sandy also secretly reveled in it.

Tom was walking back from getting sodas for the girls when he passed behind a couple of the boys who were conversing in hushed tones. As he passed by the music stopped and he caught a fragment of their conversation

One of them, Thurston Jones, was saying to the other, "…wipe that smug smile off Swift's face!" The two began laughing and Tom continued on.

He took Bud aside and told him of what he had overheard.

"I'll give them something to be smug about," Bud exclaimed and started to head toward the duo. Tom stopped him by grabbing his arm.

"Let it go, flyboy. Thurston has always flapped his jaw and there's no love lost between us. But," he stopped in thought, "maybe you could sort of sidle up near them and see what you can find out."

Bud agreed and began inching toward the opposite side of the room. He carefully positioned himself out of their direct sight but within ear shot. As the music got louder, their conversation increased in volume.

Five minutes later Bud returned to Tom and reported.

"Thurston is planning on shooting a bunch of fireworks up near the end of one of Enterprises runways tomorrow evening. Somehow he learned that your dad is due to take a flight out in the *Super Queen*."

"But, they can just take off vertically," Tom explained. "Are you sure they didn't know you were listening and gave you a red herring?

"No. Here's the bad part," Bud stated. "Jones said he got the info from an Enterprises employee."

Tom really hated it when a trusted employee turned out to be a bad apple. More than once, Tom's life—and the lives of others—had been put in peril by a disgruntled employee or someone who posed as an employee.

"I'm going to step out and call Harlan," Tom explained.

Bashalli saw him heading toward the door and followed him. "Something is up," she stated. It wasn't a question.

Tom told her of the threat he and Bud overheard. She gasped. "You must tell your father," she insisted.

"I'm going to do better," he assured her. The call to Ames was brief and to the point. The security man told Tom to keep the suspect twosome at the party. "We'll be there in less than ten minutes."

Ames arrived and rang the doorbell. The host answered the door and Harlan took him outside to explain the situation.

"I'd really hate to think that one of my daughter's guests wanted to perpetrate a crime, but I'll help you any way I can," the councilman stated.

Harlan made a suggestion and the man went back inside the house. A moment later the door opened and Thurston Jones came out. "Where's my father?" he inquired.

"Unless you tell me what you plan to do with fireworks, your father is going to be at the FBI trying to explain why his kid is planning to try a terrorist attack tomorrow!"

The youth blanched and began backing away. He turned to run across the lawn but was immediately met by Phil Radnor, Ames second in command. "Hope you didn't plan on going anywhere," he told the Jones boy. Reaching into the boy's front pocket he tossed a set of keys over to his boss. "Harl. See what he's got in his trunk."

Thurston Jones protested and then threatened, but Harlan used the keys and opened the trunk of the boy's car. Inside, he found more that three-dozen skyrockets and an electrical launch system.

He called FBI headquarters and the youth was soon picked up and whisked away.

Only a few people inside noticed his departure and nobody inquired as to his whereabouts. The party went on another hour and then broke up. Thurston's date caught a ride home with another couple.

As they drove away, Tom explained everything to his friends. They were horrified that Jones could be so callow that he would endanger people's lives with a stunt like he had planned.

Tom took the weekend off and spent many hours both days walking around Shopton with Bashalli. They talked about his

projects and her school.

Bashalli was nearing the end of a term at the art school and had a project to complete before the following Friday. As she described it, the work must be at least five feet by four feet and be in full color.

Tom suggested that he have his special SR-1 jet delivered to her school. “It certainly meets the specifications,” he told her.

“You know, Tom,” she said after a moment, “I think that is just about the best suggestion I’ve heard all day. I was going to have a difficult time what with my work schedule, so this is sheer genius!”

On Monday, Tom contacted the Transportation department at Enterprises and told them about the Friday delivery. They promised to pick up the jet on Thursday and have it delivered to the appropriate building by 8:00 a.m. the following day.

He spent another two days trying to work with the special hardened turbine blades he had brought back from New Mexico. As Dr. Slade had feared, one set of blades had suffered from the high-heat treatment. Practically every blade had either twisted or bent in some manner.

Even though most were only off by a millimeter or two, the overall set was so unbalanced that it would have torn itself apart had Tom chosen to install and use it.

The other two fans were in good shape. Testing showed that the blade material had almost a 35% increase in strength.

He installed the first set in the test turbine at the propulsion lab. It was the one where each blade featured a tiny tip extension set at a 37-degree angle. At full speed it provided a fair increase in power over conventional blades.

Tom asked that the turbine be run to a speed up to 125% of normal. He measured no wobble or other anomalies in the turbine. After a ten-minute run they shut the turbine down and entered the test chamber. A visual inspection showed that the blades were in wonderful shape.

“Well. Score one for us,” he said to one of the technicians. “When it cools down, please pull that blade set out and install the others. Call me when you’re ready. Okay?” He returned to his office.

Several hours later he received the call informing him that the turbine was ready. He headed back to the lab.

The techs had the test chamber sealed up and were preparing to start the turbine when Tom arrived. “Let’s go,” he said.

The turbine began its slow wind up to the point where fuel and spark would start the combustion process that would power the turbine.

Once it reached normal idle speed, Tom turned away from the large view window to ask the control tech to speed the turbine up, when there was a terrific explosion behind him, and the turbine in *the test chamber blew apart!*

CHAPTER 11 /
A FRIENDLY SPY

TOM REGAINED consciousness a few minutes later. The first thing to register was the blaring siren indicating that there was a problem. His head felt as if it were in a thick fog.

He began to feel a trickle flowing down his forehead.

Reaching a hand up he came away with blood. It didn't look like too much so he decided to ignore it and slowly moved his body around to check for broken bones.

Lying on his back he glanced around. Of the three technicians that had been in the control room, he could see only two. They were both sitting on the floor in the process of self-examination. One had a six-inch knife-shaped shard of the Tomasite window that was supposed to protect them stuck in his upper left arm.

As the man reached for it, Tom yelled out over the siren, "Leave it, Jerry! It will start bleeding if you pull it out."

The tech slowly looked at Tom with no recognition. Tom knew the man was in shock. Jerry again moved his good hand toward the shard.

Ignoring any of his own injuries, Tom pushed himself up and walked quickly to Jerry's side. "It's okay, Jerry," he said taking the man's hand away from the Tomasite. "Let's just get you sat down outside. Don't touch that. Alright?"

The man looked blankly at Tom but nodded. "Sure, skipper, sure," he muttered as Tom lowered him onto a bench just outside the control room door.

Tom returned to the destroyed room. He now could see both of the others. He went to check on them and helped them navigate the debris field in the room. As they left the control room, Doc Simpson and a team of firefighters were arriving.

An automatic shut-off had cut the flow of fuel as the turbine exploded, so there was minimal fire damage or flames. They used the hallway water hose to cool down all of the pieces from the destroyed device.

Tom plopped down on the bench beside Jerry. He refused assistance until the others had been checked. "Just a little scalp scratch," he told the young doctor.

Once the doctor had attended to the other three he turned to

Tom. He opened a gauze compress and told the stubborn young inventor to hold in to his head. Tom did so but winced as he pressed down.

"Wait," Doc told him. "Let me take a closer look." He moved Tom's hair aside and soon found a small piece of the Tomasite window sticking into Tom's head. He tweezed it out, applied an antiseptic cream and then had Tom apply the compress.

"What the 'H' happened here, Tom?" he asked as he was closing up his medical bag.

"Catastrophic failure of our test turbine," was all Tom could tell him. "We'll know more once I get all of the parts collected and try reassembling the thing."

Doc Simpson ordered Tom to the infirmary where he could perform a more thorough exam. "I promise I'll get to the other three first. Okay?" He smiled at his young boss.

"Okay," Tom said.

The examinations showed that only Jerry had sustained a serious injury. His arm required more than simple stitches. Doc ordered an air ambulance to pick him up at Enterprises and transport him to Boston General.

"He needs a lot of micro-surgery on the arm and they've got the best man this side of Denver." He assured Tom that Jerry would recover given the proper care.

Everyone had been fortunate. Although it had fractured and shattered outward, the Tomasite window had contained almost the entire explosion.

Tom and the other two were ordered to go home for the day. Seeing the serious look in the medico's eyes, Tom reluctantly complied.

When he returned the next day he discovered a note from his chief of Security. "Give me a call as soon as you can. Important update!"

"Hi, Harlan," Tom said into the phone when Ames answered. "I got your message. What can I do for you?

"It's more like have I got news for you," came the reply. "Remember that idiot, Thurston Jones and his fireworks prank?

"Sure. Is there any update on what's happening to him?"

"The FBI turned him over to the police and his father bailed him out. He'll still have to face illegal possession charges for those

skyrockets, but the Bureau doesn't believe they could press a terrorist charge."

"Well, there's another person to add to my 'hates Tom' list," Tom chuckled ruefully.

"Here's the good part. Turns out that we had mole in the admin group. A young girl by the name of Missy Sturgess was hired three weeks ago. She leaked the information about your dad's trip to Jones."

"And, Missy was his date at that party. We had her there and never knew."

Ames told Tom that the girl had agreed to immediately quit her job once he had confronted her with his assertions.

"I'm not too sure she knew what an idiot she was dating," Harlan told Tom.

"See that she gets a two-week severance package, will you. I feel bad for making her leave if she really didn't know what Thurston was up to, but we can't take chances," replied Tom.

He left to attend to the collection of the turbine components. "How is it going?" he asked as he entered the control room.

"We've started by collecting anything over about ten square inches, Tom," Dianne told him. "All of those have been moved into an empty room down the hall."

"Has anyone found the cause?" Tom inquired.

Dianne shook her head. "We're now on pieces down to a couple square inches. After that it will be the tiny stuff. I'm supervising right now, but I'll start trying to piece the thing together tonight or tomorrow."

Tom, realizing that too many hands would only be a hindrance, thanked her and returned to his office.

He spent the rest of the day in meetings with the various teams and organizations that had begun building the new airliner. During one such meeting a realization came to him.

"We're constantly dragging around huge rolls and portfolios of paper. All our plans and spec documents and the like get created on the computer but we still use plotters and printers to make hard copies. We can already," he told them, "use digital files anywhere in the company for our newer projects, but many of the older ones have never been turned into computer files."

"What about in meetings, Tom? We always circle around a

drawing and mark it up," remarked one of the team leaders from the Construction Company.

"Virtually every conference room already has a big screen monitor. I'm going to see that they also have one of those clear mark-up boards mounted in front. The ones that feed anything drawn on the surface into a file system. That way, we can all do our marking and doodling and let the system attach that overlay file to the actual plan file."

Everyone was enthusiastic about the coming change.

"I want to hire a temp to help scan all of our older plans and documents, Dad," he told his father that evening as he described his plan. "It's kind of grunt work so I bet I could get someone from the local employment office to come in for a week at a pretty good price."

Mr. Swift gave his agreement to the plan just as Sandy walked into the living room. "What temp job, Daddy?"

He explained Tom's idea. "Oh, that's just about perfect. Tom. You remember Daisy? She just told me how she needs to earn some money for a dress she absolutely has to have. Could you hire her?"

Although Daisy in small doses was okay, Tom wasn't too sure that several days of her would work out, but he gave in as his sister sat next to him and insisted on rubbing his arm until he said, "Okay."

The following Monday, Daisy reported for work fifteen minutes late. Tom decided to ignore the tardiness. He took her down to the underground hangar and to his office. In one corner sat a large flatbed scanner and a computer terminal. He showed her what to do and then left her to the task.

Tom asked Bud to check up on her just before lunch. He reported back. "She seems to have grasped it, Tom. Might even be done by Thursday. I showed her to the employee dining room. She's going to do fine. Now, may I please be excused from having to be around her for the rest of the week? She'll gab your ears off!"

They had a little laugh and Tom agreed that Bud could be spared.

That afternoon, Bashalli came by to visit Tom.

"Sandra told me that you had a new assistant. A female assistant, and that I should come see what I thought," she stated looking around Tom's office.

Tom explained about Daisy and Bashalli began laughing. "I know all about her. My suggestion is to not allow yourself to be caught in a room alone with her. She has a reputation for being very forward."

Tom was glad that Bashalli wasn't a jealous type.

"Actually, the real reason for my visit is that I overheard a man speaking on his cell phone this morning in The Glass Cat. About you."

"What sort of man?" Tom inquired.

"I do not believe that he is a nice man. And, he was speaking in hushed tones, looking around all of the time. I was able to catch a small portion of his conversation. He was telling someone that he was 'near to getting that Swift kid' and that nothing would be able to stop them once he had you!"

She shuddered and Tom gave her a comforting hug.

He asked if she would repeat her story to Harlan Ames and she agreed to do that immediately. She related as much as she could remember and was able to provide him with a sketch of the man's face. "Sometimes it is good to be an art student," she told him.

Once she had departed, Harlan told Tom, "I'm liking this less and less, skipper. I just hope that this guy and whoever he was talking to don't realize that Bashalli is close to you. She could be in danger."

Tom asked his security chief to assign someone to watch out for the girl.

Harlan agreed. After he left, Tom returned to a new sound damping scheme he wanted to investigate for his turbine. *Perhaps*, he thought, *if we can't quiet the workings we can trap the noise.*

It proved to be more involved than Tom initially thought, so he headed home late in the afternoon.

Daisy ran into a few problems the following day, but she was back on track by Wednesday afternoon. And, by Friday lunch time she was finished.

"I've just had a real blast working with you, Tom," she practically purred as Tom was thanking her for her work. "I wish we could have worked together more, but just being here around all of the fabulous inventions has really inspired me. I think I may become an inventor, too."

Tom wished her well and then drove her first to the Payroll department where she picked up her wages and then to the parking lot next to the main gate where temps and guests parked. With a little wave of her slightly pudgy hand, Daisy drove out of the gate.

"Whew! Survived that one," Tom told himself. He decided to see what progress had been made in the turbine reconstruction.

He walked into the control room and was surprised to see that practically everything had been either fixed or replaced. Only the huge Tomasite window had not yet been installed. The test chamber was in the process of being repainted, but everything looked good as new.

He walked down the hall and into the room being used for reconstruction.

"Hey, skipper. Going to be good as new," Jerry said with a little wave of his heavily bandaged arm.

Tom greeted the man with a big smile. "Gee, Jerry. I sure am glad you're okay."

Looking sheepish, the technician replied, "I wouldn't be if you hadn't kept me from yanking that piece out. The doctor in Boston said that I could have done so much damage that he might not have been able to fix it. I'll be hobbled for a few weeks, but he predicts a one hundred percent recovery!"

"That's great," Tom said. He asked the tech to bring him up to speed on the efforts to find the fault in the turbine. Jerry indicated the two major rebuild projects. The first was the outer casing. It had numerous places where the cowling materials had been ripped apart and bent outward.

Tom noted that almost all of this damage had been in the rear half of the turbine.

"That's right, Tom," Dianne Duquesne stated. "Come take a look at the insides."

Tom let out a dismayed whistle at the sight of the twisted and scorched fan blades. But, what most caught his eye were the three combustion chambers that had ruptured and were nothing more than twisted wrecks.

"Three out of seven. That's not good. Do we know which one failed first?"

Dianne nodded her head and told him, "It was number five in the overall setup. This one," she said pointing at the most heavily damaged piece. "But, there is good news."

"If you can find good news in all that I'll buy you and your husband the best steak dinner in town," Tom said.

"Then, I'll take mine medium-rare and in the 16-ounce New York Strip family, please." She smiled at Tom. "The good news is that this whole pile of wreckage was caused by one faulty spark plug. This one to be precise," she said picking up three small pieces and

showing them to Tom.

“The sparking end, the end of the electrode and the titanium tip, fractured off as we revved the turbine up. It must have shot through the blades doing that damage,” she pointed at the torn and twisted blades in the rear three sets, “and then shot into the wall behind the turbine. That’s where we dug it out.”

“Is everything else just collateral damage?” Tom inquired.

“Pretty much. One chamber blew apart and took the chambers on either side with it.”

Tom discussed the situation with Dianne and Jerry for a few minutes and then came to a conclusion. “Looks like we start from scratch, then. The only difference is that we only need to get one set of blades out to the Citadel for hardening. I’ll get the machine shop on to building the things and then out to New Mexico. Can you and the team build everything else?”

They agreed to do so. Jerry told Tom it would require about a week and a half.

“How goes the sound dampening investigation, Tom?” Dianne asked.

Tom shook his head. “Not very well. Unless someone can figure out a really thin deadening material, the necessary wrapping would make most turbines at least twice the diameter. And,” he said ruefully, “that would still only reduce about ten percent of the overall noise. It’s a dead end.”

Tom left, sad that one small part had done so much damage but glad that it evidently had nothing to do with his blade design. When he reported the situation to his father, Damon Swift clapped him on the shoulder and gave a little laugh. “Looks like you can let that big breath out, Tom. The one you’ve been holding for a week. I would suggest that you have someone build a new Tomasite window. This time, ask them to do two layers with a layer of sealant to hold pieces together in case of another explosion.”

“Like a automobile windshield?” Tom asked.

His father nodded.

The next day was a whirlwind of activity. Tom and Bud barely saw each other as one would be rushing to the Swift Construction Company while the other was hammering out code for the avionics of the new jetliner.

Later, they crossed paths briefly as Tom had to speed over to the Construction Company just as Bud was returning to Enterprises to

perform a test flight on a Swift executive jet due for delivery.

As Bud drove past, he shrugged and grinned. Tom gave a quick wave, and then they were past one another.

At dinner that evening, Sandy asked Tom about his jet aircraft and turbine projects.

Tom said, “I barely know where to begin, San.” Knowing that she had been informed about the turbine explosion, he gave her a brief status update. “So, the new one will be ready in eight days. I have to get the new blades from production and ship those out to Dr. Slade at the Citadel, but once they get back we’ll have another go at it.”

“You should have the testing done automatically, dear,” his mother had cautioned. “I get worried especially when I know how badly the first test went.”

“Don’t worry, Mom. Dad made a great suggestion that will keep everyone in the control room safe.” He told her about the laminated safety version of the Tomasite window would function.

“When do we get to see the new plane?” Sandy inquired. “And, when do I get to fly her?”

Tom grinned at his sister. She was a great pilot who had been taught by both her father and Tom while still in Junior High School. By her seventeenth birthday, she had become the youngest woman ever to qualify on jumbo four-engine jets. Along with Bud she was one of the more active demonstration pilots at Enterprises, specializing in the Swift’s *Pigeon Special* and it’s newer cousin, the *Racing Pigeon*. She was always after Tom to let her fly as often as possible.

“The plane skeleton is complete as well as most of the outer skin and the control surfaces. It almost looks like a real jet. She needs another week before the cockpit gets outfitted. About another week or even two after that for us to get a set of turbines on her. Months, if my designs don’t pan out.”

“And then we go up,” Sandy said hopefully.

“And, then I go up. Perhaps with Bud, but not with you, Sis. Sorry. If anything goes wrong I don’t want you to get hurt.” *Or worse*, he thought to himself. “You can come see her in a few days, though,” he added seeing the hurt look on Sandy’s face. “I’ll give you a personal tour.”

“Do you believe you’ll have your turbine issues ironed out by then, Son?” his father asked.

“I’ll know after we do the test runs on the new turbine in a few

days."

The next day, and a full day ahead of schedule, Arv Hanson hand-delivered a new set of fan blades for Tom to have super hardened.

"Get 'em before they get too hot, skipper," he joked. "By the way. Now that we've got the molds and tooling in place I can turn enough sets out in forty-eight hours to outfit six turbines."

Tom thanked Arv then picked up the phone to call Dr. Slade.

The older scientist was happy to hear of the early availability. "We've run into a few problems with my real work, Tom. I'd be most happy to have your latest blade sets to work on in the meantime."

Tom promised that they would be on the cargo jet that would be landing at the Citadel the following morning.

He dropped by the security office after lunch. Harlan was out on an errand, so Tom sat down with Phil Radnor.

"Hi, Rad. I just popped into see what news you guys might have on a couple of people."

"Let me guess," the pudgy security man said. He closed his eyes and put his hand over them. "I see a face, no… a head. A red head." He uncovered his eyes and looked at Tom. "Like him?" he asked pointing at a picture of Frank Harris.

Tom rolled his eyes and grinned. "Yeah. Him. The last I heard was that the FBI was still holding him. Are they?"

Radnor nodded his head. "As of yesterday, they were. He is being held pending a bail hearing. We sent the prosecuting attorney everything we have, but he believes that a judge is going to see his father as a great industrialist and perhaps let him out."

