TOM SWIFT
And His
Cyclonic Eradicator

By

Victor Appleton II

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Technical editing: Greg Hall

THE NEW TOM SWIFT INVENTION SERIES

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Another disastrous hurricane season is getting ready to slam through the Caribbean and wreak havoc across many of the island nations as well as along the coast of Georgia and the Florida Panhandle. Hundreds of lives may be lost and billions of dollars of damage will occur.

Tom is hired by the National Oceanographic and Atmospheric Association to help complete a new Florida base so they might better study these powerful storms, but when he is attacked, is it an enemy out to destroy the base or is it Tom who's the target?

He decides they must develop a new technology to control such storms and save lives, but he and Bud run afoul of both Mother Nature as well as a group of foreign terrorists and an old foe. Are they bent on discrediting the Swifts? Their true aims have yet to be revealed.

Tom is forced to the realization that the old adage about 'you can't control the weather' could be more true than he thought.

This book is dedicated to anyone who ever climbed into a P3 Orion or other aircraft and willingly headed into the heart of a tropical storm in the name of science. We all 'know' that the eye of these storms is sunshine, lollipops and cherubs. Right? But, only *you* know what sort of hell it is getting through the actual storm. I salute you all.

Tom found himself sitting in the upper deck of an old 747… the entire lower section had been gutted and was now a maze of high-powered LASER equipment and catwalks… **Page 85**

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AUTHOR'S NOTE:

A wonderful woman—my wife, by the way—has more than once told me or anyone who might sympathize with her that if I have one of something, it is a curiosity. But watch out if I get two. That starts a whole new collection!

It happened with model rockets, old tube radios from the 1920s and 1930s, and now Tom Swift books. No, not the ones I already brought to the marriage; the ones I am writing.

This is number five in what looks to be at least a dozen. Or, that is about the number I have already solid ideas on what the main inventions will be and how the basic plot might progress. Well, when I say a dozen I mean eleven for sure and one that is just beyond my ability to see right now.

For those who might be familiar with the New Adventures of Tom Swift Jr. series from the mid 1950s through early 1970s, the final book was called *Tom Swift and the Galaxy Ghosts*. I wasn't so much ghostly as ghastly. In fact it is acknowledged as about the worst Tom Swift book in that series. Even the man responsible for re-imagining the "entire series" refused to touch that writing an all-new book instead.

And so, I am please to announce that one of the future books coming from me will be a completely new book using only the title from *Galaxy Ghosts*. Watch for it!

Tom Swift and His Cyclonic Eradicator

FOREWORD

If I live to be one hundred, I can't believe that I will ever see a limit to what Tom can tackle. As if racing to the depths of the ocean, up to the moon, or around the "four" corners of this wonderful globe of ours isn't enough for him, if science can help with a problem—or a disaster—he is there.

Tom regularly communicates with intelligent beings from beyond our own solar system, and yet maintains a fairly straight-on-the-shoulders head and ego. I am not certain that I could be as levelheaded as he is given any number of circumstances he has found himself in. Could you?

I have gained much pleasure from bringing you a few of Tom's recent and more earthly adventures. Ones where Tom not only gains increasing pleasure from helping others, but in helping this planet of ours.

Give the man a problem—such as the fuel-dependence and noise pollution problems chronicled in his *QuieTurbine SkyLiner* adventure—and you see immediate nose to grindstone activity.

This latest adventure hits home with me particularly hard. I had a close friend who lost his family to a deadly storm in the Caribbean. He lost everything, including his will to live. I know that he is not alone. His pain and anguish is felt year after year, storm after storm. Around the world.

Victor Appleton II

CHAPTER 1 /

PRIORITIES

"THAT, SON, is the weirdest-looking giant rolling pin I have ever seen." Damon Swift, world-renown scientist and inventor stood looking at his son's latest invention. He wasn't sure whether to smile or shake his head.

Tom Swift was tall and athletic and could pass for a much younger brother to his still-youthful father. Like Damon, Tom was an accomplished inventor and scientist. Still in his late teens, he had already been involved in dozens of adventures and was responsible to more than a hundred inventions.

"If I may ask, what is it?"

Tom grinned. "Gee, Dad. I was sure that you'd recognize the front part of my new asphalt rejuvenating system. Remember? From the transcontinental train project? Isn't it obvious?"

Damon Swift walked up to and around the front of the giant cylinder. Closed at both ends, featuring a hood over the top quarter or so and attached to a large armature, it was light gray and featured hundreds of cupped teeth spaced at odd intervals all around it. Touching one of the teeth he remarked, "Right. This was the grinder machine you made for one of the other construction companies. Wait—Asphalt? As in roads?" He looked at his son with curiosity.

"That's right. And parking lots and runways and anything else you can think of. You know that Swift Enterprises is surrounded by it, right?"

"Sure," the elder scientist agreed. "Taxiways, runways, roads. And *you* will remember that I was the one who had them built."

Tom smiled. "Well, I've been working with the guys in facilities and maintenance and they tell me that about one-third of all our asphalt is in need of either resurfacing or replacement."

He described how most of the roadway in and around the four-square-mile complex was nearing its normal life span. "And, anywhere we run aircraft is in double need of attention. We never installed concrete runways so the FAA is particularly eager that we replace or reface every seven or eight years. All the unburned av-gas and jet fuel and the exhaust residue eats away at the structure and dissolves the tar that binds it all together. We could get decertified

in another year or two."

Mr. Swift agreed. He had been so engrossed in several Government contracts dealing with both rocket programs as well as nuclear energy that he had little time to spare to consider the state of their complex.

"I guess I haven't given it enough thought. So, tell me. How much are we looking at today?"

Tom thought for a moment and then answered, "We have eleven miles of dedicated roads here added to the twenty three total miles of runways, aircraft parking and taxiways around the perimeter of Enterprises. The roads are each about twenty feet wide and the runways range from sixty feet by a mile long up to the super runway at the north end that runs the entire four miles and is one hundred twenty feet wide."

Damon whistled. "I know I signed off on all of that, but it was over a period of more than five years." He stopped and pondered the expense. "Times are fairly good here, but I can't help but believe that we would be hard-pressed to pay for all of that."

"That's where my new system comes in." Tom explained that the device he was building would be about 12 feet wide and more than 50 feet long. The cylinder they stood next to was one of two that would be at the front of the machine.

"We'll have a wide arm with propane torches that fire down onto the road surface, softening it. This grinder will be set a bit lower than the one behind it and can be lowered about six inches below grade. It will spin at about two hundred RPM and will tear at the old asphalt, throwing all the big chunks into a hopper where it gets further pulverized by the second grinder. The biggest pieces to come out from that will be less than an inch square."

"What happens then, Son?"

"A giant sweeper brush cleans out the new twelve foot wide, four to six inch deep hole and adds that to the ground up old asphalt. All that goes into a mixing unit that will knead in fresh, hot tar and other binders including millions of one millimeter Durastress beads to give the new asphalt additional strength and durability."

Mr. Swift took up the narrative. "So, if I have this right, you now have a hot mixture of the old and new materials that you can spread back onto the road?"

Tom was proud of his father's sense of reasoning. He knew that everything he understood about scientific method came from his

father.

“Yep! We reheat the open hole with more propane torches then spread in the mixture and pack it down with a pair of smooth rollers at the very back. Anything that gets loose at the edges will be scooped up by the two people trailing the machine and tossed onto small conveyers on each side and then back into the mixing chamber.”

Damon marveled at the entire concept. He recalled an older variation of such a machine working on small-scale road repairs when he was a youth.

“Do you know yet how quickly this will travel and what the per-foot cost will be?”

Tom pulled out his electronic pocket organizer and called up a page of computations.

“I think that she will be able to move along at a rate of about two miles per hour.”

Damon looked over the computations and raised an eyebrow. He had been thinking along the line of yards per hour or even a few hundred feet per hour. When his eyes fell upon the costs he looked directly at his son.

“Those are *real* figures? Not placeholders?”

Tom nodded and then shook his head. “They’re real. The Durastress beads will run us about two hundred dollars per mile’s worth and the tar another five hundred. Figure in propane and the three man crew and you get a raw cost under a thousand dollars per mile of twelve-foot-wide rejuvenated road.”

After a few more minutes Damon excused himself and headed to the spacious office he and Tom shared. He looked up a few facts and figures and made a call to a friend who owned a specialty paving business in California.

“That’s right, Damon. The standard in rural or corporate areas is ten feet wide by one hundred yards long at a customer cost of ten thousand bucks. It can double on city streets and triple on highways.”