Tom groaned. "Great. Just what we need. That misery out of jail and probably out to get me!"

"Harl already has a private detective on retainer who will follow little Frank if and when he gets out. We will have hourly reports from him and his night guy… uh… our fellow goes by the name of Art Dickerson."

Tom then asked about Harris' accomplice, Billy Grandlin.

"We think that Billy is going to turn over on his buddy, Frank. It seems that Frank's dad hasn't even inquired about bailing Billy out. According to the police, he is furious and had been shouting about how Harris is 'going to get it good' once he goes to court."

Tom was about to leave when Phil reminded him of Missy

Sturgess. “She has agreed to turn states evidence against Thurston Jones. She’s prepared to tell how he led her on and promised her the usual sun, moon and stars if only she’d help him.” He handed Tom a letter.

Tom perused the single piece of page and then looked back up at Phil

“She didn’t have to do this,” he said.

“I know. But isn’t it nice to have an apology letter from someone who almost did you wrong?”

Tom thought, then said, “Can you leave yourself a note to check up on her in six months? If she has stayed out of trouble, and *does* testify against Jones, I’d like to invite her back to work at Enterprises.”

Phil shook his head slowly in wonderment. “Sometimes, skipper,” he said, “you’re just a wonderful guy!”

As Tom prepared to take his leave, Phil’s phone rang. He held a hand up to stop Tom before answering it. Phil listened, replying with ‘yes’ and ‘sure’ and ‘uh-huh’ at several points.

Finally he thanked the caller and hung up.

“Sit down, Tom. I’ve got a little blockbuster to tell you.”

Tom took his seat again and raised an eyebrow.

“That call was from a man named Manu Taafu. Use to be a pro wrestler before that fine and honorable institution went all Hollywood and steroids. Pretty good as I remember. Anyway, he’s now doing guard duty at Lexington Propulsion.

Tom looked meaningfully at the security man.

Radnor continued. “He’s a fan of yours so he thought he would give us a heads-up. He says he overheard some of the higher-ups discussing how they could get the company back in positive financial status. One of the things they were discussing was hiring someone to either gain employment here or just break in and *steal your turbine research!”*

CHAPTER 12 /
A RACE AND A FACE

"UNLESS you've got a better offer, climb in," Tom said to Bud motioning the flier to sit in the passenger seat of the little micro car Tom was driving early the next morning.

"No better offer so far but I'm holding out hope. What's up?" he asked, climbing in

Tom set the little car moving forward heading toward one of the airfield hangars. "You and I have been invited to watch the first ever test race of the SR-1s out in Nevada. You do want to come along, don't you?"

Bud whooped. "You bet! I've seen pictures of the course and we've been using some of the obstacles they'll negotiate, but the guy in the pilot's saddle has usually been me. I've wondered what I looked like up there. This is going to be a blast!"

Bud was quiet for a moment then he said, "I heard about the possible threat from Lexington. What's going on?"

"Harlan and Phil are doing everything they can to trace that down. I can't add anything to their efforts so I figured I'd take up this important offer."

As they neared the small Swift executive jet Bud let out another whoop. "Sandy! Bash! Wow, Tom. You've thought of everything!"

Tom smiled. It wasn't often that he was the one surprising Bud with dates with the girls. Usually it fell upon Bud to drag Tom away from whatever he was doing and out into the real world.

"Look, Bashi," Sandy exclaimed as the boys got out of the car. "It's those two guys we occasionally date." She had emphasized the 'occasionally' and Tom rewarded them with a mock wince.

"We've been walloped, Bud, They've got us dead to rights."

"Looks like the only way we can redeem ourselves is to take these pretty young things with us, I guess," Bud said.

"So, brother dear, what is this mysterious trip you have planned for us. Bashi and I might have other plans for tonight and may not be able to break away to soar into the Tom Swift brainstorm clouds."

Tom said two words. "Las Vegas."

The girls laughed and hugged each other. "Oh, Tomonomo! I've

never been there. You're taking us off for gambling and shows and that marvelous sunshine?" Sandy inquired.

"Actually, we're too young to get into the casinos but we may manage a big show. After we go to the real reason for the trip." He told them about the practice air race. Both girls were enthusiastic. "When do we leave?" they asked together.

"One hour," Tom replied. "Dad already cleared it with Bash's folks. Head home and grab something for the show tonight. We'll fly back after the show. You look great right now so don't worry about anything for the flight and the race."

"Except for sunscreen," Bud suggested.

"Yes, Bud. With my horribly pale skin I must constantly slather myself with thick creams to ward off the effect of the sun," Bashalli said to him teasingly. Sandy stated that she actually would need something in order to avoid a sunburn.

They were back in under fifty minutes with small overnight bags. Tom had the jet fueled and checked out during their absence so they were able to take off minutes after the girls returned.

The uneventful flight ended at an airfield fifteen miles outside of Las Vegas city limits. It was a new airport capable of handling smaller aircraft like Tom's jet with ease. Nearby sat a large set of viewing stands facing away from the runway. Their host greeted them as they exited the jet.

"Ah. Tom Swift. Hello," the distinguished man said. "I would have to believe that this is Bud Barclay? And, who are these beautiful ladies?"

Tom introduced the girls to the man who turned out to be Marco DeMateo, the president and owner of the new air racing league. He escorted the foursome into an office located below the viewing stands and offered them something to drink. They each asked for an iced tea that was soon provided.

"We're all very excited about this racing league. Your little racers are amazing. I had some flying experience with the Navy back in southeast Asia during the war. As rusty as I have become, I still find that these little buzz bombs are really wonderful flying machines. You've done yourself proud and have set us up to provide some really exciting racing action."

A few minutes later they heard an approaching bus.

"Looks like my pilots are here," DeMateo said. They went back out into the heat and were soon introduced to a group of a dozen

men ranging from their late teens up to the late twenties. Everyone wanted to shake Tom's hand, and a few wanted to hug the girls but they were quickly dissuaded when Bud stepped between them shaking his head.

The first group of six left to wheel out their racing machines. Tom and his friends sat in the first row of he stands with Mr. DeMateo. They marveled at the grouping of inflating red, blue, yellow and green obstacles, some located less that 200 yards away.

The girls let out gasps and giggles when DeMateo motioned to an operator standing nearby, and the airfield obstacles began ascending from their tie-down points. "They go over red, under blue, left of yellow and right of green," he explained.

They could see that there were such inflated objects here near the stands as well as about a half mile in the distance.

The little racers took off from the airstrip behind the stands one-by-one and soon were flying down the line in a side-by-side formation. A smoke cannon blasted off and the planes all dove toward the start line.

For the next twenty minutes the group were treated to an exciting race where the planes raced over, under and around various objects. As the planes came around the final turn they heard the cannon go off again marking the upcoming end of the race.

Each plane had been painted a different color. The race ended in an apparent tie between a bright fire engine red plane and a pale blue one.

On a large TV screen at the end of the viewing stands a slow motion replay of the finish came up and showed the red plane narrowly nosing out the blue one by fewer than a couple feet.

The group applauded the fliers as they landed and then taxied their aircraft around and in front of the stands and dismounted.

"I'd say you've got a winner here, Mr. DeMateo," Bud stated.

The second race wasn't as close but it included a near accident as one of the flyers grazed the top of an obstacle almost losing control. In the end, he came in a solid fourth.

DeMateo's face was still red as the fliers pulled up at the end of the race.

"Stupid kid," he kept muttering.

Tom gave the man some unsolicited advice. "If you want my opinion, that flier did a marvelous job of recovering from the bump.

I believe he is one of your best. He just needs to learn to pull up a little sooner."

The older man looked at Tom and replied, "If he weren't my son I'd kick him off of this league. I even had that obstacle lowered by twenty feet. That's the same one he banged into during training. But, you think he did alright?" He seemed genuinely surprised.

Tom nodded. "A lesser pilot would have overcorrected and spun out. It could just be a depth perception issue. Have you ever considered that he might need his eyes checked?"

They spent an hour talking with all of the pilots before flying out and heading for the McCarran International Airport. From there they took a taxi to one of the great hotels on the Strip. Tom was able to get them a nice table for the floorshow that evening.

Although the dinner was only fair, the show was great. The opening singer, a man who had wowed radio and TV audiences two decades earlier, was still in magnificent voice. The main act was an internationally known comedian and talk show host.

Bud and Tom were hoarse from laughing by the time the show finished. The girls were both impressed but had remained a bit restrained and even a little shocked by several of his 'blue' jokes.

As they were leaving the showroom arm in arm, Bashalli tightened her grip and let out an audible gasp. Tom saw her pointing across the floor of the casino. "What is it, Bash?"

"It's him! That's the man who was in The Glass Cat talking about harming you," she said pointing directly at a man standing near a set of slot machines.

Seeing her pointing at him, the man went deathly pale and then suddenly reddened. He looked frantically around and then turned and ran off through the casino.

"After him, Bud," Tom shouted. The pair left the girls and leapt over the railing separating the showroom 'family' area from the adults-only casino. They sprinted through the casino dodging gamblers left and right until they were suddenly brought up short by the appearance of two huge men in uniforms marked Hotel Security.

"Hold it right there, kids," one of them cautioned.

"We're chasing a man that threatened my life the other week," Tom tried to explain.

"Oh, sure. Next you'll tell me that you were just taking a shortcut to your rooms. Now scram!"

Tom pulled out his ID. One of the guards recognized his name. "You're *that* Tom Swift? Gee. Is this on the up and up?" he asked.

"It was," Tom said looking around but not seeing the man. "Now it's too late. He's escaped."

"Hey, listen kid. I'm real sorry. Come up with us to the security room. We get everybody on videotape here. You point this character out and we'll get the footage to the police. They've got a pretty good record of bringing people in."

Tom sent Bud to get the girls and they all went up to the security suite, a room filled with more than fifty color monitors showing everything from roulette wheels to sweating people clutching cups of coins and sitting at slot machines.

As one of the security technicians located the correct camera angles and time-codes, the security guard who had apologized to Tom called the Las Vegas Police. Within minutes two officers arrived at the suite.

They pointed the man out and the officers left with both a videotape of the man as well as close-up photos of him.

The foursome headed back to the airport and were soon winging back to Shopton. It had been a very busy day indeed. They landed at Enterprises at almost 4:00 in the morning.

While Bud took Bashalli home, Tom and Sandy headed for the Swift residence.

Tom had a disturbing night's sleep imagining himself at the controls of one of the SR-1 racers endlessly falling out of control. No matter what he did, the little plane just spun and dove.

Finally, around 8:00 a.m. he got up and took a shower. He dressed but remained in his bedroom sitting on his bed thinking.

"What made me have those dreams?" he asked himself. "Do I really feel so totally out of control? This project is really getting to me, but I've faced problems before. Lots of problems."

He lay back against his pillow and was soon dozing. When he awoke again it was almost 10:00 a.m. He jumped up and ran downstairs. His mother took a foil-wrapped packet out of the toaster oven and handed it to him.

"Good morning, Tom. Eat that before you get to the main gate. Bye!"

And with that, he was out of the door. The packet turned out to contain a tortilla-wrapped treasure of scrambled eggs, cheese and

crumbled bacon. He didn't realize how hungry he was until he finished it and wished he had another.

When he arrived at Enterprises he went straight to Harlan Ames to report the sighting of the mystery man. Ames was startled at the news. "He's traveled across state lines. I need to get the FBI in on this," he stated and picked up the phone.

Moments later he turned to Tom and said, "Well, the Las Vegas PD caught him late last night. He posted bail two hours ago and disappeared."

"Can they go back after him."

"Only if he fails to show up for his hearing in three days. All they could get him on was simple menacing."

A week later, Tom was inspecting the work on the new airliner over at the Swift Construction Company. The main body and wing assembly had been completed and covered by a tight skin of Magnetanium alloy. This super thin yet amazingly strong outer covering would provide rigidity and body shape while an inner wall of DuraStress would provide ultimate stiffness and make the craft air tight even at altitudes higher than she was designed to fly.

Several items on the construction check-off list had not been completed when scheduled. Tom worked with the two teams responsible for those items and soon had them heading back on track.

"Sorry, skipper. We dropped the ball on that," said one team manager. "Have this back on schedule in a few days, Tom," said the leader of the other team.

Tom thanked them for their work and went back to Enterprises.

Trent buzzed him on the intercom a few hours later. "Tom. There is a Chief Richards of the Oswego PD on line three. He says he has some news for you."

Tom thought for a few seconds and then snapped his fingers. "Right. Put it through, Trent. Thanks." The line rang and Tom picked up the receiver. "Hello, Chief Richards, Tom here."

"Tom. Nice to speak with you. I thought you'd like to know some news."

"Go ahead, sir."

"As you know, we captured a young thug named William Grandlin a few weeks ago when he was bothering your sister."

"Right…"

“He went in front of a judge a few days later and was given three weeks in city jail. Unfortunately we didn’t have any other local charges to pin on him except for a ‘hold for state charges’ warrant. The thing is, our jail is meant for short-term holding. The folks there only work part time for the jail and the rest of the time for our City Manager.”

“If I may ask, sir, why are you telling me this?”

“Because, Tom, a paperwork mistake was made and Grandlin was released at the end of his sentence this morning instead of being handed over to the State. William Grandlin has just walked away and we can’t find him!”

Tom sighed. “Well, thanks for telling me. I suppose you have notified the State Police, sir.”

The officer said that they had done that. They still had the ‘hold’ warrant in hand so they would be on the lookout for Grandlin. The Chief apologized to Tom and then ended the call.

He let Harlan know of the latest snafu. Ames promised to contact all local agencies as well as the FBI to let them know.

“Don’t worry, skipper. I’m sure they’ll have him back behind bars in hours.”

The developing dragnet turned out to be unnecessary. Billy Grandlin walked into the Shopton Police Department late that evening and turned himself in.

When Harlan had heard the report he called Tom. “They have Grandlin, Tom,” he said.

Tom was pleased but puzzled.

“Turns out he was as perplexed as anyone about being released. He said he wandered over to the local bus station and waited until he could catch one to Shopton. I guess he figured that the Oswego folks were a bit too lax.”

They both laughed, then Harlan continued, “He just walked in and identified himself to the night Sergeant. Told them there should be some sort of paperwork in Oswego to hold him. He was tired and didn’t want to do any more running and hiding.”

“Gee, that’s great news, Harlan. Do you think they will let you question him?”

Ames said that he would check. Tom suggested several questions specifically around Grandlin’s willingness to testify against his erstwhile accomplice, Frank Harris.

"I'll do my best, Tom," Harlan assured him.

Ames was given permission to come to the police offices to help question the prisoner a few hours later. When he was ushered into the interrogation room, Billy Grandlin was sitting quietly in his chair dressed in a bright pink jumpsuit.

Harlan had to turn away to keep from laughing at the man. He looked at Chief Slater and nodded back at Billy. "Pink?"

The Police Chief laughed. "Yeah. Latest thing. A study shows that prisoners are a lot less likely to want to escape if they know they are going to be out there in bright pink. It works, too. Hey, Billy," he addressed the youth. "Would you leave here in that outfit?"

Reddening, Billy stated that he wouldn't bee seen in public in such an outfit. "Ain't fair, that's all I've got to say," he complained.

Harlan got to the point. "Mr. Grandlin. We know that you were one of the two people who attacked Tom Swift and also one of the two people who kidnapped his sister, Sandra Swift, and held her for more than eighteen hours."

Billy Grandlin shrugged.

"We also know the identity of that other person. Someone you've gotten into a lot of trouble with over the years, right?"

Again, Billy shrugged, but he had begun to perspire a bit.

Ames continued, leaning in closer to the prisoner, "I believe that the District Attorney is going to want to give you two a combined trial. That means," he said in a low voice, "that whatever Frank gets accused with, you get accused with. No deals, no special consideration. The same judge and jury will see you both as the horrible monsters you are!"

Grandlin began shaking.

Harlan bore in on him. "You both fit under this state's three-strikes laws. That means that you get to go off to the state penitentiary for the minimum sentence of twenty-five years for this. No parole!"

Grandlin looked pleadingly first at Harlan and then at the Chief. "I can't. I don't do so good in jail. I get sick. If I go away for that long, I'll die! Can't I make one of those deals like ya see on TV?"

Chief Slater said to him, "That all depends on how much you are willing to cooperate, Billy. You know you're entitled to an attorney, right?" Billy nodded. "So, do you want one?"

The young man considered the offer for a moment then shook his

head. “Just let me hear what kinda deal I get then I swear I’ll tell you everything. Even about how that rat, Harris, and his old man have messed around with me for years!”

The two interrogators shared a glance. Ames spoke up, “The only questions I have are these. One. Do you admit that it was you and Frank Harris that attacked Tom Swift and kidnapped his sister, Sandra?”

“Yeah,” Billy admitted meekly.

“Okay. Then, two. Do you know of any plans that Frank Harris or his father might have for future attacks against any of the Swifts or against their companies?”

Billy cleared his throat. “I think Frankie told me that his old man was going to do something to hurt Swift Enterprises. I swear on my grandma’s grave I don’t have a clue what that is.”

A few more minutes of questioning brought no additional results, so Harlan departed and the Chief had Grandlin returned to his cell promising to contact the DA to see if any deal might be reached.

Harlan called Tom and Damon in their office while on his way back to Enterprises. He filled them in on what he had learned.

“Just in case, I’m having a couple of our people keep a watch out for your family, Damon,” he stated. “Now, no arguments. You hired me to do a job and this is part of it. Okay?”

Tom and his dad said in unison, “Okay!”

An hour later, Tom was deep at work on a refinement to the fly-by-wire software system that would be used in his jet aircraft, when his phone rang.

“Mr. Swift?” the voice asked. “This is Artie Johnson over in the propulsion lab.”

“Artie Johnson,” Tom asked stifling a laugh.

“No relation, Mr. Swift. I’m the intern working with Dianne Duquesne here in the lab.

Tom remembered seeing the young student around. “That’s right. You’re the guy from MIT. What can I do for you, Artie?”

“I’ve been looking through those new electronic files of all the drawings and schematics? The ones that I guess got scanned in a few months ago?”

“Sure. How can I help?”

“Well. I just can’t get the files for the new jet airliner to open. I

have to check some stress and weight distribution figures for the engine mounts, and the files won't come up. I was wondering if you had a minute—"

"Absolutely. Let me see what I can see from my computer." Tom opened an access file and typed in his user name and password. In seconds the file system came up showing all of the available files

"Artie? What file or file are you trying to access?" he asked.

"File number alpha delta eight six seven five three zero nine."

Tom typed the file number into the search field. He clicked the 'find' button. Several seconds went by before a dialog box appeared:

Sorry.
The File You Are Accessing Is Corrupt.

"Well, Artie. I see the problem. Listen. I have to go by my lab in about a half hour. I'll just pull the originals from the files and bring over a copy. Is about forty-five minutes okay for you?"

The young intern sighed, but agreed that his work would certainly wait.

After attending to several minor matters Tom left his shared office and headed to his lab in the underground hangar. He beamed his electronic key at the lock on the large drawings drawer. It slid out silently.

Tom leaned over the drawer and reached out to pick up the plans. They weren't in their proper order.

With growing unease he picked up paper after paper looking for the correct design documents.

Finally, he stood up and said, "The plans are missing!"

CHAPTER 13 /
ESPIONAGE, INC.

"MISSING? How could that be? Didn't you lock them up when we left together last night?" Bud asked an hour later.

"I sure did. I put everything I'd pulled out right into the drawer and then made sure that the lock clicked. I can't understand it."

Tom had been searching the room for any clues as to what might have happened to the plans for the new aircraft Swift Construction was building as a demonstration platform for the new turbines.

"It isn't so much that they are irreplaceable; they aren't. Assuming I can figure out the file glitch, they are all throughout our computer system. And, the folks over at the Construction Company have the jet more that ninety percent finished. It is just that I would hate to think that someone else might release the designs to the public before we are ready."

"Or to build their own, huh?"

Tom paled. "I really hadn't thought along those lines. I suppose an aircraft factory could turn out a non-flying mock-up in thirty to forty days and we should be ready before then. I think we'll be ready."

But, Tom was worried. He contacted Harlan in security and told him of the theft.

"You're positive they haven't been misplaced?"

"I was the last one to close that drawer last night and the first one in my office this morning. I haven't specifically pulled those plans out for weeks, but I'm pretty sure that they were in there recently."

"Uh, Tom? Evidently, there was someone else… I'm wondering about that Grandlin kid's assertion that the Lexington Propulsion people, or at least Adolph Harris, is trying to do something to damage Swift Enterprises. You remember what their guard told us? This might be it!"