After the call, Damon sat stunned for a full ten minutes before his secretary, Munford Trent, knocked lightly on the door and walked in.

“You have a meeting with Peter Fatherston and his assistant from NOAA in twenty minutes. That is set for a half hour and will be followed by lunch with all senior staff from the Construction

Company."

Damon knew the agenda for the first meeting but was puzzled by the lunch meeting. His look of curiosity was answered by Trent. "Mr. Aturian and his staff have asked for an hour to discuss some plant enhancements they would like to undertake. I believe those include a new assembly building and an updated computer-control system for the automated lines."

Damon nodded. Now he remembered. He had dreaded the meeting as it would be necessary for him to turn down the request for a new, multi-million dollar building. He sighed.

"Thanks, Mu— Thanks, Trent." He knew that the man wished to be called by his last name. Even at the one social event Trent had attended at the Swift home a year earlier, he had asked to be called 'Trent' rather than the more familiar.

At the appointed time, Trent ushered in a pair of well-dressed men from the National Oceanographic and Atmospheric Administration. After shaking their hands, Damon motioned them to the over-stuffed leather chairs and low table that sat in one corner of the office.

Before they could begin their meeting a brief but heavy knock came on the door and it opened to reveal Chow Winkler pushing a cart outfitted with a pair of coffee urns and a small plate of pastries.

"Pardon the interrupt, Mister Swift. Gotcha some hot coffee and a couple o' fresh Danishes."

Chow was a former Texas ranch cook who had met the Swifts in New Mexico more that four years earlier. He had taken to them, especially to young Tom, and they to him. When their trip to build the first privately-owned nuclear power and research facility had been over, he asked to be allowed to accompany them back to Shopton and had worked as their private chef ever since.

"Thank you, Chow. Right there will be fine."

The pudgy range cook moved the cart to the indicated area and then left. They could hear his cowboy boots clomping down the hall as he returned to his private kitchen.

"So, Peter. And, Barry. What can we do for you?"

Clearing his throat, Peter Fatherston began. "NOAA is at a turning point, Damon. We've just finished moving our Key West Coast facility to a more advantageous centralized location and are preparing to do the same with our Gulf of Mexico facility. We have realized that we need to have faster access to the main waterways

that surround this nation."

"And," added his assistant, "that has pointed out a couple of areas where we need assistance in outfitting our facilities."

Damon said nothing but raised a single eyebrow and waited.

Barry James continued. "We're moving out of safe havens and into the heart of areas that get battered by storms. Really battered. Louisiana and Alabama get a lot of action from Caribbean storms and hurricanes but our new facility at the southern tip of Florida is going to get something like sixty percent more storm hits."

"Where is that?"

"At the top end of the Everglades near the west coast town of Naples. On one of the islands on Gullivan Bay, actually. It has an almost immediate drop off to more than a hundred feet of water. Marco is a nearby side community with a good deep bay and a couple square miles of storm-dampening land behind it. We initially thought to lease their facilities, but they need every inch of dock they have. That left us on one of the islands."

"Does the location have an airfield?" Damon asked.

"Hardly. You can get to within about a kilometer and then you take a small boat across. We want to add a helicopter pad out there; more for emergencies than day-to-day access. Until then…" He shrugged.

They talked about both the position and the planned charter for this new NOAA station. Within minutes, Damon understood the strategic positioning and advantages to that location. He did not yet see the issues they came to discuss.

Peter picked up the story. "We need to be able to construct three buildings that can withstand one hundred sixty mile sustained winds along with a trio of ninety foot communications and RADAR towers capable of the same. No construction company cares to promise anything without burrowing the buildings underground."

"Plus, we need a new type of mooring system for our three ships. Also to withstand really heavy winds," Barry added.

These ships, he described, ranged from their smallest at just over 86-feet up to their two largest at 268- and 270-feet, respectively.

Before they departed, they provided Damon with both geological and surveyed measurements plus photographs. He promised to investigate possibilities and they promised to provide budgetary information within the following week.

Damon left his office moments later having scooped up the stack of papers he would need for his meeting with Jake Aturian—one of Damon's closest friends and the manager of The Swift Construction Company—and his senior staff.

The Swift Construction Company had sprung up on the original site of the old Swift Construction plant founded by Damon's great grandfather, Barton Swift, and was a major holding in the Swift family for more than a century.

He bypassed taking one of the small all-electric cars provided throughout Enterprises and the Construction Company for employees to use when running short errands between building and facilities. Instead, he climbed into his 4-door sports saloon and was soon driving out of the private gate used by him, Tom and senior staff at Enterprises. It was the exit nearest to his destination.

Jake started the meeting off with a statement. "Damon. We know that the economy isn't in the greatest shape right now, and we realize that money is tighter now than, say, two years ago."

Damon merely nodded in agreement. Jake continued:

"I will be the first to admit that we are not taxing our manufacturing capacity today. But—" he held up a finger to forestall any comment, "—our projections for several of our aircraft including the SE-11 'Toad' commuter jet and our new military contract for Tom's little SR-1 single-seater are quickly taking up all our available construction space. When we produced the trains and rail cars we had to pretty much devote everything to that. We got behind on some important commitments."

"When do we hit the wall?" Damon asked quietly.

"If nothing happens to forestall it, six months… seven tops."

Damon nodded. "Give me a moment here," he requested pulling out one of the recent reports Jake had provided. He read through the first page and flipped quickly through the remaining five pages before looking back up.

"I can't refute these numbers." The others around the table smiled. "I can, however, ask for verification on your estimated number and kinds of projects that we might get in addition to all this that would necessitate an entirely new building."

Faces around the table fell as the five members of Jake Aturian's senior staff looked at one another.

Finally, Bob Tripp, Director of Line Management spoke up. "Mister Swift. I've done a little figuring and came up with this. If we

put on a third shift to increase capacity, we are going against one of your own directives regarding health concerns with people working from midnight on. Setting that aside, New York mandates that even salaried employees working assembly lines on an all-night shift be paid a fifty percent premium over day or evening workers. I know that building the new assembly hall is a ten million dollar proposition, but we can save about a quarter of that the first two years versus overtime payments."

He showed Damon his calculations. "Okay. Go on," he prodded the man.

"Well, even doing that, we have all but one possible line dedicated to existing projects. It's impossible to break down a line and change what we build on it each night to accommodate anything new that might come along! The best we can do is to do a line swap about once a week. Even so, we have to account for a lost day for break down and set up at each end."

Damon looked from face to face. Each person sitting around the table nodded agreement with the logic. Finally, Damon nodded as well.

"In theory, you've convinced me. However, on the practical side, we have a major issue that is coming up." He mentioned the forthcoming end to one large government contract. "I know that practically everything for that product was transferred to Fearing Island a year ago, but that is around twenty-eight million in annual profits that stop in about three weeks."

Fearing Island was the formerly scrub grass-covered island off the coast of Georgia that was leased by Enterprises as the site of their domestic rocket and missile program along with their submarine facilities. Both Damon and Tom had created various space- and ocean-going craft that launched from Fearing. Many were now built right on site.

The Construction Company team had not previously heard of the end of the government program.

"Unless we get a solid contract to fill that void, I'm afraid that... hang on..." He tailed off. Grabbing his stack of papers, Damon rifled through them. He pulled out Tom's figures and his scribbled numbers regarding Tom's new asphalt machine.

"What is it, Damon?" Jake asked.

Looking back up, Damon replied, "I almost forgot I was going to say that we had an infrastructure problem coming up." He told them about the massive amount of asphalt surfaces that needed

near-term resurfacing. They all knew about the deteriorating state of some of the tarmac on the Construction Company grounds, including their own air strip.

"I was putting off telling you guys that we have a lot of road surface that should have been attended to a couple years ago," Jake mentioned.

Damon told the group about Tom's machine. Then, he told the astonished people in front of him the enormous savings that would be realized. Open-mouthed, they sat in silence for more than a minute.

Jake was about to say something when Damon's attention was interrupted by his TeleVoc pin—the tiny lapel pin communicator device that many employees used to keep in contact while on Swift properties.

His face drained of color as he stammered, "I— Uh— I'll be right there."

Damon turned to the team. "I have to go. *Tom's been crushed under his new paving machine!*"

CHAPTER 2 /

PATIENT PATIENT (NOT)

"WHERE'S TOM," Damon demanded as he stormed into Enterprises' infirmary. He ran past the receptionist and into the back rooms where Greg Simpson, Enterprises resident doctor, was standing over one of the beds.

Damon could see blood that had soaked through the sheets and dripped onto the floor. He felt his own blood leave his face as he neared the bed.