When Chow brought the inventor's lunch in he found Tom sitting, head in hands, at this desk. "Come 'n git it, Tom," he chortled as he set up Tom's lunch on the conference table. "Buttermilk biscuits, chicken fried steak and gravy, Buckaroo."

He turned to see if Tom was coming. Tom continued to sit as if the presence of the cook hadn't registered.

Chow went over to him and laid a gentle hand on Tom's shoulder.

"You okay, son?"

As if waking from an unpleasant dream. Tom startled and looked around. Focusing on Chow he shrugged and said, "It was fine. Tasty, Chow."

"Now you listen here, Tom Swift. You ain't even tasted what I brung ya 'cause I jest laid it on the table. Now git your bottom off'n that chair and high-tail it over to the other table." Chow practically pulled the young man up and propelled him toward the lunch.

"Sorry, Chow. My mind was really someplace else. I don't think I'm very hungry." Tom looked down at the steaming plate. "Well, maybe a little, I guess."

Chow sat down and watched Tom pick up his knife and fork. Soon, Tom was digging into the food with gusto. Chow smiled. "That's what I like seein', Tom. A good appetite."

After Tom had finished the main course Chow brought over a smaller plate with a couple of freshly fried doughnuts and set them on the table.

As Tom was chewing a huge bite of a chocolate-dipped old fashioned-style one, he asked Chow, "What would you do if you told someone you *thought* you could do something but it turns out that you can't?"

"Whatcha mean, son?"

Tom told him about the issues he was having around his agreement to try to come up with a new, quiet and fuel-stingy jet engine.

Taking off his ever-present 10-gallon hat, Chow scratched his bald head. "You one hunert percent shore you've done everything you can?"

"I'm not sure. I've just hit so many dead ends."

"Tell ya, son. If'n anybody could do it I'd bet my bottom dollar it'd be you. But, if'n you cain't come up with this here magic jet, then nobody's got no reason to hold it agin' ya."

Tom smiled and started to talk but the older man stopped him.

"Lissen. I'm hearin' ya say you never actually promised you could. Only that you'd try. Right?"

"Technically," Tom admitted. "It's just that this is so important I want it to be a success."

"So, I've never seen you give up till you've tried just about ever little thang ya could. Jest give it some more time. And, don't be so hard on yourself!"

Tom reached his hand out and gave Chow a warm handshake. “Thank you, Chow. If you don’t think it’s time to give up, then I won’t. Somehow, I’ll get the right things to come together. Thanks!”

Chow picked up the dishes and left Tom with his thoughts.

Two days later Tom was assisting the technicians in the propulsion lab with the finishing touches on yet another new turbine and blade setup. Dianne, Jerry and their intern, Artie, had performed a virtual miracle of having the new turbine hand-built a full day ahead of time, so they had been able to accomplish a more detailed examination of it prior to the installation of the new hardened blades.

“That’s it, Tom,” Dianne told him as she stood up and stretched her back. “The fuel line’s been attached and is protected behind a DuraStress shield, just in case.”

Tom nodded. “Then, let’s get in the other room and wind this up!”

Once seated at their various consoles, Tom asked everyone to don safety goggles as an extra precaution. “Switches on,” he commanded.

One by one, the tell-tale lights turned red and then switched to green as each part of the startup process was completed. Mentally, they each crossed fingers as Tom indicated to Jerry that fuel and the spark plugs should be activated.

In seconds, the whine of the turbine became audible through the insulated wall and Tomasite window.

“Bring the turbine up to twelve thousand revs, please,” he requested. “We might as well see if she holds together right off the bat.” Watching the dials on his panel, Tom could see the turbine balance was spot on. All temperature readouts were directly in the normal range and there was no measurable vibrations in the mount beyond the normal value.

“Fourteen thousand, please,” Tom said. The wail of the turbine became more noticeable as it sped up.

Again, all readouts were right where Tom hoped they would be.

“Full speed!”

Without missing a beat, the turbine sped up until it was running at its top speed of 17,000 RPM. Although short of the higher speed he had hoped to achieve, he was satisfied for the time being.

They sat there watching for more than ten minutes before Tom signaled to stop the test. He was satisfied with the operation but wanted to have the blades dismounted and tested under x-ray

inspection.

The results were ready twenty-four hours later. No cracks or other signs of wear or damage were found.

Tom reviewed all of the test results and was mildly disappointed to see that the new blades barely improved on the 10:1 compression ratio of output compared to normal bypass airflow. “Just about the same as everyone else gets in their turbines,” he told the team when they met that afternoon.

Tom asked that they reassemble the turbine and put it through a 24-hour continuous run test to ensure the durability.

The following Tuesday he received a call. “Tom, It’s Dianne Duquesne. Good news. We did the round-the-clock run and everything checks out. What do we do next?”

“I’d love to work on getting the revs up over twenty thousand, but I think we need to real-world test what we have so far.”

“What can the team do?”

Tom replied, “Build me three more, Dianne. I’ll alert Dr. Slade that we’ll need his treatment magic. After that it’s getting the engines onto the new aircraft. I’ll make sure that the schedules all work.”

That evening Sandy informed Tom that she and Bashalli would be meeting the inventor at the Swift Construction Company at exactly 11:00 a.m. the next day.

“I may have an appointment,” Tom protested.

“You don’t. Trent has made sure of it,” Sandy replied hands on hips. “You told me practically months ago that I could come see the new airliner. You haven’t taken me over there, so I am taking the matter into my own hands.”

Tom looked toward his father who made a point of raising that day’s newspaper up in front of his face and rattling the pages. He turned to his mother who was busying herself with a nail file. Finally he gave up.

“Okay. You win. I did promise. Eleven, you say?” She nodded. “Okay. Should I bring flyboy?”

Sandy’s brow knitted. “Is Budworth likely to try to show off and spout a bunch of boring facts and figures?”

Tom assured her that he would forewarn the flier to keep his comments focused on the ladies.

Sandy clapped her hands together and jumped over to him, throwing her arms around his neck. “You’re the greatest!” She let

him go and walked out of the room. As she passed her father, his hand raised up above the paper and she gave him a 'high five.'

Anne Swift commented, "It's certainly nice to have children who play well together, isn't it, Damon?"

Her husband laughed. So did Tom.

Sandy and Bash met the boys at the Construction Company that next morning. As they walked into the construction building where the new aircraft was being built, both girls let out little gasp.

"It's so… uh… fat, Tom," Sandy stated.

"And so short," Bash added.

"Don't forget blue. It is blue," Bud said.

Tom knew that his aircraft design was unlike anything most people had ever seen. He took a deep breath and replied, "Yes. It is short and wide and… blue. In fact, it is only about the same length as the most popular short and medium-range jet ever built. But, being wide, it carries almost forty percent more passengers."

He led the group around the entire aircraft pointing out numerous differences and improvements in aircraft design and describing why he had incorporated them.

Bashalli was fascinated by the V-shaped tail. Tom explained that by using only two surfaces rather than the traditional three he had cut down tail end drag by 9%.

Sandy commented, "I see four engine mounts. You never told me that only half were on the wings."

Bud spoke up, "The professor has figured out that four smaller engines will burn less fuel and still provide enough oomph to get this thing sailing through the wild blue at over six hundred knots!"

Sandy wanted to know how flying it might compare to other aircraft she normally piloted

"Almost exactly the same except that there is absolutely no torque roll. The engines on each side rotate in opposition to the other side."

Although this information was completely lost on Bashalli, Sandy let out a low, appreciative whistle.

He took them for a tour of the inside of the strange aircraft.

"Very minimalistic, Tom," Bashalli commented. "I see lots of room for improvement."

"We won't have the insides ready for another month. But, that's okay. We don't need anything back here for testing purposes," he replied referring to the empty main cabin.

The cockpit was even a greater disappointment for Sandy. Although the walls had all been finished, there were very few instruments installed. Tom explained that the majority of the instruments would be incorporated into the single wide, touch-screen LCD front panel.

"There will be very few physical switches up here. Just like a good Sci-Fi starship, everything will be handled by touching various areas on the panel. Pilots will even be able to rearrange the instruments to meet their needs. Touch and hold, then drag the altimeter to a new location, and there it stays."

He suggested that they visit the part of the facility that was finishing the touch surface. They deplaned and walked over to a room in one corner of the hangar.

Tom showed them how the panel worked. They enjoyed moving gauges and dials around, even duplicating some so that both 'pilots' could have one in front of them. Tom reached between them and pressed a key on the test keyboard. Everything rearranged themselves back into their original positions

The tour ended with lunch at the employee commissary. Sandy thanked Tom for finally giving in and doing the tour. "I'm looking forward to flying her," she told him. "Someday."

"I would be most pleased to sit back in the first class cabin and to have a handsome flight attendant bring me a tall, cool drink and some of those smoky almonds," Bashalli told him, winking.

The girls left and Tom and Bud returned to Enterprises.

"Are you up for a little flight?" he asked Bud.

"What's on this time?" his friend asked.

"Harlan has received information about that missile that almost hit the *Sky Queen* over Pennsylvania. As it turns out, it may be a U.S. Army missile that went haywire during a test. We've received permission to go talk to the commandant of the Air National Guard unit that had been secretly testing the thing."

"You mean we might have been shot down by friendly fire," Bud stated incredulously.

"It's possible."

They checked out a Swift executive jet and were soon heading southwest at top speed. They arrived in Harrisburg forty minutes later and were met by a young lieutenant.

"May I check your IDs please, sirs?" he asked politely.

They handed them their drivers licenses and the official letter

introducing them to the commandant.

The guard thanked them and motioned to a large 4x4. They arrived at the headquarters building minutes later and were ushered into a sparse office.

The man behind the desk stood up and offered his hand.

"You are obviously Tom Swift. I'd know that face anywhere," he said smiling. "I'm Colonel Mark Durrock."

Tom introduced Bud.

"The reason for our visit is because we were almost shot down by this missile several weeks ago." Tom pulled out the series of stills that Hank Sterling had taken. Most had been enlarged to show plenty of the details of the errant missile.

"Hmm. I see. Will you excuse me while I make a phone call?" He looked toward the door.

Tom and Bud left the office. The Colonel opened his door five minutes later and asked them to come back in.

"This," he said looking embarrassed, "is a mighty bad day for me." He sat with his elbows on his desk, fingers interlaced and sitting under his chin.

"If I may ask, Colonel," Tom said, "is this a U.S. missile?"

"Yes. It is. Or, at least it was one of ours. It was part of a test from several years back."

He explained that the stealth design had proved to be very effective for avoiding detection, but had provided such enormous drag that the missiles had half the range of the military specification.

"And," he finished, "they were slow and exceptionally easy to outmaneuver."

"So, how come we had one coming after us, sir?" Bud asked.

"That call I made was to our ordinance locker. The last three of the test missiles are… were being kept in there."

"Were?" Tom and Bud chorused.

"Two are missing. There's the one you saw, so that means that there is one more out there. I'd give you more details but the specifics are classified higher than I can provide to you right now. Sorry I can't tell you more. I'll have you driven back to the airfield. I need to call the Pentagon and the FBI, and then submit my resignation!"

The boys excused themselves and were driven back to their jet by

the same lieutenant. As they were getting out of the vehicle he asked, “If you don’t mind my asking, did this have anything to do with the missing airmen?”

“We don’t know about any missing airmen, Lieutenant. Who do you mean?” Tom asked.

“Well, we had a couple airmen assigned to this unit go AWOL three months or so ago. They checked in and got their gear assigned, and then sorta vanished. Nobody’s heard hide nor hair from them since.”

“Any idea who they were?”

“No. Just a couple of tall guys, maybe a little older than you two and a year or so younger than me. I never actually saw them. Maybe I shouldn’t have brought it up,” he said.

Tom suggested that the lieutenant make sure that his colonel knew all about the men and that anybody who had dealt with them provide details.

They climbed aboard their jet and headed back to Enterprises.

“Skipper? I really don’t like the thought that there is another of those missiles out there somewhere. I get the feeling that it has your name on it.”

“We’ll get Harlan in on this once we get back. For now, all we can do is keep an eye open.” As a precaution, Tom flew across the southern portion of the state before turning north over Trenton, New Jersey.

Tom had barely reached his desk when his private line rang.

“Skipper,” Harlan Ames said excitedly when Tom picked up his phone.

“What is it, Harlan?”

“Switch on your TV. Check out WWNN. You’ve got to see this!”

Tom pressed the ON button and his screen came to life. He punched in the channel number for the WorldWide News Net broadcast. He was immediately astounded.

Adolph Harris was holding a press conference. “And, this,” he was saying, “is the advanced airliner we intend to show the world next month, the revolutionary LP-100…” and he pointed to the easel behind him on which sat a full color drawing of…

“My SkyLiner!” gasped Tom.

CHAPTER 14 /
SLOW-MOTION FLIGHT

TOM COULD BARELY breathe. He felt as if someone had punched him in the stomach.

"Harlan? How could that be? That's not just a drawing of my jetliner, that is the exact drawing of my jetliner that is sitting in my safe. Or, was!"

The security man suggested that Tom check to make sure.

Tom pointed his electronic key at the lock and the drawer with his design plans slid out.

"It's right on top, Harlan where I left it," he reported.

"Then I'll have to dig through computer records to see who might have accessed that file," Ames said.

Two days later and there was still no report on how the drawing might have come into the hands of Lexington Propulsion.

"Bud," Tom said to his friend one afternoon, "you and I are going to fly over to visit Lexington Propulsion and find out how Adolph Harris got my plane design."

"Are you telling Harlan and your dad?"

"I'll let Harlan know, but I think that dad might tell me to not do it. I've just got to find out what happened."

Ames also strongly suggested that Tom not take the trip. "If he's stooping so low as to engage in industrial espionage then he might stoop even lower, Tom. It's not worth the risk in my opinion."

"I know, Harlan, but this really sticks in my craw. How dare he flaunt my own drawing? You could even see where he pasted his business card over my signature in the lower corner!"

In the end, Harlan agreed that Tom should go, but he also told the young inventor that he was notifying the local authorities of Tom's visit and the possibility of danger.

"I want your word that you will report in to me every hour. You miss one report by more than a minute or two and the police knock down his doors. Got it?"

"Got it, Harlan." Tom grinned at Bud as he hung up. "Guess papa Ames is going to protect us from ourselves," he commented.

Tom decided to not radio or phone ahead. "No use tipping our

hand," he told Bud as they were just losing altitude to land.

They took a taxi to the main offices of the jet turbine company.

A security guard recognized Tom and provided instructions on how to find the president's office. When they arrived, a rather dour secretary stared over her glasses at them.

"Unless you have an appointment, sonny, and friend of sonny, you aren't getting past me. Mr. Harris doesn't meet with kids!"

"Do you recognize who this is?" Bud asked.

"Do you realize that I don't care? Do you see me picking up my phone and calling Security?"

"What's going on?" came the gruff voice of Adolph Harris as he opened his office door.

Seeing Tom he blanched and then turned red-faced. "Uh. Well, Tom. Um, how are you? I didn't know we were expecting you. Er… *were* we?"

"No Mr. Harris. We've come here unannounced but I'll bet you know exactly why we are here," Tom replied sternly.

The older man appeared to be about to faint. He caught his balance on the doorway. After a few seconds he straightened up. "Uh… yes. Well, you'd better come in. No calls, Miss Rosenblatz."

When he had seated himself behind his desk, appearing to almost use it like a shield, he regained his bravado.

"I don't know what you believe or why you are here, but my guess is that you are trying to undermine my company. And, I won't have it!"

Bud sputtered, "Undermine you? Why you—"

Tom silenced his impetuous friend with a hand on Bud's arm.

"Mr. Harris. I have been beaten up by your son. My sister was kidnapped by your son. And now, one of my secret projects has suddenly been introduced to the world by you as being your project. I don't know what is going on here, but I have come to tell you that not only will I see your son tossed into the darkest, deepest pit of prison possible for what he did to my sister, but you'll be joining him for espionage."

"Espionage. Ha!"

"Yes," replied Tom evenly. "As a government contractor yourself, you must realize that any project we undertake is done under the highest order umbrella of federal protection. The design you've…

let's just say that you've come into its possession… is being created to meet a federal contract."

Tom knew that his bluff was an outright lie, but he could see the effect his words were having on the man.

"As a secret federal project, the taking of or receipt of through illegal methods and the dissemination of such plans, is considered to be espionage. In three minutes I must contact my security chief. If I don't police will be in this office within five minutes and you will be dragged off."

Shaking his head, Harris replied, "Then you had better make that call, Swift. But, make it from off my premises. Get out of my office and off Lexington Propulsion property or I'll have you arrested for trespassing!"

"This isn't the end of it," Tom told the older man.

"Yeah, but it might be the end of your precious Enterprises," Harris barked.

Tom and Bud departed Mr. Harris' office. On their way past the secretary she smirked at them. Frustrated, Bud slammed his hand down on her desk causing the woman to jump back and let out a yelp.

"Come on, Bud. These crooks aren't worth it," Tom declared as he grabbed his friend's other arm and eased him toward the door.

Once outside, Tom called Harlan Ames and filled him in on what had occurred.

"It sure sounds like he's in on something, Tom. You and Bud get off their premises and back here. Let me start the ball rolling on investigating them."

Tom and Bud returned to Tom's car. As they passed the gate, the guard gave them a friendly wave.

"Take care," he advised as they drove past.

"What's next, Tom?"

"I guess we get back to work. I'll have the new blades back from New Mexico tomorrow and installed into the new turbine by the following afternoon. After that, it's test, adjust and test again."

Bud grinned, "At least until you get it right, hey boss?"

Tom nodded. "Until we get it right. I really don't want to give up on this, Bud, but I'm beginning to think there is a pretty good reason why other manufacturers haven't been able to crack the

noise problems."

Bud reminded him that Tom never promised the airlines that he would succeed.

"You're beginning to sound like dad," Tom told him. "And Chow. I didn't promise, but I want to do more than just give them a new aircraft design, a pat on the backside and a hearty, 'well, I tried.' "

"Then it's full speed ahead, right?"

"It's about all we can do at this point. Today's Wednesday and everything will be ready in about forty-eight hours. I say we plan a Saturday unveiling," Tom suggested.

"How about we fly a loop from here to New York City and then up to Boston and back? That'll get everyone's attention and put to rest old Harris' claim that the plane is his!"

Tom agreed, but decided to talk things over with his father that afternoon.

"Tom. Don't you think that it might be best to keep our new jet out of the public eye until we get the whole Lexington Propulsion story? If we go showing ours in flight right now, then Harris might use it to accuse us of stealing his design. We really need to get solid evidence against him."

"You're right, Dad," Tom said dejectedly. "But I have to test the turbines in real life. Guess that means night flights."

"You could fly down to Fearing and back. That way you would be over water most of the time and away from prying eyes," Damon Swift suggested.

"We won't be able to use a chase plane to take videos of the flights. I'll have to come up with a few more instruments to measure more of the flight details." Tom stopped and thought for a moment, then added, "Unless we could get the outpost to use their megascope to follow us. It can be set for low-light conditions and should give us a good close-up view."

"Great idea, son," his father concurred. "Just tell Ken Horton that this is a priority whenever you are airborne."

Tom made arrangements with the commander of the Swift's outpost in space. Their birds-eye view would give Tom detailed videos of the top of the new plane. While he usually would have wanted the ability to see the underside of the aircraft, he believed this could be done without for the initial flights.

Two days of feverish activity followed with the finishing touches

being made to the airframe.

“Still kind of sparse, isn’t she?” asked Bud as he climbed the portable ladder being used to enter the aircraft. He had gazed toward the rear of the interior that was still a maze of open panels, wire harnesses and even a few pieces of equipment left behind by the night shift.

“Well, we’re not interested in how passengers might feel right now. I need to test both the flyability of the jet as well as the power characteristics of the new turbines.”

“Oh.”

“First flight’s on for tonight, flyboy. Do I have a co-pilot?”

“Just try to keep me away,” declared Bud.

The sun set at 9:01 that evening. An hour later the new SkyLiner —brought over at night in sections from the Construction Company weeks earlier—was rolled out of its large, temporary hangar. Before pulling it out, Tom had asked that all external floodlights on that side of Enterprises be extinguished.

“No use letting the world see us just sitting here,” he told Bud.

In darkness he started the four turbines; left wing then right wing engines followed by left then right tail engines. Soon, all were running at high idle speed. Tom made his final instrument checks, radioed for taxi permission, and then let the aircraft roll down the mile-long stretch of tarmac to the end of the runway he intended to use for take-off.

“Here goes,” he told Bud who grinned at him giving Tom a thumbs-up sign.

Tom ran his fingers up along the 4-way throttle forward control. The engines roared to life and the plane began moving down the runway.

“Shouldn’t we be rotating about here, skipper?” Bud asked as they passed the halfway point down the long runway, referring to the time when the nose of the aircraft should come up off the ground.

Tom pulled back slightly on the joystick and the nose rose a few degrees. “She’s flying like a fully loaded jumbo, Bud,” Tom said worry creeping into his voice.

But seconds later the big jet lifted off. It cleared the high wall at the end of the runway by only about 50 feet rather than the typical 200, but Tom knew that the important step had been accomplished —getting the plane into the air.

He checked the throttle position. It was on full power. He asked Bud to read out the turbine instruments.

"One, two and four are running at about fifteen thousand RPM. Three is a little low but only about five hundred revs less. Temperature in normal range. Pressures correct. Everything is nominal, Tom."

The jet was gaining altitude but Tom was disturbed that it seemed to be climbing at a rate less than two-thirds what jet aircraft typically made. A glance at the air speed indicator confirmed one of Tom's fears. The jet was only traveling at about 270 knots instead of the 300 plus she should be.

Tom conferred with Bud, then made a decision. "Let's press on to Fearing, make a wide loop and then head back home."

The flight, although much slower than wished for went smoothly and Tom made a pinpoint landing back at Enterprises a few hours later.

He and Bud exited the craft while ground workers hooked it up to a tug vehicle and began to tow it back to the hangar.

Bud excused himself and Tom went to the radio building. His call to the space wheel yielded no real information.

"I'm having all of the video compressed and we'll send it down in about ten minutes," Ken Horton told him. "Sure looked like a nice, slow flight."

"A bit too slow, Ken," Tom replied. "You didn't happen to see anyone hanging onto the back of the jet did you?"

Ken chuckled. "Sorry, skipper."

The next morning Tom reviewed all the data and video with Mr. Swift. Neither could see any reason why the flight was so slow.

"It looks like your turbines aren't putting out as much thrust as you hoped," he told his son.

"We downsized the overall turbine to lower the noise level and the new blades were supposed to make up for the difference in power. I flubbed and went too small I guess." Tom's disappointment was evident. "Everything works out on paper," he moaned.

"What did your grandfather use to say about paper?"

Together they recited one of Damon's father's mantras, 'Paper is paper and reality is reality and a slide rule separates them."

They both grinned. Tom felt a little cheered. He called the

propulsion lab and asked them to dismount one of the turbines for another round of static bench tests.

The next day the results came in. Although capable of turning at faster than normal speeds, the turbines were only putting out about 85% the airflow of a normal jet turbine.

“I hate to say it, skipper, but we all think it has to do with those new blade tips,” Dianne informed him. “They have the fuel consumption down by almost eighteen percent and noise down to under one-oh-five decibels, but it looks like the overall combination of smaller engine and the new blades are just not powerful enough. The smaller case shows a higher than usual build-up of pressure that just sort of fouls the entire system up.”

“Yeah. If we use a larger turbine then we won’t get the decibel level I want to meet. “

“What do you want us to do?”

Tom thanked the technician and told her to move the engine to the underground hangar. Tom wanted to have it nearby while he tried to find an answer.

As the next weeks came and went, Tom took everyone off of the SkyLiner construction project and allowed them to go back to their normal positions. “No use tying all you people up while I bang my head against a wall,” Tom told them.

Working alone or with Bud’s help he continued experiments on the test turbine in the lab.

Again and again they tried different blade configurations inside the engine. Nothing worked to both keep noise down and give increased economy without the loss of power.

Tom finally looked to other portions of the engine, beginning with the combustion chambers. Neither larger nor smaller chambers helped to overcome the problems.

He redesigned the rear end of the turbine casing allowing a higher-level bypass air to exit. He was able to relieve some of the internal pressure and thereby increase the turbine’s revolution speed back to nearly 19,000 RPM, but with each 1,000 RPM increase, the decibel level increased by 3 or 4 db.

He was stumped.

Twice over the three weeks the boys had taken Sandy and Bashalli out on dates but Tom proved to be a less than exciting companion. Bashalli was very worried. She knew that she was falling in love with the young scientist but didn’t want to crowd him. She was grateful

for any time they spent together. She confided her worries in Sandy Swift.

"Oh, Bashi," Sandy had said. "Don't let Tom's distant brain keep you from getting near him. He really needs to have you in his life. Especially when times are tough!"

Bashalli had made it a point to come to Enterprises every few days to have lunch with Tom. Even though his thoughts seemed miles away, he was grateful for her being there. On the fourth lunch date he told her, "Bash. I'm being a real jerk when it comes to you. It's just that I can't seem to shake the cobwebs out of my head. Can you forgive me?"

She had thrown her arms around his neck and brought her face right up in front of his. "Thomas Swift! We will work together to rid you of your brain spiders, I promise!"

Tom took the rest of the day off and the pair took a long drive in the country. Twice, Tom thought that they were being followed, but it turned out to be two different cars. One passed them when Tom pulled off the road and the other turned off onto a country lane after tailing Tom's car for more than ten miles.

They grabbed a quick hamburger at a local drive-in before Tom took her home. On her parent's porch she again looped her arms around his neck. "Spiders gone?" she inquired, then went up on tip-toe and kissed him briefly.

He sighed. "Cobwebs gone. Thanks."

He arrived home in time to see his mother putting away the dinner dishes. "You're a little late, dear. I just put the pot roast in the refrigerator. Can I make you a sandwich?"

He thanked her but said that he and Bash had already eaten.

Damon Swift was in the living room talking with Sandy. "Ah, Tom. You're home," he said as Tom walked into the room.

"Have a good day with you-know-who?" his sister inquired with a little giggle.

Tom flopped down on the opposite end of the spacious sofa from his father. "Yes to both. Home and great day." He related a few details of the afternoon out but omitted mentioning the two mystery cars until Sandy had gone into the kitchen to help her mother prepare the dessert.

Tom quickly told his father. "Did you get any details like car type, color or a license number of the one that passed you?"

“I’m pretty sure about the make of the one that went by. It was a silver sedan. The first part of the plate was LTM. That’s about it.”

His father suggested telling Harlan the next morning. “You never know,” he said as the women entered the room.

The next morning Tom did call his security chief. “I’ll run the basic details about the one car, Tom but that other, the one that turned off, is going to be impossible.”

“They’re both most likely nothing, Harlan,” he had replied.

Tom went to the underground hangar. The jet turbine seemed to mock him sitting on its test stand. Tom pulled up a stool and sat next to it, starring deep inside it. “You will give up your secrets, you know,” he said to the lifeless machine.

For several hours Tom sketched out a few ideas for changes and even ran a simulation of an engine almost twice as wide but half the length. It proved to be an unworkable monster. He was dragged out of his thoughts by a phone cal from Security.

“What is it, Harlan?”

“We were able to get a handle on that silver sedan. It turns out to be a rental by a family up here from Texas. They are renting a cabin for the month about a mile from where they passed you. He’s a District Attorney for Houston. Looks like a dead end. My bet is that the other is as well.”

Tom thanked him then hung up.

A few hours later he heard the sounds of boots clomping across the concrete floor. He looked up to see Chow, clad in one of his favorite gaudy western shirts. This one was primarily yellow with bright blue snakes and brilliant orange prairie dogs.

“Hey, buckaroo,” Chow greeted him. “Yer gonna have to be headin’ on home tonight. Ole Chow cain’t fix ya your dinner. Got me a date,” he proudly boasted.

“I thought I detected a tell-tale shine on those boots of yours,” Tom told him. “Rodeo in town?”

“Naw. Got me a new lady friend, least wise she’s a lady and she is becomin’ a friend. Got her a nice disposition and she even likes my old bay window,” the heavy-set man stated patting his more than ample midsection.

“This isn’t Carla, then?” Tom asked. He knew that Chow had been dating a wonderful woman for more than a few months and that they were very close.

“Nope. Carla decided a couple weeks ago that she needed to take a job out in Or-ee-gun. We’re gonna be friends, but I guess she and I will be movin’ on. Daphne is the new one. Good sense of humor and loves rodeo. Cain’t ask fer more, can I?”

“Well, you take care, Chow. Don’t let her feed you too much.”

“Ah, shucks, Tom. She’s just like Carla. She don’t cook worth an old sack o’ beans. Says that all the cookin’ she did raisin’ a family afore her hubby passed on ruined her desire to set foot in a kitchen fer the rest o’ her life!”

“Have fun. I’ll give Mom a call and let her know that I’ll be home tonight. See you tomorrow!”

Tom left Enterprises fifteen minutes later, no closer to a solution than he had been when he had arrived that morning.

His mother looked up as he came in the front door. “Oh,” she seemed surprised. “You usually say you will be home in a few minutes and then show up two hours later. I’ll go put another place setting at the table. Good to have you home at a reasonable hour.” He slumped in an easy chair. She got up and walked over to Tom, giving him a kiss on top of his head.

As she began leaving the living room she turned to ask, “What do we owe your early appearance to, dear?”

“I’ve hit the absolute dead end, Mom. I’m going to give up on this jet turbine project. It’s going to be my first official failure!”

CHAPTER 15 /

EUREKA!

ANNE SWIFT hugged her son. “I know you better, Tom,” she told him. “Swifts don’t give up, and I know you won’t!”

“Momsie. There are just too many pieces of the puzzle that don’t or can’t work together. I fix one thing and another flies out of control. I fix that and the engine can barely pull itself through the air.”

She patted her son on the head and then ruffled his hair. “Have you tried absolutely everything?”

“I’m racking my brains to try to come up with something I haven’t tried,” he told her.

After spending a restless night, Tom rose and, giving his mother a kiss on the cheek, left for work before she could make his breakfast.

“I’d love to walk to work,” he said to himself, “but Harlan would have a fit. Besides, I really don’t feel like getting clobbered over the head today.” He climbed into his car and roared off down the street.

Once at Enterprises he decided that he did need to walk so he set out to hike around the cluster of buildings that occupied the inside of the criss-cross of runways. He passed several employees who greeted him with smiles and waves.

By the time he had complete the circuit of nearly two miles he felt better.

He had also made up his mind to call for some outside assistance. He remembered the business card Sandy had given him from the racing boat man she and Bash met in Oswego. As soon as he could locate it, Tom told himself he would give the man a call and invite him to Enterprises.

Passing Chow on the way to his office he asked that the man please bring him a strong cup of tea.

“Sugar?” Chow asked. “And don’t you give me that ‘yes, honey’ smarty-pants guff that Buddy Boy gave me the other day!”

Tom laughed and the cook waddled off to fix a pot of tea for the youth.

Tom sat down at his desk and leaned back in his chair to think. When Chow arrived ten minutes later he saw Tom staring at the ceiling, his mouth moving as if talking to himself.

“Countin’ the tiles, son?” he asked.

“As a matter of fact, I am,” Tom smiled at him. “Just trying to get my mind on something else for a few minutes.”

“Wahl, I gotcha a nice pot o’ hot tea and one of them short bread cookies you like. Enjoy!” With that, Chow disappeared back toward his kitchen.

Tom sipped at the tea and took a bite of the cookie. He was chewing when his private line buzzed.

He put down his cup and picked up the phone.

“Hi, Tom. It’s Davey at the front gate. I’ve got a… well, frankly, I have a giant of a man here at the gate. He is asking to see you.”

“Did you get his name?” Tom asked.

“Yes. It’s Manu Taafu.”

Tom recognized the name of the gate guard from Lexington Propulsion. “Can you please ask him to wait there for me? I’ll be out in about five minutes.”

He hung up and called Harlan, telling the man of their visitor. “Wonder what he’s here for, Harlan?”

“The only way to find out is to ask. I’ll meet you at the gate in a couple minutes.”

They arrived within seconds of one another in separate micro cars.

They walked into the waiting room off of the gate area and approached the large Samoan man.

Taafu stood up holding his hands clasped in front of his waist. He shook Tom’s hand and then Harlan’s.

“What can we do for you, Mr. Taafu?” Tom inquired.

“I just want you to know that I quit my job at Lexington. Don’t want to work for people like that. The thing is, I spent my entire wrassling career playing the part of the bad guy. That’s why they called me the Ugly Samoan.”

“I remember you from when I was a kid,” Harlan commented. “I never really believed that you were all that evil.”

Taafu smiled. He came to the point of his visit. “See. There are some good people over there and a few really nasty ones. You know that old saying about pineapples and cabbages?”

Tom and Harlan admitted to ignorance.

“They always rot from the top,” Manu told them. “Same thing over at LexPro. You work security at a place and you hear all sorts of things.” He winked at Harlan.

Tom asked, “Are you trying to tell us that the management of Lexington is involved in something criminal?”

“You know how I called awhile back and warned you all about some plot? Well, the other day I was doing my rounds in the admin building and as I passed Mr. Harris’ office I heard him talking to that *pua `a kaikuahine* secretary of his. Talking all about how he was ready to ‘ruin those damn Swifts’ and like that.”

Harlan asked the man to have a seat and tell them the entire story.

“Mr. Harris is in big *pilikia*—big trouble—with the company directors. He has been taking a pretty big salary and bonuses for years and the company has been losing money.”

“The financial problems at Lexington have only just started being hinted at publicly,” Harlan told Tom.

“So, he hatched some plan to build a new super airliner last year. Only problem is that I think he only told the directors that to get them off his back. Nobody in the company has been working on anything like that. And I see everything all over the plant. I’d know!”

“And, you believe he is now trying to steal the designs for Tom’s new airliner?”

“I really didn’t know Mr. Swift was working on anything like that. I won’t tell nobody, don’t worry. No. What I meant was that Mr. Harris plans to make you folks look foolish and to drive you out of business. He told the secretary that he was getting close to having his hands on something that would make LexPro look great and the Swifts public laughingstocks.”

“How?”

“Well, I heard tell that he’s been able to get some of your employees to send him things. Designs and like that. I think he wants to get everything he can about one of your inventions and then claim that you stole it from him.

“You know that you could get into legal troubles for sharing that information with us, don’t you?” Tom asked.

“Sure, but I think that if I had to go to court that I could tell things in there that LexPro and Mr. Harris don’t want to get out.”

They spoke for many minutes about other things the Samoan ex-

wrestler had overheard that might pertain to Swift Enterprises. Finally, he shook their hands and departed.

"Wow," was all that Tom could manage to say when Ames asked for his impressions.

"Ditto here, Tom," Harlan told him. "I'm going to take this recording I made," he said as he pulled out a small micro-digital recorder from his shirt pocket, "to the Legal Department. They are already working with several DAs and the Attorneys General of both our states. I believe that they are building a pretty tight case against Harris; this will certainly add to it."

Tom looked at his watch. "Got to run, Harlan. Bud and I are taking the Toad up for a test of the newest turbines. If I can't get them to work well enough for big jets, maybe we can salvage them for smaller ones."

He met his flyer friend at the Barn. Bud had just completed fueling the jet and was hooking it to the tug vehicle.

"Ah. You *are* going to get here in time," Bud said with disbelief. "I bet myself that you would get so sidetracked that I would end up twiddling my thumbs for at least an hour."

Tom smiled then shook his head. "You lose, Bud. Here I am."

As they pulled the jet out onto the tarmac, disconnected it and then climbed in, Tom related the conversation with Manu Taafu. Bud didn't know how to react.

Tom shrugged and turned to the task of powering up the two test turbine engines. Soon, he had the aircraft taxiing at high speed down to the end of the parallel runway. He got permission from the tower and pushed the throttles forward to full power.

The jet picked up speed, but Bud noted that as with previous tests it passed the normal rotation point by several hundred feet before taking off and soaring skyward.

The test flight lasted an hour as Tom put the jet through a battery of maneuvers designed to test the power of the turbines.

After landing and deplaning, Tom turned to his friend.

"I'm stumped, Bud. I just don't know how to get enough spin out of the blades for thrust yet keep the turbines small and quiet."

"Tell me all the science stuff. Maybe something will stick," Bud urged.

"We've tried big, high-bypass turbines, little low-bypass ones, regular blades, my blades with the tiplettes, and everything in about

two dozen configurations. I just can't get the combination of necessary power along with fuel efficiency and reduced noise."

The following morning Tom pulled the business card he had received from Sandy out of his desk drawer. He was about the dial the number when a thought occurred to him.

He dialed Harlan's number. Once he answered, Tom discussed his intent to call then power boat racer and store manager.

"How about I do a little investigating just to make sure he is really on the up and up," Ames suggested.

"That was going through my mind," Tom admitted.

An hour later Tom picked up his phone. "Tom here."

"Tom. Harlan. Listen. I looked into mister Wolfe's background. If any of us followed high-speed power boat racing, we would have immediately recognized the name. Jon Wolfe is one of the top jet-powered racers in the business."

Harlan went on to tell Tom that, along with Wolfe's brother, the two held more than thirty racing titles and had been both teammates as well as competitors for more than fifteen years. "His brother had an accident a couple years back and lost a leg, but I guess you already knew that."

"Yeah. Sandy told me about that. So, you believe he's okay to call in?"

"Unless I'm missing something here, he is a stand-up guy with a great reputation. I'd say call him."

Tom thanked his security head and hung up.

Five minutes later he was connected with Jon Wolfe at his Oswego store.

"Hello, Tom," Wolfe replied once Tom identified himself. "I was hoping that your sister and her friend would pass along my card. What might I help you with?"

Tom provided him with a brief description of his problems without mentioning the exact reason. "If you would, I'd love to have you come to Enterprises and then I can fill you in on what's actually going on. For now, I need to be a little vague."

"Tom. You're speaking with a man who had to have everyone around him under non-disclosure agreement for years. Even my own brother. I completely understand. Would tomorrow be too early?"

Tom laughed. He had been worried that it might take weeks before the man might come in. They agreed that the power-boater would arrive about eleven.

After greeting their guest the following day, Tom immediately took him to Security where he signed a confidentiality agreement and was issued a contractor's badge. They ate a lunch, prepared by Chow, along with Damon Swift in the shared office and then Tom and Jon headed for the inventor's underground lab.

Wolfe spent the remainder of the day going through the enormous amount of data recorded by Tom and his team during their search for the ultimate jet engine.

"Wow!" Jon sat back six hours later, rubbing his eyes and stretching. You've done more experimenting in a dozen weeks than I ever did in a dozen years. I'm flabbergasted."

"So… what do you think?" Tom asked, hopefully.

"I think that I might be able to do only one or two things for you," came the reply. "The first is that I suggest you try fabricating a new outer casing that incorporates what I call a resting zone." He pulled over a notepad and began sketching. The case featured a bulge about 60% of the way to the back that extended out a little more than 4 inches beyond the rest of the casing.

"That area is just behind the front of the combustion chambers and inside of the bypass area of the engine. We found that adding that to our marine turbines allowed any build-up of pressure to expand a bit more. Then, we added three relief valves to that to bleed off any excessive pressure."

"What were the results?" asked Tom.

"Without the buildup of too much pressure we were able to run the turbines at about twenty-one thousand RPM."

Tom inquired about the noise level.

"Unfortunately, we are never concerned with making too much noise. I'm sorry, but at least this may be a way of running your smaller turbines at faster speeds."

Tom made a series of notes and the two discussed the basic mathematic behind the placement and size of the relief bulge. Next, Jon mentioned a second possibility.

"We found that just running the turbine through gearing and then to a drive shaft with propeller gave us a whole lot of rooster tail but not a tremendous amount of speed."

Tom said, “All that power and you were just churning water.”

“Right. We also experimented with using an internal water jet system. Again, lots of spray and so-so power. What did it was when we combined the two. High-pressure impeller system sucking in a ton of water every ten seconds—literally a ton—and using that for half our propulsion… straight out the back.”

“So,” Tom picked up the narrative, “you got another shot of power from the same turbine by sending it to a prop. Right?”

Wolfe nodded.

“Standard steering with a rudder?”

“Yep. Ultra-thin rudder, too. To keep drag to a minimum.”

“You saw that we’ve tried putting one of our blade assemblies outside of the case. Where are we going wrong?”

“My guess it is in your diameter. You’ve been playing around with fan blades that are also supposed to fit inside the casing. We found that our best combo was with a prop outside the back of the turbine almost seventy-five percent wider than our water-jet output. It picks up our expelled water as well as grabbing additional water. More water moved equals more speed!”

The two discussed several more areas where Tom felt he needed either reassurance or help.