"Doc? Is Tom…" emotion chocked off his words.

Doc Simpson turned away from the prone figure on the bed. He nodded. "He'll survive, Damon. His giant machine rolled off its stand and pinned him. Wouldn't be this bad except for all the cutting surfaces that thing has." He led the distraught scientist over to the side and away from Tom's bed.

"He's sustained more than three dozen deep cuts on his torso and right leg. All that blood is because one of the cutters nicked his femoral artery. He had the presence of mind to TeleVoc a distress call before the drop in blood pressure made him pass out. Five more minutes would have been catastrophic, but we've got the major bleeding stopped and he's getting three pints of plasma pushed into him."

Tom was wheeled into the small operating room at Enterprises where Doc Simpson and his team spent the next five hours controlling the bleeding, aligning Tom's femur which had been snapped in two places, and repairing a small tear in the boy's large intestine.

On exiting the operating room, Doc told his employer that the patient had been placed into a medically-induced coma to facilitate treatment. "We'll bring him around in about ten hours unless, of course, the surgeon at the hospital wants to extend that."

"Can I see him now?"

"Why don't you give us ten minutes more to clean him and this area up. We'll get him into another bed and call an ambulance to take him to Shopton General. While we're waiting, you can see him."

Damon stood with his son holding Tom's uninjured left hand

while they waited for the ambulance. He rode to the hospital with Tom and the EMTs. Doc Simpson traveled along in Damon's car and met them in the Emergency Room.

The trauma surgeon had Tom undergo a series of scans and tests before giving Damon and Doc his prognosis.

"Well, three cracked ribs and a stress fracture of the collar bone are about the only internal issues other than the lacerations and what you've already attended to." He turned to Greg Simpson. "Lucky you folks keep a supply of plasma handy."

"Took most of my supply," Doc informed him, "but it's a good thing we had it. Tom's blood type is difficult to keep on hand."

"We had five units of the AB-negative blood here and he took four of them." The surgeon told them that Tom should stay in the hospital for at least seven days and that the induced coma should be kept in place for at least the first three of those.

They shook his hand, and he left to attend to the next trauma case coming in.

Damon ruefully said, "Tom's not going to like being kept asleep for that long."

Doc went to look in on Tom while Damon called his wife.

"Anne. Don't talk for a minute. Just listen. Tom's had an accident… please, dear. Let me get this out before you panic. Okay. He had one of his larger machines fall on him. He was partially crushed, but no real internal damage. They've given him plasma and blood to replace any lost fluids… yes. That means his rare blood. He is asleep right now and they want him to stay here at the hospital for a week or so."

He fielded a barrage of questions from his wife regarding Tom's condition. He had to smile to himself a little. Anne Swift was a molecular biologist with a double doctorate by training, but became all mother whenever Tom or his sister, Sandy, had even the smallest sliver.

Finally he told her that he was going to look in on Tom and would then come home to get her.

When he walked in, Doc was just taking a listen to Tom's chest through his ever-present electronic stethoscope. It had been a present from Tom a year earlier at Doc's 30th birthday. Tom had created a miniaturized amplification and filter system that he incorporated into a traditional-looking stethoscope. The only differences were a slightly enlarged head and a one-inch-square box

partway up the tubing. Several small buttons could be manipulated to enhance sounds and to preclude distracting noises.

He looked up. “Sounds nice and clear. No fluids in the lungs,” he reported.

Damon thanked the man. Both knew that it was Doc’s job to do these things, but they also knew how important Tom was to the young medico.

They left minutes later, first dropping Doc Simpson back off at Enterprises and then driving home.

Anne and Sandy sat around Tom’s bed for more than two hours just watching him sleep. Anne absently brushed a stray lock of his hair back into position.

“It’s getting awfully long, I mean for Tom, isn’t it, Mom,” Sandy asked.

Anne looked at her daughter, slightly surprised. Sandy almost always called her ‘mother’ except in times of deep stress.

“He’s been so busy with work and Bashalli and everything. I guess he’s just forgotten to get it cut,” Anne replied. “Oh. Do you think we should call Bashalli?”

Sandy was about to answer when she saw her father making a slight negative shake of his head. “I think it’s best for Tom to rest tonight. There’s nothing Bashi can do except worry. I’ll call her tomorrow morning. ‘kay?”

Anne Swift nodded and then sniffled. She dabbed her eyes and nose with a tissue and then stood up. “Do you suppose we can get his doctor to give us a little more information before we go home?” she asked her husband.

The attending physician came in a few minutes later, checked Tom’s charts and called up his computerized records. Finally, he spoke.

“It looks like his collar bone had been broken once before.” They nodded in unison remembering the time Tom had been beaten up by thugs sent by a business rival.

“All of his cuts on the main torso are going to heal with little scars. We’ll have a plastic surgeon come in and do micro-stitching on those later tonight. Barely notice them in a year. And, it looks like his blood work is as normal as we can hope for. He just needs time for his body to fix itself.”

They left their home number with him in case anything

happened during the evening and night, then left for home.

The following morning, Sandy and a red-eyed Bashalli Prandit—Tom's steady date and girlfriend—walked into the room. Bashalli's eyes immediately teared up again and she stifled a sob. Sandy put an arm around the Pakistan-born girl and gave her a little squeeze.

"He'll be okay, Bashi. I promise."

Bashalli gently pulled away from Sandy and approached the prone young man. She leaned forward and placed a kiss on Tom's forehead and another on his lips. In his sleep, he slowly smiled.

Her family had moved from Pakistan more than ten years earlier. She had attended Shopton High two years ahead of Tom and three years ahead of Sandy.

During the many months she had known Tom she had begun falling in love with him. Family and cultural customs and beliefs meant that their dates were almost always with Sandy and her date, Tom's best friend Bud Barclay, but there was no doubt in her mind that her future was to be with Tom Swift.

Bud was currently doing a week's stint on the Swift's Outpost in Space, a multi-spoked wheel traveling over the equator in geosynchronous orbit, aligned with the middle of the U.S. He had offered to come back down on the next supply rocket when he learned of Tom's accident, but Damon had insisted that he complete his current responsibilities.

Bashalli pulled up a chair and sat holding Tom's hand. When a nurse came in to record Tom's vital signs, she and Sandy asked her for any information she might have.

"Girls," the heavy-set older woman had started, "we only give that out to family members. Not pretty, young girlfriends!"

Sandy stood up and approached the woman, taking out her wallet and driver's license. Showing it to the nurse, she smiled and sweetly said, "Older woman? I *am* family. So is she. So, what's the story?"

The nurse abruptly left the room. Minutes later another woman came into the room and asked how she might be of assistance.

"You can start by making a big attitude adjustment on that nurse. I'm Tom Swift's sister. I want to know how my brother is doing, and she wouldn't tell me."

The woman, the Nursing Supervisor, apologized and told the girls that she would arrange for the attending doctor to come in within the next ten minutes.

He was able to give them only one piece of new information. “Instead of keeping him in an induced coma—” He stopped as both girls gasped. He explained that it just meant Tom was asleep via some special drugs that would keep him from moving around so he could heal faster.

“Anyway, we’ll be bringing him out of the… sleep… around four this afternoon. He’ll be too groggy to talk or even recognize anybody for a couple hours. If you come back around five or so you can be the first family he sees.”

They remained for another half hour and then Sandy took Bashalli to her job at The Glass Cat, her brother’s coffee house and café in downtown Shopton.

They returned promptly at 4:00 with Damon and Anne in tow. At 4:30 the doctor came in and removed one of the medicine bags attached to Tom’s drip. This, he explained, was the cocktail of medications keeping Tom still and slumbering. “Depending on his constitution, he could open his eyes in fifteen minutes to an hour.”

He asked them to press the ‘call’ button when Tom showed signs of waking up.

Turning back to the figure on the bed, the three women gasped when they saw Tom’s eyes already open.

“Son? You’re awake?” his father asked.

Looking a little sheepish, Tom admitted that he had been awake for more than an hour. “Guess the drugs they gave me weren’t as strong as they thought,” he said through a slightly raspy and sore throat.

He asked what had happened. Damon told him what he could carefully editing some of the gorier details for the sake for the women.

As Doc Simpson and Damon had thought, Tom was dismayed at the loss of a full day’s work. He was even more bothered at the news he was to be laid up for a full week.

Bashalli leaned forward until her lips were a fraction of an inch from Tom’s ear. He felt a tingle and shiver as she softly whispered, “You came damn close to dying on me, Thomas Swift. For once, just lie there and let people take care of you. Because, if you don’t, and if you do something stupid and get worse, I’ll personally tie you down to the bed and make them give you more sleepy drugs. Do you hear me?” She gently kissed his ear.

She leaned back, blushing slightly. Tom looked into her eyes. All

he could see was love and worry. His heart began racing. The machine he was hooked up to that measured many of his vital statistics began beeping.

Within seconds a nurse appeared at his door. “Are you all right,” she demanded, pushing aside the family and checking Tom.

Now, Tom blushed. “Yeah, I’m okay. I just realized how much I have to live for.”

Somewhat satisfied, the nurse straightened Tom’s bed cover and pillows and then left.

Tom smiled at Bashalli and his family. “When can I go home?”

His father leaned over the bed. “You, my only and oldest son, are going to remain here for at least another full day and then— *and then*,” he emphasized, “you are going to do a few days bed rest at either home or the Enterprises infirmary. It’s up to you. Either you get Greg Simpson hovering over you or Sandy and Bashalli. Think carefully before answering is my suggestion!”

Damon turned and whispered something in Anne’s ear. She smiled and then came over to kiss Tom on the forehead. “You rest, honey. I’ll have a real humdinger of a meal waiting for you whenever you get home.”

Telling him to keep warm, Anne and Damon Swift left the room.

Sandy, sensing that the time was right for her own departure kissed her brother on the cheek and took leave.

Tom looked at Bashalli. “Bash. I’m so sorry that this happened. When I saw my machine slipping off its stand I instinctively rushed forward and tried to push it back. It pushed a lot harder and ended up on top of me.” He tried to shrug but his collarbone hurt too much.

Bashalli sat on the side of his bed and leaned over to place her head on his uninjured shoulder. She practically whispered, “I love you so much. I can’t imagine my life without you. So help me, if I have to sit in your laboratory every day reminding you to not do stupid things, I will!”

She smiled to herself. This was the first time she had admitted directly to Tom how much she loved him. It felt good. It felt right.

“Bash?” Tom’s voice was gravelly but soft and warm. “I haven’t told you this, but I love you, too.” The rush of adrenaline that accompanied his admission almost set his heart monitor off again. His head swimming, Tom used his uninjured arm to pull the girl up closer. He kissed her.

Pulling back a minute later he promised, “I’ll be good. Although, I wouldn’t mind it if you spent every day in the lab. I wouldn’t get anything done, but I’d like having you there.”

As everyone suspected, Tom opted to stay at the Swift home and his own bed rather than at Enterprises’ infirmary where his father promised him that heavy restraints would be used should Tom decide to try to escape and sneak back to work.

In spite of his mother’s great cooking and the almost constant attentions of Sandy and Bashalli, Tom quickly grew restless and anxious to get out of bed and back to work.

His brain was working overtime on several problems and refinements he wanted to begin making on the asphalt machine. By the second morning home he had formulated a plan to get some work done.

Anne Swift wasn’t at all surprised to see a parade of Enterprises employees arriving at 20-minute intervals that afternoon. Hank Sterling, Arvid Hanson, Dianne Duquesne, and others.

Tom sent Hank away with a set of rough drawings he had created the night before detailing both hardware and software changes to be distributed to the several engineers working with Tom on the asphalt machine.

Hank agreed to return the following day with answers to several questions Tom posed.

Arv came complete with a miniature version of the asphalt machine. He was the chief model maker for Enterprises and was responsible for single-handedly turning out the scale replicas of every one of Tom’s inventions.

“So, you want the driver and control station to be totally enclosed?” he asked the young inventor.

“Yes. What with the torches in front, the grinders, the hot tar, the torches in the middle and the hot sun, I can see the operator passing out after less than an hour and getting hurt. Probably not the best thing. He or she will sit in a nice, air conditioned cockpit.”

Arv agreed and said he would rework the scale model as well as be responsible for fabricating the clear TomaQuartz cabin components.

“Be sure to add controllable shading capability,” Tom suggested as the man left.

Dianne, one of the chief engineers in Enterprises propulsion lab, arrived a minute later with a single question. “Why me? I can’t

believe that this machine is going to need to fly along at five hundred knots."

Tom smiled at her. "I was going through several of the different functions on this thing and came up with the need for something that could provide a lot of power as well as heat. Can you adapt one of the auxiliary power units we buy from General Turbine so that it can output four hundred forty volts into the electrical system and then direct all of the hot exhaust into the mixing tank?"

"If that's what you need I can do you one better. And, it won't cost much… certainly not even half of going out and buying an APU from them."

She told Tom about a small test turbine that she and her intern, Artie Johnson, had built a month before. "I was teaching him about gearing ratios and how stress and torque were major players. Seemed easier to show it all in action."

The turbine was designed to look more like a 28-inch ball with an intake up front and the exhaust pointing straight down. The central shaft of the turbine was connected to a gearbox to provide physical power via a driveshaft out one side while the exhaust flowed through a secondary turbine that turned an electrical generator.

As she described the dimensions and capabilities of the turbine, Tom was looking through the designs. He smiled when he spotted the perfect place to add the turbine.

"Great, Dianne. I only wanted heat and electricity. You've given me another source of motive power for this thing."

She left after agreeing to thoroughly test the twin turbine setup to ensure its durability for the job at hand.

Entering the room a minute later, his mother had her arms crossed over her chest. "If you can swear that that was the end of the conga line, then I will not tell your father."

Tom smiled at her. "Ah, Momsie. I'm trapped here but my mind's at Enterprises. I'll be good the rest of the afternoon. Promise."

Later, Tom gingerly hobbled downstairs for dinner. "I thought that Doc Simpson wanted you off that leg for another full day, son," his father admonished him. "What happens if you tear the stitches open in your leg?"

Tom looked concerned for a moment. "I'm moving slowly and carefully. I checked after coming down the stairs and before coming into the dining room. No seepage. And that's not the stitches that are bothering me. It's all of these little ones on my chest and belly.

They itch!"

After a delicious dinner of Anne Swift's 'soggy ribs'—boneless beef ribs stewed in a sweet and tangy barbecue sauce until they practically fell apart—mashed red potatoes and asparagus, Tom allowed Sandy to assist him slowly back up stairs.

After tucking him in, she looked him in the eyes. "Can I ask you something really important, Tom?"

"Sure, San. Anything."

Taking a deep breath, his sister asked, "Are you and Bashi going to get serious? Am I going to have her for my sister-in-law some day? Soon, I hope."

"Geez, Sandy. Why ask that?"

Sandy smiled at him. "Bashi told me that you finally told her that you love her. I just want to know if it was a spur of the moment thing, the drugs, or if you meant it."

She left the room before he could answer.

Doc Simpson poked his head into Tom's room the next Monday just before lunch. "Ready for my 'is he okay for work' check?"

Tom anxiously asked the medico to come in. "It's been more than a week and I'm feeling really good, Doc. All these stitches itch like the dickens, but no dizziness, no pain except the ribs and collar. Well, and the leg," he admitted.

Simpson checked Tom's stitches for signs of proper healing and possible infection. Only two of the sites showed any redness. The doctor rubbed an antiseptic ointment into these and redressed them with gauze. "Looks like most of the stitches can come out day after tomorrow. That will be ten days. We'll leave in the slightly infected ones another day. The external stitches around the femoral site will need to remain for another five days or so, and the internal ones will just dissolve."

Tom wanted to know about getting back to work.

"Day after tomorrow I'll come get you myself. I'll give you a half day chit, bring along a wheel chair—no arguments!—and we'll see how things go. That'll leave Thursday and Friday; also half days. After a lazy weekend you can waltz in for full days again."

Tom was about to say something but was interrupted.

"And, that doesn't mean eighteen-hour days. Four hours on, lunch and then four more for a couple days. Sorry, skipper, but you came about as close to death as I care to have you get. It'll take you a

few more years to realize this, but you actually aren't immortal." He smiled, patted Tom on his good shoulder and left.

Bashalli came over that evening and she, Tom and Sandy played Scrabble. Tom, who almost always won, was distracted by the presence of Bashalli as well as thoughts of his machine, lost to both girls. Bashalli might have won but was caught with a letter 'J' at the end so Sandy won by 5 points.

His first two half days were spent in the shared office. He had a mountain of mail and emails to plow through and numerous requests to answer. It had been quite tiring.

When Doc Simpson let Tom off at The Barn on Friday so that the inventor could finally check on his asphalt machine, Tom was happy to see that a team had raised it back onto its stand and had reinforced the stand so that a further accident would be practically impossible.