“Tom. I honestly don’t think that I can be of any help beyond what we’ve talked about. I wish I could.”

“Oh, you can’t imagine how much help you’ve been,” the inventor replied. “If you have any of your own test data I’d love to see it sometime soon, but other than that I now have to figure out how to repay you.”

Jon grinned at him with a hint of sadness. “I’ve only got one request. We’ve tinkered around with carbon fiber for our hulls but the enormous pressure on it means that the material still needs to be about a half-inch thick. Sure, we’re lighter now, by perhaps sixty percent over the days of marine plywood and we’d love to go lighter, but then we catch too much air and up and over goes the boat. Sometimes killing the driver. Got anything to help us?”

Tom thought for a few minutes then he took the pad from Jon’s hands and began making a sketch of his own. “How about this,” he asked a few moments later. “Soft of an underwater spoiler but controlled by computer to just provide enough downward force to match the speed of the boat.”

Wolfe sat there in amazement for a full minute. “We wanted to try something like this ten years ago, but the darn thing kept either breaking down or not reacting in time.”

Tom described a new generation of Swift computers that were task-built; his ‘Little Idiot’ line. “The newest ones could check, compute and adjust an ultra-thin water foil about two hundred times a second. Would that work?”

“Would it? And how!”

Before Jon left that evening, he promised to send Tom all of his turbine data and Tom promised to have their engineering department work on a prototype of the water wing system and controller.

The next morning he called Bud, “I think it is going to solve one of our problems—making enough power and thrust using smaller engine—but as I thought about it last night, I don’t think it is going to do anything for our noise issues.”

Before hanging up, Tom told Bud that it was a day to celebrate. “Let’s call up the girls and take them to dinner and a movie,” he suggested.

Both girls tried to feign an air of un-excitement when Tom called, but soon broke down and proclaimed their wholehearted approval of the plan.

The evening went well beginning with a delicious dinner at a new Italian restaurant on the opposite side of Shopton, followed by an English comedy film playing at the old Shopton Odeon in the heart of downtown.

They strolled along the city streets discussing the funnier moments in the movie for more than an hour before Bashalli reminded them that it was her turn to open the coffee shop owned by her brother. “I must be there no later than 5:00 a.m. Sorry to be a party pooper.”

Bud dropped her off at her house and then took Tom and Sandy to their home.

“See you tomorrow, Tom,” he shouted as he drove off.

While Tom checked on an email he had been expecting, Sandy told their mother about the movie.

“Well, it certainly sounds like something your father might enjoy. Maybe if we both work on him I can get him to take me to see it this weekend,” Mrs. Swift had stated.

“Night, Mom. Night, San,” Tom said as he headed upstairs.

“Good night, Tom,” they chorused.

Just before heading to Enterprises the next morning, Tom received a phone call.

It was Moshan Prandit, Bashalli’s brother. He sounded on the verge of breaking down.

“Tom? I need your help. I don’t know what to do. Bashalli never showed up for work this morning!”

CHAPTER 16 /

HOME AGAIN

TOM WAS STUNNED. First Sandy and now Bashalli? He thought quickly. What could have happened?

"We dropped her off at your folks' house last night around 10:30," he told the now panicking man. "You've called them, I'm sure."

"Of course. And she left there around 4:40 this morning. But according to customers who came by when The Glass Cat should have been open for business at six, the door was locked and the lights off. What can I do?" he wailed.

"Did you call the police?"

"No. I wanted to check with you. She has been so concerned about you lately I thought she might have come to your home and forgotten her obligations!"

Tom denied having seen her this morning.

"Moshan. You call the police. Don't touch anything in your store in case there are any clues. Tell your customers to please leave or wait outside. Explain why. I'll cover any lost business. I'm going to get the Enterprises security team on this as well. Don't worry. We will find her!"

Tom had almost choked the final words out. His heart had suddenly clinched and was pounding in his chest. Everything around him paled against the thoughts that Bashalli must be found. She must be safe!

"Harlan," he told the security man. "They've gone too far. It's one thing to attack me... or even Sandy. But they've got to be stopped now that they're going after innocent people like Bash!"

Harlan Ames contacted friends at the FBI and then sent out a dozen cars with Enterprises security men to begin the search, He was acting as coordinator between his men, the police and Captain Rock at the State Police. Within a handful of minutes every major and most minor roads into and out of the Shopton area had been closed off. If the Pakistani girl had been abducted, perhaps her kidnappers had not had time to spirit her out of the area.

Although Harlan had suggested that Tom remain at the Swift home, he couldn't sit still. He had to get into the search.

Tom picked up his keys and was soon driving to the Prandit home. He hoped to recreate the route Bashalli was most likely to have taken to get to work to see if he could discover anything. About

a mile from her house, Tom's keen eyes spotted an area of gravel at the side of the road that was scraped up and a black smear where tires had been driven roughly against the curb. In the gutter he could see a small purse of the style Bash generally carried.

He screeched to a halt and jumped from his car. Not wanting to disturb any evidence, he stepped around the purse and then walked up to the dense hedge that surrounded the large abandoned house. He knew this to be the old Mayfield house. The family had all died out with the last survivor passing away the previous year at the age of ninety-nine.

Peering through the dense overgrowth he could spot no evidence that anyone might be inside.

"That's no proof, " he told himself as he squeezed between two of the hedge bushes. "It sure feels like something strange is going on here."

He brushed dead leaves and cobwebs off his shirt and pants and headed toward to house.

The front door appeared to be nailed shut, and all of the front and side windows had been covered with plywood. The back door was similarly sealed. Tom was about to leave when his eye caught a motion in an upstairs window.

He scanned the upper floor noticing that only the one window was not covered. A tattered and filthy curtain floated out of the open sash-style window.

Practically anyone else would just have shrugged and left. But, Tom, being well acquainted with science and physics knew that you didn't get a window blowing air in and out unless you had another window or door in the building that was also open.

He sprinted back around to the front of the building and was about to go around the other side when a voice said, "Don't move, smart guy!"

Tom froze.

He heard footsteps coming rapidly up behind him and soon felt something solid and metallic poking into the small of his back.

"Hands behind you, if you please," said the unknown man in a vaguely Hispanic accent. Tom complied and a pair of crude handcuffs were snapped onto his wrist.

Tom noticed that these felt as if they were made of plastic and were more for decoration than for restraint. He would remember this in case he had the opportunity to escape.

“Okay, sonny. Now move your hands inside your belt then turn around to your left, slowly!”

As Tom obeyed, the man turned away from him so that he remained mostly out of Tom’s line of vision. “Up to the house. Now!” Tom evidently wasn’t moving quickly enough for the man. He was rewarded with a harsh poke in the pack.

“Do you have Bashalli Prandit?” Tom demanded.

“We do,” came the reply. “I don’t! She is being kept elsewhere. We really just wanted to get you away from your friends at the Enterprises. And,” he gave a guttural laugh, “now we have you!”

Tom tried to think. What could he do. As he was marched up the front steps the door he thought was nailed shut was opened by his captor. The nails were phonies!

His eyes took a few moments to adjust to the darkness inside the house. In the meantime his captor was sealing up the front door.

“Sit down,” he barked. Tom looked and saw a straight-backed chair behind him. He sat. The chair, old and dry, creaked ominously.

The unknown man walked over behind Tom. “Give me your hands. NOW!”

Tom complied, and the man opened the handcuffs. “Hands through the chair behind you. NOW!” he shrilled.

Tom’s hands were re-cuffed behind the chair with the chain running between two of the chair-back stiles. He shifted, uncomfortably, and felt the chair wobble beneath him. Tom smiled to himself.

Without a word, the man left the room and could soon be heard walking up the old, squeaky stairs. Tom heard a door open and close. He sat in thought. Should I escape now or wait until I can subdue him, Tom pondered.

He was interrupted by a distant noise. He cocked his head believing that he could hear a slight tapping. Within seconds he knew he was right.

Tap, tap, tap, pause tap, pause, tap, pause, tap, pause tap, tap, tap… and then repeated again and again.

Dot dot dot dash dash dash dot dot dot! SOS! He was sure that it was a message. Someone must be held captive in the house other than himself. Tom’s heart beat louder.

Determined to act now, Tom straightened out his legs rising into a cramped standing position. Taking a deep breath he dropped back

down onto just the front legs of the chair.

SNAP! The chair practically disintegrated underneath him. He stopped, listening. Had he been heard? While waiting to see if the man returned he stepped back through the handcuffs and put the chain of the handcuffed under one knee and pushed down. The chain, made of painted plastic and not metal, parted with almost no noise.

Wish I had thought to bring my cell phone, he thought. But, he had been in such a hurry to help find Bash that he had failed to pick it up from its charging stand that morning.

Tom moved silently to the stairway. He could hear a distant man's voice but could not make out what was being said. Moving to the very edge of the stairs to minimize any creaking noises he started up. He had almost reached the top when a doorway down the upper hall opened and the mystery man stepped out. Tom hugged back into a shadowy area. The man stopped as if listening then began walking down the hallway toward Tom.

He was taken totally by surprise when Tom grabbed him, spun him around and applied a fierce uppercut to the man's jaw. With a small groan the man collapsed at the top of the stairs. Pausing only long enough to remove the man's belt and bind his hands to the stair railing Tom walked quietly down the hall.

No good walking into a trap, he thought.

The door had been left slightly ajar. Tom's heart raced when he saw the outline of the occupant of another straight-backed chair.

Bash!

Without thinking, Tom rushed into the room. He was fortunate. There was nobody in the room except the two of them. Evidently the man who had captured him was alone.

He gently pulled off the gag that was tied across the girl's mouth. "Oh, Tom!" she sobbed. "I am the happiest girl in the world right now. How did you find me?"

Tom untied the girls bonds and chaffed her wrists to bring blood back into her hands. She jumped up and threw her arms around his neck. "Oh, Tom. Oh, Tom. Oh, Tom," she said over and over.

Tom held her close until she began to stop shaking. Finally, he took her hands and brought them back in front of her. "Bash. I…" words failed the young man.

"That man," she told him. "He is the one I saw in The Glass Cat and then again in Las Vegas!"

He took one hand and led her from the room. As they passed their erstwhile captor Bashalli placed an angry kick directly into the man's stomach. He groaned loudly, vomited, and then slumped back over. Tom and Bashalli walked quickly down the stairs. He opened the front door, looking around and then led her out and down to his car carefully picking up her purse with his handkerchief.

He drove so quickly trying to get back to Enterprises that he attracted a police patrol car. He gladly pulled over for the flashing lights. The young officer recognized Tom immediately. "Gosh, you're Tom Swift," he had exclaimed. Before the man could ask for his license, Tom explained that the girl beside him was the young woman the police were searching for. "I want to get her back to Enterprises and have our Doctor check her out. Can you radio in and tell Chief Slater that the search can be called off? Also, you need to go directly to the house she was held in." Tom gave the man the address.

An hour later, Doc Simpson had determined that all Bashalli really needed was some anti-bacterial ointment on the rope burns on her wrists, a good meal, fluids, "... and about sixteen hours of bed rest."

Tom asked Chow to supply the food while Doc Simpson inserted an IV to give her fluids she had lost during her captivity.

After a meal and two liters of fluids, Tom took Bashalli home. Harlan Ames had posted a man to watch over the house for the foreseeable future. Although Bash's parents had objected, Tom had insisted pointing out how badly they would all feel if the recent episode were to be repeated. In the end, they agreed.

Tom returned to Bashalli's bedroom to say goodbye, but the girl was already curled up under her duvet, sound asleep. He placed a gentle kiss on her temple and left.

Although he felt positively drained, Tom knew that there were too many things to be accomplished to take any time off. He headed for Enterprises

Within minutes of arriving he called Dianne Duquesne and told her about the pressure relief design. She promised to begin work on a new casing design immediately.

That out of the way, he began working to put the finishing touches on the avionics software. During his brief captivity he had realized that there was a danger in having all instruments that could be duplicated. It could lead to either confusion or even false or contradictory inputs being entered.

He studied more than twenty different instrument layouts from various companies. In most cases certain functionality appeared only once. While Tom had originally opted to have the throttles as a moveable visual item, the software would allow them to be duplicated.

“Not good,” Tom muttered as he rewrote a portion of the code that would keep the throttle control sliders in a single, centered location.

The other function he checked was the radio setting control window. When it appeared only once, either pilot could bring it to within reach. However, when duplicated the most recently used one would override the other with the result that all radio control would be lost.

As with the throttle control, Tom reprogrammed the system so that the radio window appeared only once and was permanently located just above the throttles.

He had now been back at Enterprises for more than five hours. Tom blinked and discovered that his eyes were dry and tired. He rubbed them with his left thumb and forefinger. Squinting at his computer screen he decided that he had accomplished enough.

Leaning back he told himself that he would just close his eyes for a minute. Just a minute…

Tom’s head snapped back waking him up. He glanced at his watch. “6:27?” He got up and stretched. His back and neck felt like they had been beaten with sticks.

“I need to get home for dinner,” he said to himself. He signed out from the programming environment, turned the computer screen off and left his underground lab.

When Tom got to ground level he was curious to see that it was already dark with just a small streak of pink light showing on the eastern horizon.

“East?” Tom laughed as he realized that meant it was almost 6:30 in the morning. “Guess I slept a bit more than a minute.” He walked to his car and climbed in. The drive home was peaceful with the only vehicle he passed a delivery van for the Shopton Chronicle out on its early run. He remembered getting up as a twelve year old at 6:00 on weekday mornings to fold and deliver the ninety papers on his route.

He let himself in through the kitchen door and went upstairs. Sitting on his bed he felt a little tired still but satisfied that the turbine issues might soon be put to rest, the airliner was almost

complete, and—

"The airliner! I took everyone off of the project weeks ago and never started them back up. I'm an idiot!"

He resolved to make all the necessary calls as soon as he returned to Enterprises.

Tom knew that if he laid back he would fall asleep for hours, so he chose to shower and change his clothes. By the time he went downstairs his mother was making a pot of coffee and the mixer was kneading some dough for her light-as-air breakfast rolls.

They sat together while Tom told her about the successes and how great he felt.

"I never had a doubt, Tom," she told him.

Tom blushed but thanked her for believing in him, even when he had lost faith in himself.

Mr. Swift walked into the kitchen moments later, and Tom recounted the project status and his renewed excitement.

"Make the calls early, Tom," Damon Swift suggested. "If you have any problems, ask department heads to call me. We'll get the airliner back on track."

There turned out to be only a single conflict as Tom made call after call to put the construction team back together. Jerry Moore was on medical leave while he had a follow-up operation on his injured arm. Dianne Duquesne suggested elevating their intern, Artie, to take Jerry's place. "The kid could use the experience working with others. He's a brilliant guy, but he's a little aloof when it comes to working as part of a team," she told Tom.

Tom agreed that the sort of work Jerry had been involved in could easily be handled Artie, by the intern from MIT.

A week later Tom was called to the propulsion lab where the team showed him the new, bulging, engine case.

"All filled with the previous insides, Tom, " Dianne told him.

"Let's mount it on The Toad and give her a test flight," Tom suggested.

The rest of the day was spent in outfitting the squat aircraft with the one new test turbine. Tom opted to put off flying it until the following morning, but climbed into the jet and started the turbine just to make sure it worked. With the canopy closed Tom could not tell if it were any quieter that previous engines.

"We'll find out tomorrow," he told the team.

The next day he and Bud climbed into The Toad and fired up both engines. Tom looked with dismay at the decibel meters indicating the noise from each one. The new design was more that 8 db noisier, not quieter.

They took the craft up for a flight and Tom was only slightly mollified to find that the new configuration could, indeed, be run at higher RPMs but was correspondingly noisier.

After landing, his friend tried to console him, but Tom's mind was racing, trying to find the solution.

"With earlier, less powerful engines, we were able to get the overall noise level down as low as 107 decibels, but when multiplied by two or even four turbines, the effect was almost as loud as standing inside of a stadium when the crowd goes wild."

"The way I see it," Bud stated, "you've tried about every method other than getting out and giving them a push. Well, that is except that Steambird thing."

Tom, who had been in the process of turning to his workbench suddenly stopped. He spun back to face his best friend.

Trying to keep his voice level, trying to keep from shouting at the top of his lungs, Tom replied, "Bud. You've just given me *the* answer. If it works out like I think if will, I may just have to call these things 'Barclay Turbines!' "

"What does that mean?"

"It means that you've just given me the idea for the perfect solution. Why spin our super fans using the very explosive technology that cause more than three-quarters of the noise in the first place? Why *not* push them, the genius just told me. *Why not?"*

"I'll lend you my crayon set and you can color me stupid, but I still don't understand," Bud said in dismay.

"How does the *Challenger* fly? How do we push all that water back from our hydrodomes?"

"Oh. That's an easy one. Repelatrons. But you can't mean that you are going to scoot jets around by aiming Repelatrons at the air behind them. Right? I remember you telling me that wouldn't work."

"Right," Tom replied. "But, I *can* push the turbine blades inside the casing around using a series of small Repelatrons." He grabbed a pencil and a notebook from his work table and began sketching.

"Here's a diagram of the basic layout of the turbine."

"Kept really simple for my benefit. Thank you," Bud joked.

“Instead of all the fuel system, the ignition system, the starter motor and gearing, why not just place five or maybe six small Repelatrons at points around the case aimed right at the blades. We set them to repel the exact metal formula of the blades. They all push and the shaft starts spinning. As it spins one blade moves away the next ones rotate right into the beam and they go shooting away. In a few seconds we have the thing turning practically as fast as the metal can stand!”

“And that is all connected to the shaft that turns the big fan blades?”

“Sure.”

“That’s going to give you a huge jump in power, then?”

“Right. We’ve already proved that Dr. Slade’s high-temp process gives us blades that can withstand spin rates of up to twenty five thousand revs. The ‘trons can spin the blades that fast for sure. The new high-rev speed has a benefit of pushing a greater amount of air back through the back of the turbine and that increases the overall thrust.”

Bud asked, “Does that mean they won’t be using any fuel?”

“No fuel, no starter motor, no combustion chambers. Just a pure set of turbine compressor blades front to back spinning at high speed shoving out a lot of air.”

“So, what’s that going to do about the noise. Will these things be quiet as a whisper, Tom?”

“No. The big fans will still whiz through the air making some noise, but my bet is that we’ll get back down to something as quiet as a large household fan. Noisy when you’re right next to it but not if you are a few rooms away. And that’s within the limits we want to hit.”

Tom now had Bud almost as excited as he was. The flier asked when Tom would have a prototype ready to test. Tom, not wanting to promise anything others might not be able to deliver, phoned Hank Sterling. He asked Hank to include Art Wiltessa in the call.

After describing just what he and Bud had been talking about, the two engineers were just as enthusiastic.

“We keep a supply of the small Repelatrons on hand for all sorts of projects,” Hank told Tom and Bud.

“I can work up the mounts for them and we can get the guys over at the propulsion lab to strip out the unnecessary parts from one of the test turbines.”

“How soon?” Tom inquired.

He could hear the two engineers discussing the matter. Finally, Hank said, “We think that it is possible to have something for you to do low-speed lab test with by day after tomorrow. And by slow, I mean probably less than ten thousand revs. Anything higher should wait until we can create a whole new case with the mounts cast right in.”

Late in the day Tom gathered everyone from the aircraft team in the Barn. “Hi, folks,” he began. “I know that you all got restarted on your various pieces of the aircraft a few weeks ago, but a couple things have changed. Major changes, in fact.”

“Are you adding ten more engines, Tom?” came a friendly jibe from the back of the crowd.

“No,” Tom said with a smile and pointing to the questioner. “Everyone? You know our guest heckler, don’t you? Say hello, Bud.”

The assembled team members all sang out, “Hello, Bud!”

“Okay. Here is what had changed.” Tom outlined the first major change in the turbines. People nodded in agreement and appreciation of the potential improvement.

“Here’s what it also means. We have to outfit the jet with an incredible amount of electrical generation equipment. My plan is to mount a replaceable bank of batteries in the tail section that will feed all power systems including the Repelatron-based turbines. This will also include photovoltaic panels which should handle most normal daylight flights.”

One of the structural engineers raised a hand. Tom nodded toward him. “What about back-up power in case of a failure in the battery pack?”

“We haven’t had any instances where a solar battery has suffered an unexpected loss of power much less a catastrophic failure in many months. However, having said that, there will need to be a back-up source of power. I plan to put a generator inside each turbine. They will provide a charge source for the batteries during flight,” he told them.