Tom noticed the set of angled reinforcing brackets that had been bolted to the concrete floor. It would, he decided, require the power of an Army tank hitting from one side to displace the giant paving machine.

Tom got out of his wheelchair and carefully checked each of the grinder teeth. He was slightly bothered to find that his own flesh and blood were still clinging, dried, to several of them. He made a mental note to have the HazMat team come in to clean it.

He was walking around the far side, wishing to check to area that had hit the ground first before the giant grinder had pinned him to the floor.

As he stood there, a gruff voice sounded from behind him.

"Stop right where you are, Swift, and reach for the sky!"

CHAPTER 3 /

DAMON'S DILEMMA

TOM SPUN AROUND and let out a whoop of glee in spite of the pain the movement caused him. "Bud," he shouted to his best friend. "When did you get back?"

The dark-haired athlete, Tom's best friend and Enterprises test pilot, stood there grinning at his pal.

"They kicked me back downstairs. Said I was taking up valuable breathing air that the station could use. So, I hopped on the supply rocket and landed at Loonaui about half a day ago. I just made it onto the weekly supply jet back here. Ta-da," he said spreading his arms wide.

Tom carefully walked over and gave his friend a warm handshake.

"Don't worry, Tom," Bud said seeing the evident pain in Tom's gait. "I got filled in on your injuries so I won't try to give you a hug," he told the young inventor. "Okay, give me the run down on what the heck happened to you."

Tom gave Bud a fairly detailed description of the parts of the accident he could remember, plus a list of all his injuries. Bud was speechless by the end of the story.

"Now that you're back, you can help me with this monstrosity."

"Anything. Name it, Tom."

Tom pointed at his asphalt rejuvenator. "Exactly! *Naming* it. You've been in on this thing since day one. You know what I want to accomplish with it. So, the question is, what do I call it?"

Bud was well known for coming up with all sorts of pun names for Tom's inventions. However, it was generally the norm for Tom to come up with the more scientific or descriptive name that Bud gleefully poked huge holes in with his own monikers.

"You really don't have an actual name for it?" he asked in earnest.

Tom shook his head. "Nope. It has sort of been called 'that asphalt thing' or 'roadway rejuvenator' or things like that. I guess I could call it that one." He looked a little dejected.

"Well, whatever you call it for real, I think I'll call it Rocky.

Actually, ROKI."

Tom looked mildly perplexed.

"ROad KIng," Bud stated as if it were perfectly self-evident. He spelled it out. "R-O, from road plus K and I from king. Get it?"

Tom smiled. "Okay. ROKI it will be."

A couple hours later, and good to his word, Doc Simpson TeleVoc'd Tom telling him that he had only another thirty minutes before Doc would take him home for the weekend.

Tom wanted to protest, but he felt weary and knew that Doc was right. He gave in and spent the weekend lounging around the Swift home.

During the following three days all the new components that were being provided by Hank, Arv and Dianne were delivered and installed.

On that final day Tom felt almost back to full strength. All his stitches had been removed and both Doc Simpson as well as the surgeon at Shopton General pronounced him to be fit for full work days.

As he and the engineering team were standing and admiring the ROKI late in the day, Tom's father approached and beckoned him to the side.

"Tom. I didn't have any time to tell you much about the NOAA folks and their request." He filled Tom in on all the major details. "They are pressing me for some answers."

"Sounds like a poser, Dad. I can see how it might be possible to build a hurricane-proof building, but coming up with something for their different ships is a whole other can of worms."

Damon placed one hand on Tom's shoulder. "I hate to tell you, son, but that can is going to need to be placed in your hands. I have been selected to sit on a Senate panel on nuclear energy safety for the next two months. I'm their so-called expert and can't get out of it for anything short of a national emergency."

Tom smiled. "And, the NOAA project doesn't fall into that category. Right?"

His father agreed. "Is there any way to have someone like Hank Sterling take over the asphalt project?"

"It's practically finished right now. We'll need to order in some supplies, like the tar, and get the factory onto producing the necessary amount of the Durastress balls, but ROKI is about ready

to roll. No pun intended."

"Then let's have you see it through the testing phase and then you can take on the NOAA project. Perhaps I can spare some time to work remotely on it with you," he said looking at his obviously tired son.

Tom turned and thanked the team and told then that the first test would occur that Friday. He and Damon walked to their shared office and began discussing the NOAA project.

For more than two hours they talked about the need for balance between functionality and strength for the buildings.

"It probably won't do to just throw up a set of reinforced concrete bunkers," Damon told Tom. "They will need to have observation windows and at least one dome capable of housing a long-range telescope-camera."

"And, we have to account for their two big communications and weather RADAR antennas," Tom added.

"Three," Damon corrected him. "The smallest of which measures nine feet across and needs seven feet of vertical clearance."

They considered a weather shield using multiple layers of clear TomaQuartz sandwiched around a gel to keep pieces together in case of breakage. Unfortunately, the nature of tomasite meant that the RADAR signals would be absorbed. Tom knew he needed to create something else.

He returned to his desk and began using his CAD program to start the design process. By Tuesday he had come up with a preliminary design based on weather resistance as well as specific space requirements of the customer.

Damon would only be around for the next two days before heading to Washington DC for a four-week stay. Tom had their secretary set aside a two-hour block of time so that he could show his father the plans.

"I think I've come up with something that could make the mooring of their ships safer and better able to withstand hurricane-force winds," Tom told the older inventor. He pushed a detailed printout across the desk.

Looking it over, Damon Swift made several humming "Mmmmmm-huh" sounds. Laying it back down he looked at Tom. "If I'm reading this correctly, you're planning on doing some very serious drilling."

"That's right, Dad," Tom admitted. "My plan is to drill down

about a hundred feet below the ocean floor and to place self-anchoring mooring rigs. They would be positioned at the front and rear of each ship and would self-adjust to accommodate the tides."

He went on to explain that these super-strong mooring rigs would attach to mooring points welded onto each ship. All that would be necessary was to pilot the ship into its front mooring point —which would automatically close and lock upon contact —and then swing the rear or the ship over to lock into the rear point.

"What sort of force will they be able to withstand, Tom"

"Well, if we build them the size I intend, and from Durastress-reinforced steel, then they should hold a ten thousand ton ship even at winds of one hundred fifty miles per hour."

"And, what's the largest NOAA ship?"

Tom consulted his notes. "It's like the Coast Guard's Medium Endurance Cruiser class... about eighteen hundred tons and two hundred seventy feet long."

They discussed the enormous stress just two mooring points would have to bear. Damon suggested that Tom consider adding a third point amidships for their longer ships. Tom took a few notes and promised to look into it.

Finally, Damon got up, saying, "Well, son. It certainly sounds like you have a good handle on this. I feel much better about going off the DC for the next month."

On his arrival at Reagan International in the capital city, Damon was picked up by a special VIP car service and whisked to his hotel. There, he was surprised to find his reservation was for an opulent suite of rooms overlooking the FBI building. Believing that such a large accommodation was a mistake, he went back down to the front desk.

"No, Mister Swift. That is the room requested by Senator Quintana's office. Is there anything wrong?"

"Well, not actually wrong, but it's a lot more room than I need or want to pay for."

The desk clerk looked askance at him. "You misunderstand, Mister Swift. The room is already paid for. We have you there for twenty-nine nights with checkout on the eleventh of next month. That *is* correct, isn't it?"

Damon pondered the situation. He didn't wish to be seen as ungrateful, but he was certain that such a suite was going to be a waste of money. When he inquired about the room rate, he

blanched at the answer.

"Oh, my. Uhh… do you have any idea what the protocol is for moving me to a more… well, I mean a less… well, something smaller, perhaps?"

In the end, and following several hushed phone conversations, the clerk called over a bellhop and gave him a key.

"Please have all of Mister Swift's belongings transferred to room —" he looked at his computer screen, "—to room nineteen fifty-five."

Turning to face Mr. Swift he said, "It will just be five minutes or so. You're absolutely certain you don't want the suite?" Damon shook his head. "Alright, then. Nineteen fifty-five faces the White House, so it has hermetically sealed windows and shatterproof glass. Federal regulations, I hope you understand."

When Damon opened his new room he was pleased to see that, although considerably larger than most hotel rooms, it included only a single room with a large bathroom. He was unpacking when the phone rang a few minutes later.

"Damon? Pete Quintana. What's the matter with the room we got you?"

Chuckling, Damon informed his long-time acquaintance that the suite was far too much for one man. "And," he added, "far too expensive for the taxpayers to foot."

He was informed that a car would call for him at 8:30 the following morning and that he should plan on being at the Senate office building until well past 6:00 that evening.

At precisely 8:30 the next day, the driver entered the lobby of Damon's hotel. He walked directly up to the scientist and presented his identification along with his assignment page.

After perusing it, Damon was about to suggest that they leave. The driver, who had introduced himself as Devlin, asked, "Could I get you to call Senator Quintana's office to verify my identity, sir. They can send you my chauffeur's license picture right to you cell phone."

When Mr. Swift looked hesitant, Devlin shrugged and said, "It's a good security practice, sir."

Once the identity had been verified, they departed for the six-minute drive to the Senate office structure. After being met in the front lobby and expedited through security, he was ushered into an elevator. His guide turned to him, biting her lower lip.

"Mister Swift? May I ask you a question and maybe a favor?"

Damon raised an eyebrow, and she continued:

"I work for Senator Maxwell. From Idaho? Anyway, she has some severe reservations regarding all of the nuclear energy plants that are on the drawing board. Plans are to locate at least five of them in the upper panhandle of Idaho."

Damon remained silent, hoping that she would get to the point. As the elevator door opened, she said, "We… that is, she is afraid that there will be problems. There are a lot of folks up there that don't want any government interference. That includes any Federal agents that go with this type of construction. These are some very angry folks."

"Meaning?"

"Well, she is wondering whether you might be convinced to support her plan to not build any nuclear plants. Anywhere. Especially in Idaho."

They had reached the door of Senator Quintana's offices. "I'm afraid that you and your senator have the wrong idea. I'm just here as an advisor to talk about how to make nuclear plants as safe and as foolproof as possible. I'm not involved in building any of them."

He thanked her for bringing her to the office and went inside, closing the door behind him.

Senator Quintana's senior assistant looked up from her desk. "Be with you in a minute, sir," she stated looking back at her computer screen.

Damon stood there for a couple minutes while she continued looking, reading something that evidently amused her.

Finally, the door behind her opened and Pete Quintana stuck his head into the outer office. "What the heck are you standing out there for, Damon?" he asked. "Why is Mr. Swift waiting?"

Damon said nothing but was gratified to see the look of horror on the assistant's face as she realized who she had been keeping waiting. She was still stammering when they entered the senator's private office.

At about the same time, back in Shopton, Tom set aside his plans for the NOAA project and was preparing to leave to demonstrate the ROKI. He had asked the facilities manager to select one of the worst areas of roadway away from any of the active runways.

He arrived at the chosen location just in time to see the

unloading of the ROKI from its gigantic trailer. Although he had set all the specifications and designed the machine, it came as a little surprise to see how large and long it was now it was sitting on the tarmac. He assisted the team in setting everything up, including loading of the blocks of cold tar and Durastress beads in their hoppers, and filling the large propane tank.

He was walking along looking over the cracked and crumbling road when Dianne Duquesne pulled up minutes later with a refueling truck to fill the smaller JP6 fuel tank to run the new turbine.

"Well, everybody," Tom said walking back and addressing the group, "assuming that I have everything right, it will take about ten minutes to heat things up and get ready. I hate to ask this, but could you all move back a hundred feet or so... just in case?"

"What? You think you've got the flammer-jammit back-linked to the gizzmoid, or something, sonny," came a cajoling voice from the back of the group.

"Hey, Bud. Glad you're here," Tom yelled back over the laughter of the group. "Got a job for you in a few minutes."

The flyer came over and Tom described what was needed. Bud looked at Tom, who simply nodded in return.

Bud trudged back to the crowd and waived them all back while Tom entered the control cabin of the machine.

Once the turbine had been started using the built-in Swift solar battery, Tom turned on the tar hopper. Soon, the black chunks began to melt and became a mass of molasses-like hot sludge.

Turning on a small blower inside the Durastress bead hopper, Tom was now ready to start. He gave a thumb's up signal to the crowd. They all came forward, including Bud who was now outfitted with a wide-bladed shovel, hardhat and safety glasses.

Tom set the large front grinding wheel into motion, followed by the second grinder. He looked at his readouts. Everything seemed to be right, so he lowered the grinder slowly onto the crumbling asphalt.

Within a second it was digging into the surface and large chunks were flying out the back and into the second grinder. He checked a monitor and was disheartened to see that very few small pieces were exiting the second grinder and being added to the mixing hopper. Things were beginning to back up between the two spinning cylinders.

A red light began flashing on the control panel and a klaxon blared a warning. Tom hit the 'disengage' button, and the big machine quickly halted.

He opened the door of the control room with an embarrassed grin. "Sorry, guys. Forgot to turn on the propane to heat up the surface. At least I was smart enough to put in a sensor to detect that."

He assisted Bud and several volunteers in pulling out some of the large chunks that were blocking the secondary grinder. These were tossed back into the road and spread out a little.

Tom climbed back up onto the machine, closed the cabin door and keyed in the override sequence. Soon, and with the propane-fueled flames blasting down on the roadway, he restarted the huge grinding cylinders. This time, properly softened, the fist-sized chunks flew back into the path of the second grinder.

The resulting marble-sized pieces were tossed back into the mixing hopper. Once it had filled to the half-way mark, a slurry of hot tar and Durastress beads began dropping into the mixer where paddles slowly mixed the contents. Everything that was swept up from the six-inch hole was delivered to the hopper via a pair of conveyers and dumped into the mix.

By the time the redepositor was nearing the point where the first asphalt had been dug up, everything was ready and the rejuvenated and strengthened asphalt was being extruded onto a platform preparatory to dropping back onto the ground.

As designed, another propane flame bar heated the ground back up making it better prepared to adhere to the new mix.

Tom checked his monitor and was happy to see that the computer was depositing the proper amount of the mix back into the shallow trough, and the dual rollers had begun pressing it down to become a perfect thickness match with the surrounding older asphalt.

Bud, wearing a grumpy frown along with his safety gear was walking along behind, scooping up the occasional stray piece of the mix that escaped along the sides and tossing it back into the machine.

Within five minutes of starting, the ROKI had dug up, ground, mixed and replaced a 10-foot wide and fifty-foot long area. Tom put the machine into standby and climbed out to inspect the work.

Everyone came forward to see the quality of the work. Tom

stepped one foot onto the new surface and carefully placed half his weight on it. No indentation.

He turned and smiled at the group. “Everybody out onto the surface. I need to see how soon it can be used, so feel free to jump up and down and scuff your heels into it.”

They did. Only one pair of boots with steel caps on the heels made any noticeable mark.

“Brand my hot roadbed, Tom. You sure got this working real nice!” The voice was provided by Chow who had been one of the first people out to watch the demo. “An’ ya did it in record time, I reckon.”

“Actually, Chow, that was a slow test. Right now, it is about as slow as we can go. I’m going to need to set it up to run even slower for detailed work.”

“Then,” Bud picked up the narrative, “Tom figures that this can run a ribbon of road from here to Texas in just about three days!”

Chow narrowed his eyes and stared at the dark-haired young man. “Sure, Buddy boy. Sure.” Turning to Tom, he asked, “Kin it really get up an’ go much quicker, boss?”

When Tom told the cook and the gathered group that he believed it could eventually repair two miles every hour, they all smiled.

Tom asked Bud to take over the rest of the test. “The assigned area goes from where I started to that staked point five hundred feet away. Then, you’ll need to swing wide and do the return lane.”

Bud enjoyed driving the machine with different members of the development team taking turns doing the shovel cleanup duties. However, once he got to the far end, it took more than a full hour to turn the machine around and get it aligned.

Tom, who had been taking notes and photographs was dismayed. “Great! I completely forgot about trying to turn that length. Guess I’ll need to hinge it in a few places.”

“Can you figure out some way to have it realign itself, too,” Bud requested. “I’m pretty sure than I’m a couple inches off as it is.”

Nodding, Tom made an additional note. He thanked the crowd and then switched places with Bud for the return trip.

The group dispersed as Tom pressed forward, bringing the speed up to half of its top speed. Without any hesitation, the giant machine moved forward, working away to replace the road surface.

At the end of the test, Tom was happy, but knew that he had

several tasks ahead in order to perfect the ROKI.

Things weren't going quite so well in Washington DC.

"We're in for a few problems, Damon," Senator Quintana told him. "Patty Maxwell is a very difficult person to work with. On the positive side, she is the first over-fifty woman we've had who never rants and raves about being a great politician because she is also a wonderful grandmother. Where she falls short of the mark is in her almost fanatic hatred of technology."

"A bit of a Luddite?" Damon suggested. He was referring to people who believed that technology was evil. The original Luddites had been a group of British textile workers who had run amok and destroyed looms and other automated machinery they believed would put them out of work.