“For those airports that will host nighttime take-offs and landings we will provide quick-change battery packs that ground crews can install in minutes.”

Tom’s computations showed that the batteries could power the plane on two turbines—enough to successfully fly and land the aircraft—for greater that seventy minutes even if the generators were disconnected.

“The jet will never be more that forty-two minutes from an available airport.”

The team broke up after the meeting and everyone began to study the new plans Tom had devised. The group in charge of the wing and tail assemblies had the most work to perform as the wing tops would need to be retrofitted with the special shaped solar panel arrays.

The team leader approached Tom with a question.

“Skipper. I hear we’re only building the one jet, so how are we going to make this a viable product?”

“Good question. After we get this jet in the air and all tested, I want to develop retrofit kits for the five or six major aircraft models out there. We’ll also make parts available to be built right into planes on the construction lines.”

Nodding, the man went back to his team and explained Tom’s plans.

Bud came up to Tom. “Great speech, Tom. I’ve been wandering around for the past few minutes and you’ve really got them excited about completing this.”

Breathing a sigh of relief, Tom replied, “That’s good to hear. I was watching their faces and it looked like everyone was glad, but you never know.”

They left the Barn and went back to Tom’s underground lab. Bud went directly to his standard perch on a lab stool while Tom sat down at his computer. He motioned Bud to pull the stool over.

“I want you to take a look at how the entire control surface works and tell me if I’ve messed anything up,” he told his friend.

Bud watched as Tom put the simulation of the control panel into operation. Occasionally he asked a question or made a suggestion. “If I were in the second seat I’d prefer to be able to have a mini set of those readouts. Let the pilot have the full-size gauges and their adjustments, but give the copilot the ability to see them without straining his neck.”

Tom agreed and added it to a short list of items he wanted to address before turning the programming over to the team building the all-glass instrument panel.

Finally, Bud was satisfied. Tom realized that it would only take about one additional day to complete and test the new functionality and decided to begin the following day.

By the middle of the next afternoon Tom had finished his

programming work and had transmitted the entire program to the instrument and avionics team. They would incorporate it into the wide-screen surround panel and perform a battery of tests to ensure that it functioned exactly to spec.

He was about to leave his underground office to visit the construction hangar where the aircraft was back in production when a call came through from the main switchboard.

"Hello. Tom? Chief Slater. I have a very interesting young woman here at the station and she has a pretty amazing story to tell. Least wise, it sure sounds like it's going to be a doozy. Only thing is, she wants to talk to you before she spills everything."

He asked Tom to come to the Shopton Police headquarters.

Twenty minutes later Tom walked through the front door and was told to head down the hall to the Chief's office.

Seated in front of his desk was a young woman. When she turned to face Tom, his jaw dropped in amazement. "Daisy! What are you doing here?"

The girl rose from her chair and faced Tom, tears welling in her eyes.

"I've done a horrible thing, Tom. I think I've become *an industrial spy!*"

CHAPTER 17 /
WHERE IT ALL BECOMES CLEAR

"WHAT DO YOU mean, Daisy?" Tom asked shocked at the girl's admission.

Between sobs, she explained. "My boyfriend… well he's not my actual boyfriend but a guy I dated a little a month ago came up to me while I was shopping. He wanted to get together with me. At least, that's what he said."

"Okay, Daisy, but I can't see how that and being a spy are connected," Tom told her.

"He was really nice to me, Tom. He had a little body odor problem," Tom looked meaningfully at the police chief, "but he was really nice. You might not believe it, but I have problems keeping beaus."

Tom didn't say anything but was thinking, '*It would take a special sort of patience to want to be with Daisy long term.*' "Go ahead," he suggested aloud.

"When you let me work here that other week I did something awful. He just asked me to get him a souvenir or something. He said that getting a copy of a Tom Swift design would really make his day. He only wanted one of your model airplane designs." She began to sob again and Chief Slater got her a cup of water.

"Daisy? Who was this guy? What does he look like?" Tom asked.

"I want to know where this guy lives, that's what I want," said the chief causing Daisy to go into more fits of crying.

When she finally calmed down she said, "He told me his name was Frank. Frank Smith. I don't know were he lives. Oh gosh. You don't think he gave me a false name, do you?"

She poured out the entire story. While she was working on the inventory and filing of all the paper-based plans and designs she had been on the lookout for anything that was aircraft oriented; that is the type of design her Frank Smith has asked her to get.

"I thought since they had all just been scanned into the computer that you didn't need all of them. I took the picture and the pages with all the lines and writing of that really wide model airplane you were creating. He gave the picture back to me the next day so I put it back in the drawer. I think he must have made a copy or something."

Tom told her that it wasn't a model and she paled. "That's what I realized. And that makes me an industrial spy!"

She told the two she had not seen the man since he gave back the plans. "Can I call my folks before you put me in a cell?" she asked.

Tom took the chief aside and the two men decided that Daisy was so remorseful that she must have really been tricked.

"No, Daisy. You won't need to make a call because we aren't going to arrest you. Your honesty is more important."

Tom returned to work, reporting it to Harlan. "She picked Frank Harris out of a photo lineup, Harlan," Tom told him.

The matter was soon behind him. He spent several days working with the propulsion engineering team on improvements and alterations to the turbine. One afternoon he called the team together in a conference room.

"I would have sworn that the Repelatron turbines would do the trick," Tom exclaimed to the gathered team.

"We're getting better than eight thousand more revolutions using the Repelatrons, Tom. What did we do wrong?" a young engineer asked. Tom recognized him as Milton Dash, a newly arrived exchange student from Oxford, in Great Britain.

"Milt. I really can't say that we did anything wrong. We're getting more turns but I think the downsizing of the overall turbine is killing its potential power. There is one other thing that was suggested to me by someone the other day."

Everyone talked at once, They all wanted to know Tom's latest brainstorm.

"We've incorporated the new pressure relief bulge in the case as well as relief valves and that helps us turn the turbine at around twenty-three thousand RPMs right now." He looked around and everyone was nodding. "So, we are going back a few steps and adding another fan blade set."

"How is that going to help, Tom?" Milt asked. "I looked through earlier reports and thought you all had more than enough blade sets in there."

"True, Milt. But Mister Wolfe who kindly provided us with the relief data also information regarding an external fan.

Holding up a hand to silence the team, Tom tried to explain. "We've been trying to replace the guts of a standard jet turbine engine with different guts. And yes, we did hang a fan outside the

case for some tests, but we only did that to test the blade efficiency. My belief is that we need to think outside the box… literally!"

Again, he held up a hand to halt the onslaught of questions. "By that, I mean that we have been stuck inside of the engine case. I've been stuck on the inside. Years ago a bright aerospace engineer came up with the idea to turn a propeller, not with a standard piston engine, but to hook it up to the front of a small turbine engine."

They all nodded, understanding exactly what he referred to.

"He upped the amount of power available to turn his prop without creating an engine the size of an elephant. That way, he could power a smaller aircraft with a powerful engine and fly it through the air faster. And, that's what we need to do."

He explained to the assembled men and women, "I want to mount an external fan at the rear of the turbine so that it spins along with the rest of the turbine. But it's going to be large. Probably at least six feet across!"

There were murmurs from the group, then Candice Watson, a pretty blond structural engineer and four-year veteran employee spoke up. "Tom? I think what we want to know is, why outside? Inside, the turbine blades generate momentum. But, outside it will just be hanging there sucking up power."

"Well, Candice, assuming it works, it will act like a super propeller. This turbine already puts out almost as much power as a similar fuel-driven unit. Dynamo testing shows that while we can't spin any faster, the Repelatron version has power to spare and I intend on harnessing that."

Tom told them about the findings Jon Wolfe had provided showing the incredible increase in thrust when he had added a wider prop to his racing boat in order to move more water. "The more water he moved, or in our case, air, the faster his boat could go."

The discussion went on for several hours with team members working on sketches, computations and even detailed drawings at various times. At the end of the discussion it was agreed that a new turbine would be constructed over the following week.

The basic turbine would feature a new central axis, the shaft onto which all of the turbine blades were attached; a longer, balanced version capable of supporting the large external fan blades.

Later that day the Swifts were surprised when the main gate called to tell them that Adolph Harris wanted a meeting. "He's

driven up from Connecticut, he says," the guard told Tom. "What should I do?"

"Have him escorted up here, please."

Tom looked at his father. "What do you think he wants?"

"There's no way of telling with a man like Harris, son. We'll just have to play this by ear."

After he was shown into the Swift's office, Mr. Harris refused to shake either of their hands, but got right to the point of his visit. Pacing around the office while Tom and his father sat in the leather chairs of the conference area, Harris started with, "I want you to know that I have had nothing to do with any shenanigans. None!"

He sat on the edge of Damon's desk then forced himself back up. "You have to stop harassing my son. I don't care what you think you saw, Tom, but my Frank was nowhere near Shopton when you say you were allegedly attacked."

"There was nothing 'alleged' about it, Mr. Harris. Frank and his friend Billy Grandlin did attack me. And they kidnapped my sister."

As Harris sputtered denial after denial, Damon Swift rose. "I don't believe there is anything else to be gained here. Despite all indications, you refuse to believe that your son, a convicted felon, is a criminal. Isn't his last conviction for a strong-armed assault and robbery?"

When Adolph Harris demanded an apology, Mr. Swift suggested that Harris was deluded, and then asked him to leave Enterprises.

The guard who had escorted Harris to the office took the angry man back to the main gate and ensured that he departed.

Tom and his father were perplexed about the man's visit and his attitude. Whatever his reason for coming to see the two inventors, it certainly hadn't been to ask for understanding or to mend fences.

Six days later Tom was invited back to the propulsion engineering building. The same group of people were present along with Tom's father and Bud. With a flourish, Jerry Moore, freshly back from his final operation and who had been elected to speak for the team, swept aside a tarp revealing the new turbine.

Tom gasped. "My god! It's magnificent," he proclaimed. He walked over to the gleaming, newly-chromed outer case with its oversized turbine fan at the rear end. He ran his hands over the engine and gave the external blades a brief spin. They turned almost as if balanced on air.

Bud piped up, “The team did a wonderful job of balancing it, Tom.”

“What do you think, Dad?” Tom asked turning to the older inventor.

“Let me ask that question right back at you, son. What do you think? After all, it is your baby.”

“Mine and all of these great Enterprises employees.” He faced the team. “Thanks, guys. If this works like I think it will, you’re all in line for big bonuses!”

There was a cheer from the group and then they flocked up to Tom all trying to point out the newest features they had worked on. In the end, Tom personally thanked each one, shaking them by the hand.

Hank Sterling and his team picked up the new engine and began the installation process on the Toad that afternoon. Two days later the work was completed and the jet ready for testing with the new turbine and one original engine.

“Ready, fly boy?” Tom asked Bud.

“You know it, professor,” Bud replied and climbed into the odd-looking aircraft.

After a thorough check of all flight systems and an external check that Bud made were complete, Tom flipped a series of switches and revved the normal high-bypass turbine over the port wing. It fired into life and was soon humming along. He looked meaningfully at Bud. “Here goes!”

Tom repeated the steps necessary to fire up the starboard turbine, his newest creation. It worked well to have it mounted on top of the wing, but Tom knew that on other aircraft—jets that had under-wing mounts—manufacturers would need to be remount the engines closer to the wing than normal to accommodate the large outer fan blades. Tom knew that FAA regulations required clearance of at least eighteen inches, but he wasn’t worried. Only one short-to-medium range jet model in current service would be unable to provide the mandatory clearance.

As both engines idled at 5,000 revs Tom noticed that the starboard side of the plane wanted to surge ahead. He eased back on the throttle for the new turbine and found the perfect setting at about 4,100 RPM. He let out a little whoop of excitement.

“Bud! This means that the new turbine is putting out somewhere around twenty percent more thrust.”

Tom carefully taxied the new jet onto the main north-south runway and radioed for take-off clearance.

"Roger, skipper. You're good to go. Keep the channel open so we can stay in constant contact."

Tom agreed and then started the jet down the runway. Within seconds it became obvious that there was a problem. "Aborting take-off, tower," he radioed pulling back on the throttles and applying the foot brakes.

"What gives, Tom?" Bud asked as they came to a halt.

Tom smiled. "The new turbine is putting out so much more thrust that I got the throttle balance all out of kilter. I need to just lock the two levers into an offset position and then we go up."

Tom made the adjustment while Bud described what they were doing to the tower controller. Within five minutes they had taxied back to the head of the runway and began hurtling down it again.

Upon reaching flight speed, Tom raised the nose and the aircraft zoomed up and into the blue sky.

He intended to fly the jet around until they reached 20,000 feet and then to feather down the port engine so that he could see if the new turbine had the power to keep them airborne.

All tests went so smoothly that Tom decided to try a single-engine landing. The new turbine worked like a champ and Tom and Bud descended from the squat jet absolutely beaming.

"What's wrong, boss," came Chow's booming voice. "I heard that you came in without yer injins running!"

Tom laughed. "Chow. Our 'injins' were working just fine. And you know what that means?" The older man admitted that he did not. "It means that at a few hundred feet, the new engine is almost as quiet as a whisper.

Both Chow and Bud patted the boy inventor on the back. "You did it, Tom!" Bud told him.

"In fact, Tom continued, "I'm officially going to call it the QuieTurbine."

"Now that you've got the turbine working and quiet, have you given any further thought as to how you are going to power it? Or them?" The question had come from Tom's father who had just walked up.

"I still think that a bank of Swift solar batteries could power the turbines," Tom replied. "They can be pulled out and a new one

installed at the airport between flights. Or recharged with high-capacity units at each gate."

"Hmm," his father muttered. "Maybe we'd better take a second look at that, Tom."

The two inventors walked back to their shared office. By the time they arrived, Damon Swift had convinced Tom that solar batteries were only part of the solution. "I pulled out some older calculations I did for one of the government projects, and I believe that you've got a pair of issues. First, unless you've done something wonderful to the Repelatrons, you would need the power of about ten of the industrial Class One batteries per turbine per hour of use in flight."

Tom was flabbergasted. "Gee. I've been so tunnel-visioned on the turbines that I completely dropped the ball on computing the power issue."

He asked his father to send the power consumption tables to his computer. Tom sat down and soon saw exactly what his father meant. *What to do*, he thought.

An hour later he was no nearer a solution, but felt that he had made a start at detailing all of the electrical needs of the aircraft including the power-hungry turbines.

He called it a day when his father announced that he was going home around 5:40 that afternoon.

A dinner of Mrs. Swift's practically famous fried chicken along with fresh green beans and cheese-stuffed potato skins and Tom was feeling like taking on the world.

He turned in early explaining that he wanted to get back to Enterprises early the following morning. Good to his word, he left the house just before 5:00 a.m. He took a long route to work stopping long enough to startle a young woman who was just unlocking a local business' door.

"My goodness! Tom!" she exclaimed, surprised but very pleased.

"Good morning, Bash," Tom answered giving the girl a brief hug and a kiss. "I was just passing and thought I'd drop by to say... well... good morning."

She invited him into the coffee shop. "Have you had anything for breakfast, Tom?" she asked. He admitted that he had left too early and in too much of a hurry.

"Well then, you sit while I toast up a bagel and make you a hot cocoa. Extra whipped cream."

While Tom ate and drank, Bashalli puttered around the shop filling the big espresso machine and setting out fresh pastries that had been baked by her brother the previous night while she was beginning her work.

He finished and begged for forgiveness as he felt the need to rush off to work. “I’m so close to solving this whole QuieTurbine thing,” he told her.

Entering Enterprises through the Swift’s private gate he went straight to his office. By the time his father arrived several hours later, Tom was jubilant.

“Dad!” he exclaimed. I have it. I’m adapting the design of the SkyLiner to have built-in solar panels covering the wings to provide the power for everything other than the turbines in daylight. They will also act as a charger for the solar batteries, which will be the aircraft’s backup power system.”

Mr. Swift smiled a knowing smile but he waited for Tom to complete his thoughts. “Plus, I’m changing the design to incorporate one of the Swift energy capsule power sources. Our medium-power version is small enough to fit in the bay where any aircraft’s current auxiliary power unit sits. And where it will be a cinch to hook it up to the aircraft’s power grid!”

He looked at his father finally registering the smile on the older man’s face.

“Shoot. You already had that figured out, didn’t you?” Tom wasn’t surprised or disappointed. He took great pride in his father’s brainpower and experience.

“I do have to admit that the same basic thought came to me yesterday as you were sitting there looking through my calculations. But I didn’t factor in the solar panels as the backup. I was still thinking of a bank of solar cells.”

Tom added, “I figure that we’ll still need some of the cells for emergency power at night, but they wouldn’t need to be changed out several times a day. One set would be used and recharged by the solar panels whenever the plane flies in daylight.”

“They could also be charged on the ground via the airport’s existing electrical system, you know,” his father suggested. He also suggested that Tom try to find a way to cover only the top of the fuselage with solar panels. “They frequently need to walk on the wings, you know.”

They talked well through the morning about this new approach to

the power system. Following a lunch provided in their office by Chow, Mr. Swift excused himself for a teleconference with a European subcontractor while Tom set about the task of designing the actual system. By quitting time he had the entire thing designed and all specifications recorded.

A call to the supply department got the ball rolling on delivery of a bank of ten of the solar batteries Tom's system would use. These Class One cells were about the size of a large automobile battery but were capable of putting out 40-volt power over a long time. A special circuit routed about 5% of the power output into a high-voltage exchange circuit that was boosted to 800-volts. This high power was then fed back into a charging circuit that fed back into the battery.

This way, the battery could partially recharge itself every moment it was being used. It wasn't a perpetual power supply, and it was no substitute for a full solar charge in space, but Tom was proud of having come up with this advancement to the batteries. It meant that each battery would last almost 20% longer than its earlier version.

The next day he assembled a test system with the assistance of Hank Sterling and several of the Propulsion Department engineers. They set up the test turbine and ran the entire system for seven straight days without once stopping.

"That has got to be the most marvelous thing I've seen in months," Hank commented.

After a weekend break where Tom and Bud spent a complete day with their dates sailing around Lake Carlopa followed by dining and dancing at the yacht club, he walked into the shared office. Tom greeted his father and was about to sit down when the intercom buzzed.

"Yes, Munfor... sorry. Yes, Trent?"

"Tom, there's someone on the phone who is demanding to talk to you. One of the airline executives, I believe."

"Got it. Thanks." He pressed the button and opened the connection. "Hello? "

"Mr. Swift?" inquired a voice. When Tom acknowledged who he was, the man continued. "This is Arthur Jakarman of Global Air. I just called to tell you that news has come to my attention regarding your new aircraft propulsion system. I can't believe that you would place people's lives at risk just to make money. We will never, I repeat, *never buy such a death system from Swift Enterprises!*"

CHAPTER 18 /
ATOMIC OBJECTION

TOM COULDN'T BELIEVE his ears. "I don't understand, sir. What do you mean you will never order our new system? What have you heard?"

Sputtering indignation, the man replied, "You know full well to what I refer. Your scheme to have passengers exposed to deadly radiation poisoning. Putting a nuclear reactor in an aircraft. I've never!"

Tom paused, trying to decide how to best handle the irate man. Finally he said, "Mr. Jakarman. It would help me to know who it was that gave you that erroneous information."

"It came in a telegram from a Doctor Fälschung in Berlin. He has evidently studied your plans and assures me that you are endangering the lives of anybody who boards such an airplane."

"Sir. I assure you that there is no more danger to passengers using the QuieTurbine system that you yourself are exposed to on a daily basis."

"That isn't what *he* says!"

Determined to get an explanation, Tom said, "Your building is currently powered by one of our Swift mini-atomic capsule power plants. Exactly the same as we intend to use as the main power supply for our turbines. As I recall it was you who ordered the power supply from us when they were first on the market."

"Well, I'm sure that that one is safe, but this telegram…"

Tom cut him off. "Mr. Jakarman. Can I ask you to bring up a German to English translation website for me?" He gave the man the web address. "Do you have it up?"

"Yes I do, but I hardly think this is the time for such nonsense."

"Please type in the full name of the sender of that telegram. Now, read me the translation, please."

There was sputtering from the other end and then the president of the airline came back on and sheepishly said, "It says *'doctor fake'*! I guess that makes me a big fool, doesn't it?"

"Not at all, sir. There have been several attempts by some industrial agents to discredit our work. They have even stooped to attempted destruction and kidnapping. While I take any concerns you might have seriously I must tell you that Swift Enterprises prides itself on the safety of the products and materials that come

from our factories."