"*A bit* doesn't even come close. She won't carry a cell phone or even a pager so her people constantly have to hunt her down. She will only take the train back to see her constituents. Worse yet, she's the Chair of this committee!"

Damon had a direct and simple question. "Why?"

"Seniority. She's going to make this a difficult up hill battle."

Damon told the senator about his run in with Senator Maxwell's assistant. "It sounded like she was trying to be reasonable."

"Sorry to tell you this, Damon, but she has already tried to get you thrown off the committee!"

CHAPTER 4 /

TRIAL BY FIRE

TOM TURNED the ROKI refinements over to the engineering team. He had total confidence in them. He needed to concentrate on the NOAA project.

Sitting in his underground lab, he began to realize that he needed to move beyond the two dimensions of the computer and the projected 3-D images his CAD system could display at his desk and to work with a physical 3D model. As he pondered the best method for achieving this, Bud walked through the door.

"Hey, skipper. What's cooking?"

Tom told him. "What I'm finding on the Internet isn't all that helpful."

"So, let's head downtown to Jake's Hobby Shop. I bet he's got the exact models of the ships they use. Besides, I wanted to talk to you about something, and a little drive will give me the opportunity."

The two hopped into Bud's red convertible and were soon driving along the highway that connected Enterprises with the town of Shopton.

"What's this big thing you need to talk about?" Tom asked soon after they had left the main gate.

"We have been put on notice. Actually, I have been put on notice, but you're within the fallout zone. The girls want to go out." He held up a hand to stop Tom. "You and I both realize that you were laid up a bit there, so you kinda have a 'get out of jail free' card right now."

Tom laughed. "That's not going to last very long."

"Anyway, Sandy and I had a pretty serious conversation yesterday. Guess I've been a bit preoccupied with work and all. The thing is, she is feeling a little ignored. She hinted that I might not be her only date in the near future. I think she's serious."

Tom could see that Bud was really bothered by this. Generally, both Sandy and Bashalli were good sports about their too-frequently-busy boyfriends. And, until his relationship with Bashalli had become more serious, he hadn't realized the impact a lack of together time might have.

"Bud. I'm not sure how I am going to manage it, but you really

have no excuse. I'm the one who sits in my lab, sometimes past midnight. You could be taking Sandy out, you know?"

Bud nodded. "Sure. But it's always been the four of us. At least since you and Bash got together."

They drove in silence until they reached the hobby shop.

In minutes, Tom and Bud came back out armed with scale models of the three classes of ships used by NOAA. Back at Enterprises they set to building the models. By quitting time, they had them complete.

"Let's surprise the girls with a dinner and movie tonight," Tom suggested. He called Sandy to see if she might be available. "Bashi and I were just discussing our options, brother dear. We are accepting only serious offers."

In the end, the girls were happy to go out. Insisting that it be casual, Tom and Bud raced to the Swift home and picked them up before they could try to get dressed up.

The dinner was at a small restaurant run by one of Chow's friends. Primarily a rib house, the foursome finished their dinners covered in sticky sauce and smelling of smoked meats.

"I suggest that we are not fit to sit in a theater tonight," Bashalli said after she and Sandy returned from washing their hands. "Why don't we just walk around for awhile?"

They all agreed and were soon strolling hand-in-hand along one of Shopton's busy downtown streets. Bashalli knocked lightly on the window of her brother's coffee house, The Black Cat, and waved at him. He looked up, saw her and rolled his eyes before returning the wave.

They found themselves in the city park that ran along one side of downtown. The land and the park had been a gift from the Swift family several generations earlier. It bore no name or indication, so time had erased most memories of its origin, but Tom and Sandy both felt some level of pride seeing the many people out enjoying it.

Sitting on one of the benches, Tom decided to get serious. "San? Bash? How deep of a hole have Bud and I dug for ourselves? I mean, I know that we are not exactly winning your affection by not taking you out more often. Sometimes I feel like a real jerk. Neither of us wants to lose either of you. So, tell us if we've blown it."

He looked at them. Both girls had a hint of tears in their eyes. Bashalli put her arms around Tom's neck and placed her head on his shoulder. Sandy took Bud's hand and squeezed it tightly. He

could feel her trembling, and he had a sudden premonition that things were going badly for him.

Sandy looked deeply into his eyes and took a deep breath. Softly, she said, “Budworth Barclay? I think we all know how Tom and Bashi feel about each other. I’ve felt that way about you for almost a year. I may have little fits when I feel lonely, but I’m not really going to trade you in for another model.”

Tom felt Bashalli’s head nod as she whispered, “Me, too!”

They got to their feet and walked until it was time to take Bashalli home.

The next morning, Tom began working on the design plans for the actual mooring points. He asked Arvid Hanson to come over.

The two sat with both the computer designs and the physical models discussing materials and stresses.

Arv left an hour later with the ship models and the assignment of building scale models of the mooring poles and connection points for the ships.

“I’ll add a little slider rail along the models so we can play with the exact positioning of mooring points,” he offered.

When he came back the following afternoon, complete with a five-foot length of 2x4 wood to play the role of the dock, they maneuvered each of the ship models around on a table trying to simulate how an actual ship might dock and undock. Tom soon realized that neither of them had the nautical expertise to adequately do the job.

“It’s not exactly like bringing in a small sailboat at the marina,” Tom admitted.

Tom placed a phone call to the U.S. Coast Guard station in Freeport, New York. He was finally transferred to the base Public Relations department, and spoke with Lieutenant Commander Finch.

Tom explained their predicament. The officer listened carefully, and then suggested, “Why don’t you come over this weekend? We are set to do practice maneuvering with a group of Coast Guard reservists. That will include plenty of docking, undocking and such. We can put you up onboard if you wish.”

Tom agreed and asked if he might bring one of his engineers.

“Absolutely. You’ll have to share a stateroom so I’d suggest bringing a male engineer,” he said with a little chuckle.

Tom called Hank Sterling, believing him to be the best-suited all-around person for the job. Hank hesitated a moment before asking, "Could my daughter stay with your folks?"

Tom mentally slapped himself on the forehead. He had completely forgotten that Hank was a widower with a teenage daughter.

"Absolutely, Hank. Mom loves her and Sandy will keep her occupied with makeup lessons and all that."

When they departed Friday evening, Tom had packed a half dozen high-definition video cameras with a variety of mounting hardware. He wanted to get video of the docking and undocking steps from many angles. This, he would feed into a computer that could then be used for accurate simulations.

The two days of maneuvering in and out of port proved to be an eye-opener for him. While accuracy and a gentle touch were evident, precision frequently gave way to sheer manhandling of heavy mooring lines, often using powered winches.

He knew he would need to come up with a way to make things easier or more automated. This would be mandatory where ships needed to moor during bad weather conditions.

On Monday he and Hank spent the entire morning in Tom's lab discussing the next steps.

"My guess is that I need to come up with a mooring lock that can move to match its motion with that of the ship. That way, they should only need to get to within eight or ten feet and then let the mooring mast do its thing."

A week later, Tom completed the design of a semi-automatic system. As he and Hank had discussed, the ship would steer its bow to a point anywhere within a 10-foot radius. A laser array would scan the hull and locate the exact mooring center point. Then, the mast's mechanism would quickly move out to capture the ship's connection point.

Once attached, the ship's Captain would maneuver the stern into position. At that time, both the stern and amidships points would engage and the system would draw the ship in close to the dock, effectively locking the ship in three places.

Arv arrived and they talked about making a larger-scale setup.

"Sure, skipper. I'll scan in all the major hull and superstructure details of the models and come up with a larger version. How big do you want it?"

“Let’s go for something about ten to twelve feet long, and only worry about the largest of their ships for now. I’m going to put a full maneuvering system inside. Between a working ship model and your working mooring mast models, we should be able to demonstrate the effectiveness to the folks at NOAA.”

While a pair of electrical engineers built the laser sensor arrays, Tom built the electronic boards to operate the system. Everything was ready five days later.

The mooring masts had been set into concrete blocks and lowered into the large water tank where Tom had tested everything from his original jetmarine sub to his Fat Man suits to an acquaintance’s jet ski.

Arv delivered the ship model on a trailer. It was winched up and into the tank.

Tom spent almost an hour getting used to the maneuvering controls. Not only did he need to control the forward and backward drive of the twin propellers, he also had to adjust their individual speeds and handle the rudder.