After eliciting a promise from the man to keep Tom posted of any further attempts to distribute false information, Tom phoned Harlan Ames and told him of the discussion.

"Harlan. Dad and I only started talking about using the capsule late last week and only here in the office."

Ames promised to get over to the office with the necessary equipment to search for bugs. It took only three minutes to locate the bug stuck to the underside of Damon Swift's desk.

Using latex gloves Harlan detached the device and placed it into a sound-proofed container. He turned to Tom. "Obviously, we have a leak at Enterprises."

"I don't think we do," Tom told him. "Last week Adolph Harris made some pretext to come here. He wandered around the office as he ranted about his innocence and his son. At one point he sat on dad's desk. Right where you found the bug."

Harlan assured him, "I'll have it dusted for prints. If he planted it, then this will be the final nail in his coffin!"

"What about the telegram angle?" Tom inquired.

"I'll get right on the phone and call that telegram company to see who might have sent it. Or, at least where it originated. I'll also personally call the heads of the other major airlines and the aircraft manufacturers to find out if they have received anything similar and tell them that it is an outright lie."

Tom thanked him, but cautioned, "It isn't an outright lie, Harl. We really are going to put an atomic power capsule in the plane. What's a lie is that it is unsafe. Even in the event of a crash. No leakage."

After Harlan took his leave, Tom reviewed his conversation with the president of Global Air. *Doctor Fake*, Tom chuckled to himself. *What's next? Commander Grosse Lügner…. the big liar?*

He returned to the electrical system control module he had been designing.

He knew that there would be a need for a failsafe circuit to be designed that would provide power to the avionics and servos in case of any interruption of power from the main source. He opted for the addition of an uninterruptible power source to be located at each vulnerable point.

All power would flow through these solar battery points which would temporarily take over should the main power go out.

By matching each subsystem with its exact needs, Tom computed which of the Swift solar batteries would be used for each.

Satisfied with his progress he called Bashalli.

“Hi, Bash. I just wanted to talk to you. It’s been a couple days and I feel kind of like a heel.”

The Pakistani girl told him, “It is not to worry, Tom. I manage to fill my days in between pining for your company.” She laughed. “Actually, I was just thinking about calling you. My mother would like to invite you to dinner tomorrow.”

“What’s the occasion?”

“Well, you will remember that you practically saved my life. Mother and Father wish to thank you.”

“What can I bring?” he asked.

“Normally, guests bring little knick knacks as thank you gifts. However, as this is a thank you to you dinner, perhaps only a small bunch of flowers. Mother’s favorites are yellow daisies.”

Tom arrived with an arrangement of the pert, yellow flowers along with several types of leafy plants and ferns. Mrs. Prandit’s eye went wide with delight. “How did you know, Tom?” she inquired.

“A beautiful little bird told me,” he replied. Sensing her confusion, he added, “And that bird’s name is Bashalli.”

The dinner was fairly exotic by Tom’s terms consisting of many fragrant dishes of flavored rices, naan, a spicy vegetable curry, lentils and a rice-stuffed lamb dish called Sajji. Tom was full even before being served the dessert that Bashalli called Ras Malai.

“That was an amazing meal, Mrs. Prandit,” Tom complimented the woman. Both she and her husband beamed with pleasure. Mrs. Prandit suggested that Tom and her husband go into the living room while she and Bashalli cleared the table. Bashalli looked meaningfully at Tom as if to say, “Sorry. I wish I could be there.”

Once they were seated Tom tried to think of a subject he might bring up while waiting for the women. He was beaten to the punch by Mr. Prandit.

“You know, my young friend Tom, that our daughter is trapped between two different worlds.”

“How do you mean, sir?” Tom asked.

“Well, she is Pakistani by birth and by custom, but she is also American by custom and inclination. Her mother worries about her. She and I were married when I was eighteen and she was fifteen. An arranged marriage, but one that we have both grown to appreciate.”

Tom sat there, silent. He didn't know what to say or what to expect.

"I have come to a very special conclusion, Tom. And, I want you to understand that my decision is final. Where it concerns my daughter and you, she is now an American. We will not interfere with whatever may or may not flower between you. I must also ask that you not tell Bashi of how soft I am becoming." He winked at Tom.

Relieved, Tom assured Bash's father that he had only the best of intentions. He was about to expound on this when the women entered the room.

"I hope that my well-meaning father has not attempted to pin you against the wall, have you father," Bash stated looking at her father.

"No, Bash. Actually, your dad and I have been talking about how well Pakistan is going to be playing cricket this year." He looked at the man hoping that he was a fan of the sport.

"Ah, yes. I was trying to explain the leg before wicket rule to Tom. It has long made little sense to me, so I am afraid that I was unable to help him understand it." He smiled at his daughter with feigned innocence.

The rest of the evening was spent trying to teach Tom a card game called Piche Pasha while he described his QuieTurbine project.

As he was leaving, Bash kissed him on the cheek. "Thank you for allowing my father to win. Mother never lets him and I don't play it with him. You really made his evening."

Tom was on cloud nine the next day. As he was sitting at his computer daydreaming and trying to accomplish a little work he heard a throat clearing. Turning, he saw Chow standing in the doorway.

"You got a minute, Tom?" the cook asked.

"Sure. Anything for my favorite Texan," Tom answered.

Sitting down, Chow asked Tom, "Kin you help me with somethin'? I've got to git back at ole Buddy Boy for somethin' he did last month."

"What did he do that rates a payback?"

"Wahl, see, I brung him and one o' your clients a nice fish lunch when they 'as doing some demo flyin.' Anyways, Buddy makes a crack about my cookin' right in front o' them strangers. Kin you imagine that?"

Tom said that he could.

"Anyways, I got me an idee how to get back at him. You in?"

"What's the plan?" Tom asked.

Chow outlined a plan to fool the young flyer. He had purchased a five-foot long coil of chicken sausage that he would place in the bottom of a soup tureen. At the end of the sausage he planned to sew on a fake rattlesnake tail and then cut off the other end as if it were a beheaded snake.

Tom liked the idea so he invited Bud to lunch with him.

"I could eat a horse," he announced as he sat down with Tom.

Good to his word, Chow brought in the tureen and set it on the table in front of the boys. He made a production of pulling the lid off. "Ta-daa," he declared.

Bud looked at the coil of meat and blanched. "Wha—what's tha—that?"

Tom spoke up. "Yum. Looks like Chow's finally giving us that rattlesnake soup he always promises. I'll take a big bowl full, Chow."

The prairie cook ladled a large heaping of the broth and vegetables and then produced a big pair of scissors which he used to cut off a half foot of the 'snake' and placed it in Tom's bowl.

"Buddy boy?"

"Um," Bud gulped. He watched as Tom took a spoonful.

"Oh, Chow. This is great," Tom stated and dug in.

"I guess I'll try a little, Chow," Bud said meekly. He soon was sitting in front of a full bowl of the concoction.

"Eat it up, boys," Chow boomed. "Plenty more in the pot!" He left to get their dessert.

Bud took a small spoonful of the broth. Putting it to his lips he closed his eyes and then slurped it in. His eyes opened. "Gee. That's actually pretty good," he admitted. He cut off a slice of the sausage and tried it.

"A lot like chicken, huh, Bud," Tom said.

"Yeah."

"Don't tell Chow but it actually is chicken. He's just getting back at you. Don't let on." He explained Chow's reasons.

Both boys finished their bowls with Bud taking a small additional helping. As they finished Chow reappeared. He cleared up the dishes and then dropped a piece of paper on the table in front of Bud.

Bud picked the paper up, which turned out to be the label from the sausage. He almost choked as he read the ingredients aloud:

Contains 100% rattlesnake meat
with no fillers or preservatives. Salt,

"Guess he got us both, Bud," Tom had to admit. Chow left the room and was heard chuckling as he headed down the hallway.

An hour later Tom's designing was interrupted by his phone.

"Hello, Tom. It's Jake Aturian. I have a bit of interesting news for you."

"That's wonderful. I could use some good news," Tom replied to the man who ran the Swift Construction Company and was one of his father's dearest friends.

"You know that we made delivery of the little sky racers a month ago, right?"

Tom did. He told the older man about his trip out to see the first test races. "During their training month there was one near accident, and that ended up with just a dented nose piece and damaged landing gear, Jake. The pilot misjudged his pull up to go over an obstacle and he pancaked into the upper portion of the inflated course piece. The automatic parachute system deployed and he is okay."

"So, you know that they are about to announce their official racing season, right?"

Tom did.

"Good, but that's not the reason for my call. The military—surprisingly the Marines and the Army—have both seen them flying around in the desert near Las Vegas and they are most impressed. You'd think, what with the Air Force base out there, that the 'bird service' might want a look, but they can't be bothered. The Army guys asked about a long-range and quieter version. Would it be enormously expensive to develop? I had to bite my tongue to keep from laughing."

"Outfitted with a small QuieTurbine?" Tom asked.

"Yes and no. We can turn out a Repelatron-powered version of the turbine without the external fan that will just barely fit inside of the fuselage and should give almost fifty percent more speed than the little engine in there now, as well as being very quiet. I imagine that at two thousand feet they would be as quiet as a cloud drifting by."

He continued telling Tom that the initial inquiry was for a potential order of two hundred of the craft along with a half dozen 'trainer' aircraft, basically the original jet-powered, slower version.

"When will we know?"

“We’re going to hold a demonstration for the military brass and the governmental purchasing office in two weeks. Can we borrow Bud?”

Tom agreed to call the young flier but assured the older man that Bud would be thrilled to take part in the demo.

“Oh, one more thing, Tom. Could I get The Toad back? I want to add that to the demo for these people. I have a hunch that there will be more than a little interest in it.”

“It still has the external blade on the starboard turbine,” Tom said. “It’s the first QuieTurbine.”

“Even better! We can demo how quiet it is.”

The head of the Construction Company—whose teams had been working night and day at the hangar at Enterprises—gave Tom an update on the new airliner’s progress. “Give us a few more weeks and you should be able to roll her out to the world.”

Tom hung up the phone and looked up to see Phil Radnor coming through the door.

“Hey, Tom,” the heavy-set security man greeted him.

“Hi, Rad. What’s new?”

Making a big production of lowering himself into one of the comfortable leather chairs, Radnor grinned at the inventor. He cleared his throat.

“You may not recall the incident, but one of our rather large aircraft, known as,” with this he paused and pulled out a notebook from his shirt pocket, “Ah, yes. Known as the *Sky Queen*, was fired upon by persons, unknown, as it traversed over the skies above the state of Pennsylvania.”

Tom looked at the man, bemused. “Yes, yes and yes, Rad. Get to the point.”

Putting his notebook away, Radnor said, “Okay. You played detective and found out that it was one of two that were stolen from an Air Guard weapons depot. We just received word that the two people who stole them have been found.”

“Are they talking?”

“Unfortunately, no. But, the FBI and Guard did figure out what happened to the second missile. It exploded on its launching rail. That’s what killed the two. Probably happened the same time that launched the first one. They had been deceased for quite a long time.”

Tom was sad for the loss of life but elated that the threat from an

untraceable missile was gone.

"I guess that puts an end to that part of it, but does anyone know if those two were connected to anything that is happening to us now? Like the whole LexPro thing?"

"There is a little connection there, skipper. One of them was carrying ID that named him as Glen Falconi of New Haven, Connecticut. A search of tax records shows that he used to be an employee of Lexington Propulsion."

"Wow!"

Phil informed Tom that the man had left LexPro employment several months prior to the missile theft so the connection might be a dead end. "We're continuing to work on that angle with the FBI," he told Tom before departing.

An hour later he called Tom. "We just found out another thing about the missiles, skipper. The feds didn't want to tell us, but since there is about to be a federal suit filed, we were just told that the manufacturer of the missiles was Lexington Propulsion."

"As Bud would say… jetz!"

"That's not all. It turns out that the dead ex-employee was once one of the lead development techs on that missile project. If anyone would have been able to devise a way of activating it and firing it, Falconi would be that man."

He reported that there was still no ID on the other man.

"Harlan and I believe that the Bureau is about to hold a little raid on our friend's at LexPro. Nothing official from them—there never is—but Harlan's experience with the Secret Service tells him that it's coming."

"I hate to see a once good man go so wrong," Tom said. "If you ever see me starting down that rocky road, give me a good flying tackle and knock some sense into me.

"Harl and I will take you from two different directions. You won't know what hit you, skipper," he assured the inventor.

He had no sooner hung up when the switchboard rang again.

"Tom? I have a man who wants to speak with you. He says it is in regards the quote, 'whole Harris mess which he intends to put an end to,' end quote!"

CHAPTER 19 /
A TRIAL RUN

"IS THIS TOM Swift?" the caller inquired.

"Speaking," Tom replied.

"This is Daniel Rathman, District Attorney and prosecutor for Shopton township and Essex County. I need your assistance. Well, that is, assistance from both you and your sister, Sandra."

Curious, Tom asked, "What can we do for you, sir?"

"We have a pair of criminals in Shopton jail. One has been there for a few weeks but the other one came in yesterday on parole violations. We understand that they might be implicated in attacks on you and your sister. The thing is, we are about to lose jurisdiction on them to a federal rap unless we can prove that they were involved locally. Can you two get down to the courthouse on Third and Halsey and testify?"

"When do you need us, sir. We are always ready to step up and help put the bad guys away."

"That's the bad news. We need to get you in here in the next hour. Is it possible?"

Tom said that it was and promised to have the two of them at the courthouse in under an hour. He then phoned home and told Sandy to meet him at the county building.

They walked in together and quickly reached the second-floor courtroom. Tom identified himself and his sister to the Bailiff guarding the door. "Go right in," he told them. They entered and took seats in the second row.

A tall, brown-haired man sitting at one of the two tables within the bar area stood and came out through the gate. "You're Tom, so you," he smiled and pointed, "must be Sandra Swift. Thank you so much for coming here. We have the opportunity to get these two career criminals. See those two sitting at the other table?"

They both immediately saw the tall red-headed sullen young man and his stockier but still tall companion. Sandy gasped and Tom murmured that he did, indeed, recognize them.

"If you can testify that you truly saw them, that they are the pair that kidnapped Sandra and attacked you, Tom, then we have them!"

"It might not be that easy, sir," Tom admitted.

He told the DA that he had not had a perfectly clear view of his attackers and that Sandy had never really seen them. The DA groaned under his breath. “Then we’re sunk!”

“Perhaps not. Both Sandy and I would recognize the two of them from their smells.”

He explained about the aftershave and the breath mints, both distinctive. He also told the man of his encounter at the FBI interrogation. “Harris reeked of it. I can even smell it on him right now,” Tom declared.

The DA smiled and made a few notes.

Tom added, “I thought that a deal was being made with Billy Grandlin. He was to provide testimony against Frank Harris in return for a separate trial.”

“That’s on another matter. This trial is only for parole violations.”

“How can we help with that, sir?” Sandy asked. “Our dealings have been with the attacks.

“I intend to prove that they violated their parole terms by attacking you. That will put them away for a number of years, long enough to build iron-tight cases against them for the actual attacks.”

The hearing began with both attorneys making their opening statements directly to the judge. Both defendants had been informed that parole hearings never included trial by jury and that the Judge would make all decisions.

The DA called on several individuals including a prison psychologist and the parole officer assigned to the pair before he got to Tom.

He asked Tom to describe all of the action that took place before and during his attack. At the end, he asked, “So if you only got a partial view of both attackers, what makes you believe you could identify either of them in this courtroom?”

“The red-haired one practically stank of body odor mixed with a cheap aftershave. Admiral’s Choice. And the other man had been sucking on a cherry-flavored breath mint. He even lost the mint in his mouth and it stuck to my shirt.”

“How is that germane?”

“We turned it, along with a red hair the other attacker left at the scene, over to the FBI. They did a DNA workup on each and have said that they could match them to the attackers. I believe the results are finally available, and an agent is prepared to testify to the

identity of the assailants," Tom stated.

The defense attorney tried to trip Tom up on a few insignificant details but was unable to fool the youth. Finally, he gave up and sat down.

After thanking Tom the DA called Sandy to the stand. She told her story echoing Tom's details of the aftershave and breath mints her kidnapers had smelled of.

Everyone in the courtroom watched as first Frank Harris and then Billy Grandlin shrank into their chairs. The judge made a note of this fact.

Sensing a weaker opponent, the defense attorney tried to grill Sandy on details. She stared directly into his eyes and answered each question without batting an eye. He was about to let her go when Sandy asked him, "Aren't you going to ask me about the gun that Frank Harris held to my throat?"

The attorney who had been in the process of turning away swung wildly back to face the bench. "Objection. She's answering a question I never asked."

"The judge turned to Sandy. "Young lady. You cannot testify to something about which you have not been asked." He winked so that only she would see it. "Unless," he continued, "the prosecution asks for a redirect."

"Redirect, your Honor," chimed the DA.

The defense attorney pounded his fist into his table. "Objection!"

"Overruled," the Judge stated calmly. "And, watch the furniture."

When the DA asked Sandy if either of the men who kidnapped her had a weapon of any sort, she replied, "Frank Harris. The one who stank of Admiral's Choice aftershave put a gun to my throat, sir, and threatened to kill me if I didn't cooperate."

Tom sat back in his seat. He watched as his sister sank the defense further and further.

The FBI agent was called to the stand. He testified, along with a showing of several charts, that the red hair belonged to Frank Harris. "We tested the DNA against a sample that was taken at the Connecticut State Prison from the defendant. It was a marker-for-marker match. Without doubt, it was Frank Harris' hair."

"And the results from the cough sweet?"

"We did recover enough epithelial cells to perform a DNA test. In fact, we recovered enough cells to do a second check. In both cases,

the DNA of the cells was a perfect match for the other defendant, William Grandlin."

Though he tried to point out possible faults with the DNA tests and matching techniques, the FBI agent was a skilled witness and was able to overcome any and all possible questions of accuracy.

"The defense requests an adjournment until the day after tomorrow, Your Honor, so that we might locate an important witness."

"On the possibility of being found in contempt, can you assure me that such a witness exists and that you will have him or her in this room at the appointed time?"

The defense attorney stated that he wasn't sure about either of the conditions. In the end, the Judge called an early recess for lunch.

After lunch the defense called their first witness, Adolph Harris. He testified that his son was with the family that evening but stumbled when cross-examined about details of the evening. "So, you swear under oath that he was with you on that night but you have no recollection of what you did as a family? Perhaps we should call your wife to the stand? Also, I must point out to this court that you have been previously found guilty of perjury regarding your son's criminal activities!"

"Objection, your Honor! The strongest of all possible objections! The DA has no right to drag previous events in front of this court. Move to strike everything in his cross examination," the defense attorney practically yelled.

"Firstly, you are directed to keep the tone of your voice within limits of appropriate judicial conduct. Second, I find it *most* relative that the witness has already been found to have lied about his son in a court of law. Objection overruled!"

Later, the defense attorney called Frank Harris to the stand. He asked a few light questions aimed to portray the young man as a harmless individual who had 'learned his lesson' in prison. He reluctantly turned the questioning over to the DA.

"Hello, Frank," he said to the man. "Before I begin I must say that that is an interesting aftershave you are wearing. May I ask what it is?"

"Object—"

"Denied," the judge interrupted the defense lawyer.

"Your aftershave, Mr. Harris?"

Frank Harris muttered something that nobody could make out.

"Please state that again and a bit louder," he was directed by the judge.

With a glare directed to Tom and Sandy he said, "I said Admiral's Choice. Happy?"

"Oh, most happy, Mr. Harris. Most," the DA replied. "Now. What was your happy family doing on the two nights in question?"

"Dunno," as all Frank muttered.

"Where were you on those evenings, then?"

Frank began to crane his next trying to see around the DA. "No, Frank! Don't look to your father for the answer. You tell me where you all were!"

"Dunno!"

"Well, unless you want the court to believe that you are stupid, I'd suggest that you figure out where you were."

"Objection."

"This time I will have to sustain the objection. Mr. District Attorney, please limit yourself to questions that do not include character assessments."

The questioning of Billy went even less well for the defendants. Halfway through cross-examination by the DA he broke down and admitted that the two men had done everything they were accused of.

"It was all Frankie's idea. He said we'd make a fortune! Told me I wouldn't have to do any more bad things with him I'd be so rich."

Frank Harris had begun screaming halfway through Billy's statement and attempted to lunge over the table to attack Billy but had been restrained by the two bailiffs in the room. Shoulders heaving, he was pushed back down into his chair and shackled to it.

The judge asked whether Frank Harris wanted to change his plea. He declined to do so although his attorney spent more than a minute whispering into the young man's ear, obviously suggesting that he do so.

The judge then addressed his father, "Mr. Harris? Since you provided an alibi under oath for your son, and his accomplice—his alleged accomplice—has implicated your son in felonious criminal acts taking place during your alibi periods, I would strongly recommend that you retain a very good attorney. I hereby charge

you with perjury. You will be released without bail for now, but if found guilty at a separate trial, you will go to prison for a period of no less than sixty days and perhaps up to a year."

Given his admission of guilt, the Judge found Billy guilty as charged and sentenced him to one year in county jail plus any time his other federal charges might add.

He also found Frank Harris guilty of violating his parole. Because Harris had never changed his plea, the Judge sentenced him to three years behind bars, the total length of his parole term, plus an additional two years for being a felon in possession of a weapon plus a further eight years for shooting at the police.

"This hearing is closed," the Judge said banging his gavel.

Both defendants were taken back to their holding cells.

The DA shook Tom and Sandy's hands and thanked them. "We can only do our job when good citizens like yourselves come forward. Thank you."

Tom was about to reply when there came a muffled noise. The three looked around trying to ascertain the source.

Suddenly there came the sounds of shouting from behind the side doorway. A Bailiff ran into the room looking around. "Frank Harris just escaped. He knocked us over and pulled free then ran down the hall. Did anybody see him come though here?"

Receiving no answer other than a heavy scowl from the judge, he ran up the aisle and out the back doors.

"I'll just bet the darn fools took his shackles off before they got him to the cell," the Judge stated.

He assured Tom and his sister that police protection would immediately be arrange and would be available until the fugitive was apprehended.

Tom tried to object saying that Enterprises Security could do the job, but the judge banged his gavel down saying, "It's now a court order, young man!" He flashed a quick grin and then rose and departed the room.

A policeman entered the courtroom moments later and asked that Tom and Sandy remain in their seats for another ten minutes.

At one point Sandy turned to her brother. "You know, all in all this was pretty exciting. A lot different than what you see on television. Not too bad for my first court experience."

Tom grinned. He had been an expert witness in several patent

trials in the past few years. This, like for Sandy, was the first criminal trial he had attended as a witness.

After receiving a radio report, the officer escorted the two out of the courthouse and to Tom's car. Tom phoned Enterprises and asked that someone pick up Sandy's car and drive it to the Swift home.

"I'll tail you pretty close until you get home," he advised them. "Then, I'm supposed to watch out for anything suspicious until I go off watch. You'll see one of us around the neighborhood for the next few days or until we catch that kid."

Once they reached the Swift home, the officer drove a few houses down the block before turning around and stopping.

"Well," Sandy said, her first words since leaving the courtroom. "That puts a little excitement in the day, huh?"

"It sure does, Sis," Tom admitted.

Inside, they recounted the day's events to their mother with Tom telling her, "Don't worry, Momsie. Sandy may have a police tail for a few days and there will be a patrol car parked near the house, but the police will have that creep back behind bars in hours. I'm sure."

Harlan was less positive the next morning. "I'm going to hook you up with a wire, Tom. And, a tracer bug in your car. Now no objections. Until this Harris guy is back in jail, and especially since his father is free and must now hold a huge grudge, I am going to have you monitored every minute you are awake!"

Tom allowed himself to be outfitted with an unobtrusive microphone and transmitter. Ames showed him how to detach it at night and how to best reattach it the following morning.

"These are so good you can even shower with them, skipper."

"Fat chance of that, Harlan,"

"Before you run out of here I received a report from the FBI. The other dead missile man was a thug from—wait for it—Connecticut. And, it gets better and better. He was once housed in the cell right next to our friend Frank Harris during his latest stay."

"Not looking to good for Frank's father, is it," Tom replied and then departed to go back to his shared office.

As Tom walked in the door he could hear the phone conversation his father was having over the speakerphone.

"Damon," began the Chief of Police, "you and Tom will want to know that we picked up that Harris kid an hour ago. Either he's

really stupid, or... no. I guess he's just really stupid. He was spotted buying a half dozen bottles of that aftershave he wears at a local drug store. An off duty officer saw him at the counter and phoned in the report."

"So, they got him at the store, Chief," Tom asked.

"No, Tom. By the time a cruiser got there he had left on a motor scooter. But we followed him to the apartment house he has been living in. He tried to put up a fight. He even fired off a shot at one of my men, but the gun jammed and they rushed in and tackled him."

"I certainly hope nobody was hurt," Mr. Swift put in.

"He's a pretty bad shot. One of my men says he got a snoot full of Harris' BO and aftershave and that it almost made him ill, but no real damage. Anyway, he's in custody and now gets another 'felon in possession of a weapon' charge and attempted murder of a police officer added to the rather substantial list of other outstanding charges."

"Well," the older Swift said, "at least that is over."

"There is one other thing. That apartment he was living in? Our detectives found out that his father is named on the rental agreement and the manager remembers that Adolph Harris was the one who personally paid for the first couple of month's rent. By personal check."

"So Harris knew where his son was all along. Have you contacted the DA?"

"My very next call. You have a fine day," the Chief said and hung up.

Damon turned to Tom. "You caught all of that I believe?"

"I did," Tom said.

"It looks like the noose is tightening around old Adolph Harris' neck. I only hope that Lexington Propulsion can weather this kind of storm. They use to be a well-respected corporation. I hear that they are in some financial difficulty as it is. This might kill the company."

Tom replied, "It certainly can't help them."

The intercom beeped. "It's George Dilling, Mr. Swift. Important."

"Hello, George."

"Damon. I hate to always be calling to tell you to turn on the TV, but check out the New York station on channel 11."

Tom rushed over to the television and turned in on. He switched to the indicated channel and they heard…

"…stepping up to the podium right now, Dan. He has pre-announced that LexPro is going to make a, and I quote, 'a historic announcement' end quote. Wait. He's ready to address the crowd…"

The camera switched from the news reporter to a close up of Adolph Harris. He adjusted the microphone in front of him and took a sip of water from a glass.

"Friends, reporters and everyone in the great United States. Lexington Propulsion has long stood for quality and integrity in the aerospace industry. More that forty-two percent of all commercial aircraft fly using LexPro jet engines. Thirty-nine percent of all ocean-going vessels that use turbine generators for power plow the waves with LexPro Marine Turbines in their engine rooms."

He cleared his throat and took another sip of water.

"Until today, we have been, oh… let me say that we have been satisfied with being the power behind the transportation that moves the world." He paused as seemed to be waiting for applause.

He received none, so he continued, "That was before today. Now, we feel it is time to step forward to lead the way into tomorrow with the introduction of this!"

He pulled a cloth off of a thirty-inch plastic model of the jet airliner Tom had designed.

"The new LexPro LP-100 SuperLiner which we will be unveiling *in about seventy-two hours!*"

CHAPTER 20 /
UP AMONG THE CLOUDS

TOM'S DAY had begun with the almost disastrous news that Adolph Harris had announced its intention to demonstrate its new aircraft in three days time.

"So," Bud had said, "Let's roll out the SkyLiner and give the public a show tomorrow."

While it all sounded good, Tom realized that there were just too many items to attend to before he could make such a flight within anything short of a week.

"Sorry, Bud, but we'd just be leaving ourselves in for embarrassment or even disaster if we pushed it that much."

Inside, Tom was feeling sick to his stomach. On the outside he looked determined but miserable. Bud, sensing his friend's plight excused himself and left the office. He returned an hour later with Tom still sitting in his desk chair, staring at his computer screen.

"Uh… Tom?"

Tom slowly responded to Bud's voice. He finally turned. "Oh, hey, Bud. Didn't see you there."

"I wasn't here for awhile, skipper. Had to run a couple errands. I brought you something," he said with a mischievous smile. Bud opened the office door and walked out. Seconds later, Bashalli walked in.

"Hello, Tom," she said smiling at him.

"Oh…um…well, hi Bash," Tom said rising and brushing his rumpled shirt down. He ran one hand through his close-cropped hair and smiled back at the beautiful girl. "Sorry I look so bad."

She crossed to him and ran her fingers through the left side of his hair. "I think you look just fine," she stated. "Bud thought that you could use a friendly face in front of you. May I be that face?"

Laughing, Tom replied, "Absolutely! I like your face. But, what's the occasion that Bud feels deserves something nice like you?"

She blushed and lowered her eyes. "Well…" she began. "Bud said that I was not to tell you anything other than I am to be a pleasant diversion for you for an hour or so. He knows that you won't leave the office right now, so he said that I should come keep you company."

Tom agreed that she would be a very pleasant diversion, “But, Bash. I’m in a pretty down mood right now. I probably won’t be very good company.”

“You are precisely the company I want right now, Tom.”

Tom’s phone rang. “Hello? Tom Swift speaking.”

At the other end he heard Hank Sterling’s deep voice, “Uh… oh, skipper. I was trying to reach Bud… never mind,” and the phone went dead.

“I wonder what that’s about,” he said.

“I am sure it is nothing that Bud wants you to worry about right now.”

Tom asked, “What’s all this about, Bash? Are you in on something Bud’s cooking up?”

“Nothing is cooking. But I do need to ask you something very important. May I?”

“You can ask me anything, Bash. Anything at all.”

Taking a deep breath, she looked Tom in the eyes and asked, “Am I a bad distraction to you, Tom?”

Tom was speechless, so she continued.

“My father, who is stuck between tradition and wanting to be like other Americans, has told me that my insistence on seeing you frequently must be a disturbing thing for you. He thinks that I must keep you from important things. He holds you in very high respect, Tom. You and your father represent his ideal of America. Smart, hard working. Basically, you are his ideal American!”

“I don’t think I understand, Bash.”

“While he now gives me his blessing to see you, he thinks I should ask you if I take up too much of your time. If I am a disturbance.” Her eyes began to fill with tears as she looked at the young man she was certain she was falling in love with.

Tom reached out and drew her to him. He put his arms around her and said, “Bash. If it weren’t for you I don’t think that I would want to do all the things I do. I look at you and think, ‘this is why I take risks.’ ” He hugged her as she began to sob. “Don’t cry, Bash. I want you around. I really, really do. In fact I almost lost my mind when you were kidnapped.”

She sniffled and replied looking up into his face, “You are forgetting that Sandra was also kidnapped, Tom. It wasn’t just me.”

“I know that, and I love my sister, but my heart felt like bursting when I heard that you were missing!” He gently kissed her forehead. “You tell your father… no… after I get this SkyLiner of mine up in the air, I’ll go with you and tell your father that you are my muse, not a distraction!”

Bashalli started to laugh. “I don’t think my father would understand what a muse is. He might think it is some sort of a small rodent.”

They both laughed at the thought. Bashalli took her arms from around Tom and backed up. “You are the most amazing person I have ever met, and I believe that everyone here at Swift Enterprises feels the same way. Do you realize how devoted they are to you?”

Tom sheepishly declined to answer.

“Right this very minute Budworth Barclay has everyone running around dropping their normal duties all to concentrate on getting the SkyLiner ready for a demonstration flight within 24-hours.”

“What? But, that’s impossible. There’s so much to do,” he wailed. “Too much!”

“And that is exactly why everybody is doing everything they can. Family plans, on hold. Days off, postponed. Chow has evidently ordered every steak in Shopton for a celebration barbecue tomorrow once they finish. And your father has already arranged for the press, the airlines and government officials to be here at 4:00 tomorrow. It will happen. They believe you can do it and I believe you can do it?”

Overcome with gratitude, Tom grabbed Bashalli’s shoulders and pulled her close. He kissed her and said, “Then let’s get out there and lend a hand!”

As they walked out of the building Tom could see the beehive of activity going on around the huge, temporary hangar that had been the home of the SkyLiner since it had been pulled over from the Construction Company a week earlier.

“Hey, skipper. Great day for it!” one of the many employees scurrying around said as he rushed past.

Tom and Bash entered the hangar. A worker was just stenciling a name across the nose of the sleek aircraft. Bashalli let out a gasp and her hands flew to her mouth. She whispered, “*The Bashi*. Oh, Tom. I’ve never been honored like this.”

Bud noticed the pair and hurried over. “Like her?” he asked.

“More than you can know,” Tom replied squeezing his companion’s hand. She squeezed back. “But, what’s going on?”

“Tom,” Bud said seriously, “you’ve busted your hump over this baby and she is so close to being ready. None of us could bear to think that those creeps at Lexington might beat you to the punch especially after they practically stole everything from you!”

Taking a deep breath Tom asked, “What can we do?”

Bud directed the pair to the plane asking Tom to do a complete run through of the avionics systems and the electrical programming. “You’re the only one who completely understands it, chief,” he said.

“I am not sure I can be of any real help, Tom,” Bash said.

“Oh, yes you can. It’s a two-person job. I’ll need your eyes and ears.”

They climbed up the extended stairway and were soon seated in the cockpit. Hours later they took a break for food and to use the bathroom, and then returned to continue their work. Tom had never felt this buoyant before. Bashalli was a great assistant reading out each step and then verifying the results were proper. She logged everything that was not within proper tolerances and even devised a system of tagging suspicious equipment with little hand-made tape flags.

It was well past midnight when their work was complete.

As they walked back down to the ground, they could see that most of the people who had been there earlier in the day were still on the job where they had been joined by a number of people Tom recognized as night shift worker from the Construction Company.

He suggested driving Bashalli home and to explain why she had been out so late, but Sandy drove up and said that she would take Bash back to the Swift home. She had already made arrangements with Bashalli’s mother. The two would return by 9:00 a.m. when she promised to continue to help.

By sun up, the beautiful plane had been fully outfitted with comfortable seating, carpeting, and the galley had been stocked with glassware, dishes and flatware. Chow arrived with a large storage container filled with food that would be served to the dignitaries who would fly aboard later that day.

“Gee, Tom. She’s a real beaut, an’ you kin take that to the bank,” he declared, patting the doorway of the plane.

Bud came up and suggested that Tom should go take a nap. “You don’t want to fall asleep at the joystick, do you?” he chided Tom as the inventor tried to insist that he remain. Tom gave in and Chow

drove him to the office where Tom kept a small apartment for just such uses.

He dropped off almost as his head touched the pillow.

He awoke to Bud shaking his shoulder. “Up and at’ em, Tom,” he said.

“What time is it?”

“Nearly quarter past three. People will be arriving in a half hour. I thought you could use the extra sleep.”

Tom showered, shaved and put on the flight suit he would wear for the demonstration flight.

He greeted many of the special guests as they arrived at the hangar. Most had been to previous Swift demos with only a few who were unfamiliar to Tom.

At the appointed time, Tom took to the podium and addressed the gathering. He was gladdened to see the heads of all domestic and international airlines including Arthur Jakarman of Global Air.

“This is an important occasion. Both for Swift Enterprises, and for the world of aviation. As you know, the soaring costs of fuel have all but crippled the major air carriers. More and more, you are being required to get rid of older aircraft that no longer meet pollution requirements, purchasing their replacements even before you have amortized the cost of the older aircraft. And your basic passenger cost per mile has risen higher than your set prices.”

There was a loud murmur of agreement, then a voice rang out, “Hope you have something to show us today, Tom. Hate to think we came out here just to see your pretty face.” The crowd laughed and Tom smiled.

“Well, Bob,” addressing the president of Consolidated North Airlines. “As soon as we drop this tarp behind me, I’ll leave it to you to tell me if it looks better than I do!” There was another smattering of laughter.

“Seriously, even if fuel were back to a quarter a gallon, you all still have issues with airports and housing not playing nice with each other. Airport noise is one of the top three complaints in densely populated areas. It is one of the reasons why Japan located its Narita airport more than 40 miles outside of Tokyo. But, moving airports isn’t the solution. Less noise is.”

He paused to let the concept sink in.

“Several airlines contacted me months ago with the aim of coming

up with a totally new engine. One that would cost pennies on the current dollar to operate, that would be quieter and would require less maintenance. Well, I believe we have come up with the solution. And it won't mean that you need to go out to buy all new aircraft. Heck, we couldn't build them fast enough to satisfy you all even if we wanted to."

"What do you mean, Mr. Swift?" The question came from one of the people Tom had not recognized.

"I haven't seen you before," Tom replied. "What organization are you with?"

The young man replied that he represented a new on-line aviation magazine, 'InterAirWeekly.'

"Good luck with the magazine. The answer is that we have designed a totally new propulsion system and power plant. Everything we intend to build can be purchased for about the same cost as a new pair of engines of a typical medium-range aircraft. We believe that we can provide the new equipment for the top five aircraft models you all fly right now, and we intend to have smaller versions for the regional jet aircraft that your subsidiary local airlines and the smaller regional companies fly in less than a year."

He described the low noise level and the nature of the propulsion power, including the use of solar panels. Everyone seemed intrigued, but a few skeptics lobbed questions at him. Tom parried each one. By the end of his 15-minute speech he had won over all but two of the most serious detractors.

He called to have the tarp separating the crowd from the rest of the hangar lowered.

There was a gasp from the collected guests followed by applause. Tom asked that everyone go out onto the tarmac while the aircraft was pulled out. The entire group of sixty-seven guests were offered seats on the plane. Even the two most skeptical of his guests agreed to take the flight.

As Tom was set to climb the stairs behind the last passenger, Harlan Ames came rushing up. "Tom. Amazing news. Adolph Harris just admitted to authorities that he was behind the kidnappings, the industrial espionage *and* the missile attack. He even let on that the aircraft he was planning to show is only a wood mockup and that he would never have been able to let anyone on board much less give a demo flight."

"What did he hope to accomplish, Harlan?"

“It looks like he was desperate. He recently lost a huge overseas order and is in deep financial difficulty. He was trying to either generate some interest in hopes of securing governmental financing, or to discredit you in the hopes of picking up some of our customers. He also admitted to lying under oath about his son. We don’t know, but it looks like his confessions will put him in prison the rest of his life.”

Although he was sad about the once great industrialist’s personal downfall Tom was elated that the ordeal was almost over.

Tom looked past Harlan and saw his final passenger approaching. Taking her hand, he walked up the stairs with Bashalli. He paused inside the doorway and took the plane’s microphone. “Ladies and gentlemen. I want to thank you for flying with us today, and it is with great pleasure that I introduce you to the woman for whom this aircraft is named. This is my…” he looked meaningfully at Bash and she looked beaming at him, “my girlfriend, Miss Bashalli Prandit.”

There was a round of applause that Bashalli acknowledged with a blush and a slight curtsy. She turned to Tom and whispered, “Why are there no overhead compartments, Tom?”

He whispered back, “We didn’t have time to make them. Besides, it makes the cabin look much bigger.”

He helped her into her front row seat and then entered the cockpit.

As they taxied to the runway, Tom checked the monitor showing the passenger cabin. Several people were pressing their ears against the walls and windows, evidently amazed that they were hearing virtually nothing.

“If they like the quiet now,” Bud remarked, “they’re really gonna love it as we whisper down the runway at full power.”

Tom grinned. He reached out a hand and placed it on Bud’s arm. “You’ll never know how grateful I am that you and the team got her ready for this. Thank you!” His voice choked with emotion.

Following a two-hour flight, during which each guest was allowed a look into the cockpit to see the new control screen, the plane landed back at Enterprises to enthusiastic applause.

Tom disembarked to verbal offers from all quarters. The president of Deutsch Aerospace, Europe’s largest aircraft manufacturer, wanted to discuss licensing the entire aircraft design.

“We’d love to negotiate that with you, sir, but you’ll need to speak with the manager of the Swift Construction Company. Thank you

very much!"

On the European's heels, Andrew Maxwell of Wright-Lindbergh came up to Tom. "I would like to go directly into negotiations with you for retrofit kits for all the aircraft models we build. And, I want to talk about the rights to that amazing aircraft!"

"I appreciate that, sir. I'm glad that we could show that we aren't going into competition with you."

"Right. Say, one other thought occurs. How about selling me this prototype of yours. I could sure use it to help my folks build that whole new class of jet."

"I'm afraid I can't. You see, I had to go literally out of this world to come up with it. I just couldn't part with it."

Tom thanked him and turned away. He took Bashalli's hand and thanked the crowd telling them that all inquiries would be handled through the Swift Construction Company.

"So, what is next, Tom?" she asked.

"Yeah, skipper," said Bud slapping Tom on the back and eyeing their clasped hands. "What is next?"

"Dinner, dancing, a moonlight stroll and then perhaps a trip to see the rings of Saturn!"

Little did Tom know that his next adventure would take him, not to the distant rings of the giant planet, but to the depths of the Earth as he would become involved in building the nation's first non-stop transcontinental railway.