Finally he felt that he had mastered things enough to try for a test docking. He took the ship to a point thirty feet out in the tank and then set it in motion. His first three attempts ended up with him driving the bow of the model ship into either the side of the tank—effectively the shore in real life—or into one of the mooring masts hard enough to cause damage in a real world situation.

On the fourth attempt the little ship moved forward at the equivalent of one knot and into position. Tom momentarily reversed the propellers and brought it to a full stop right next to the front mast.

The sensors took over and moved out to match the docking point on the model. With almost no sound, it grabbed onto the docking point and began easing the ship up against the mast.

When he saw the green LED on the top of the mast, Tom moved the rudder and gave slow reverse spin to the starboard propeller. In less than a minute, the aft end of the ship swung around and both the aft and amidships masts were showing green lights.

He had done it.

It was only then that Tom realized that he was bathed in sweat. *How do they do it all so calmly with the real thing?* he thought.

With a few more days of practice, Tom felt ready to invite the NOAA selection committee up to Enterprises for a demonstration.

The three-man team consisted of the incoming commander of the base, his adjutant, and the captain of one of the larger ships to be stationed there.

The demo ran smoothly with Tom able to bring the ship in to dock, and to release and leave dock three times. The base adjutant, Commander Larry Fry, asked if he might be allowed to try.

Tom handed over the controls.

Commander Fry took the model ship out across the tank and zig-zagged it around for a few minutes getting the feel of the controls. “She is a little too fast on reacting to commands,” he commented. “I can adapt, but I just thought you’d like to know.”

Tom made a note to introduce a short lag in the programming.

The Commander successfully docked on his first attempt. He looked over at Tom with a smile on his face and his eyes gleaming.

“This is amazing, Mister Swift. Sir? Would you like to give it a try?” he asked his base commander.

Captain Perkins needed no prompting and soon had the ‘feel’ for the ship, He, too, had no difficulty in getting the model docked on his first run.

The captain of one of NOAA’s ships took his turn expertly docking on his first attempt. He asked Tom a few questions regarding weight and power considerations for each ship, but was quite satisfied by what he was seeing.

As they walked back to the office to discuss matters, the subject of stress and strength came up.

“We’ve run a few simulations, but I would value your input, sirs,” Tom replied. “I am making the assumption that the ships would dock before the gale winds hit. Is that correct?”

The three nodded in unison, but slowly. “That would be the ideal target. To get them in and winched down hours before trouble hits. Today, it’s either that, or put out to sea and try to get as far away as possible before things get nasty. We are hoping, however, that your system might allow us to be a bit tardy getting back to port and tied up. Even one extra hour of data gathering is significant.” He looked inquisitively at the young inventor.

“We would plan to anchor the masts in at least one hundred feet of solid rock, so movement would be no issue. The masts themselves would be about fifteen feet in diameter and made of a super strong composite of steel along with our own Durastress polymer, which is eight times stronger that steel, in a series of sandwiches. Everything

would be bonded together. We estimate that the overall strength to be four times stronger than the sum of the individual components."

"Can you put that in easy talk, please," Commander Fry requested.

"Certainly. Your largest ships weigh in at under four thousand tons of displacement, but actually weigh over sixteen million pounds. That's the mass figure we need to use in computations. A wind of, say, one hundred knots will exert a force of—" he paused, seeing that their eyes were glazing over.

"Let's just say that if a hundred knot wind pushes on the ship with a force of what I will call 'ten,' that any one of the mooring points must be able to withstand that at a bare minimum. Each one is actually going to be capable of withstanding a force of 'twenty' on that scale. All three mooring points will combine to withstand a force of more that sixty-two."

"Which means—?"

"You should only have to worry if the winds get to a sustained two hundred knots. And that's only the big ships. Your smaller ones should be able to stay locked in position up to two hundred twenty knots of wind."

"Well, if we get those sorts of winds, losing a few ships will be the least of the worries down in the Gulf."

They prepared to depart after a lunch provided by Chow.

"Say, Tom. You wouldn't think of throwing in your chef on this deal, would you," the base commander asked. "Best brisket I've ever had."

Tom smiled, told the man that "with no regrets" Chow would be staying at Enterprises, and promised to have a single mast ready for full-scale testing at their site within the next three weeks.

After their departure he contacted Hank Sterling.

"Looks like we have the go-ahead to do a single mast full-scale test. Can you put a team together and get both a mast and a docking point built?"

"Sure can, skipper. The basic mast can be built in about two weeks. The rest of it, a week or so after that. Will that do?"

Tom assured him that the timing was fine. He then arranged to have an atomic earth blaster and a hydrodome paired up and prepared for shipment down to Florida.

He intended to use the setup exactly as he had with a few other

projects where undersea drilling had been necessary. The hydrodome was a combination of repelatron force to push back and hold the enormous weight of the surrounding water along with a strong, flexible and clear inner shell.

Surrounding water would be filtered and broken down into oxygen for breathing and hydrogen that would be mixed back in with the water. Other inert gases including nitrogen would be provided by the exhalations of the first people inside or brought to the site in compressed tanks.

The earth blaster, one of Tom's earlier inventions and one he seemed to be using more and more often, was a combination drill and rock vaporizer. Rather than chew through and spit out chunks of rock and dirt, the blaster used the high heat of its small, powerful atomic reactor to super-heat the rock and vaporize it. It could then be piped back up the hole and disposed of.

Once the dome and digging device had been prepared, Tom and Bud flew out to Fearing Island, the site of most of the Swift fleet of ships, rockets and submersibles.

Bud supervised the off loading of the equipment from the Swift cargo jet they had flown over and the loading of it into one of the medium-sized seacopters, the *Nestor*.

The trip down to the southern tip of Florida was uneventful and they soon approached the site of the proposed NOAA base. Currently, a minimally used wooden dock and radio navigation beacon building were all that sat on the fifteen-acre site.

As Tom was tying the Nestor to the dock, a small car approached. Two men, Captain Perkins and Commander Fry, got out.

"Nice day for it," Fry commented.

After greetings were exchanged, Bud inquired about their transport. "I thought you couldn't drive out to this island."

Commander Fry replied, "We had this brought over dangling beneath a helicopter. It will eventually be one of three vehicles on the island."

Tom apprised them of what he hoped to accomplish. They were amazed that he intended to set up the hydrodome that very day and to create the entire drilled site the next.

"Following that, we will cap off the hole and wait for the mooring mast to be delivered. Probably in about another eight days."

He invited both men to come aboard. They willingly jumped the short distance between the dock and the hull of Tom's seacopter.

Though both were familiar with the basic look of the craft—numerous news stories and photographs had been published of Tom's wonderful combination submarine and ground-effect flying machine—neither had ever been this close to one.

After a brief tour of the interior, Tom sat down at the controls and soon had the *Nestor* in position. They were currently only about twenty feet out, but due to a sheer drop-off in the area, the bottom lay at a depth of almost sixty feet. It remained fairly flat for another forty feet farther out, then the depth dropped off immediately to over one hundred feet.

Neither officer had diving experience, so Tom asked them to remain in the control cabin while he and Bud donned their aquasuits and exited the craft.

They pulled the deflated hydrodome shell with its built-in repelatron module, and moved it into position on the flat, rocky surface. Tom reached through an access point and flipped the machine on.

In seconds, both Fry and Perkins were left speechless as the repelatron began pushing back the water and the shell began expanding. In fewer than three minutes the work was complete. The dome now standing next to the seacopter was about 30-feet wide and over 18-feet tall. Hoses leading from three tanks inside the seacopter quickly inflated the inner shell.

Tom opened the outside of the airlock while Bud returned to the *Nestor* to bring out the carefully wrapped earth blaster. They set it into the lock and Tom entered as well. Bud remained floating outside as there was no additional room for him.

But, he was soon standing next to Tom. Together they unpacked the earth blaster, unfolded its temporary stand and did a systems check. Next, they transferred the atmosphere-making equipment and activated it. The final step was to connect everything together, bring in the large conduit that would take the exiting gaseous rock to the shore, and to turn on the machine. The atmosphere machine would need to run at least two hours before they could move around without their suits and begin the dig.

When they re-entered the *Nestor* it was already the middle of the afternoon.

"Well, gentlemen. That's it for today. Bud and I need to go back to Fearing to pick up the necessary capping device and the launching stand for the blaster," Tom told their guests.

They peppered him with questions about the technology behind

the hydrodome. Both were astounded at the speed at which it constructed the dome.

"When we come back tomorrow, you are welcome to come into the dome while we do some work and I can explain it all to you. We'll all need to be back out when I start the dig, however."

They enthusiastically replied that they would be back the next day.

Tom and Bud spent the night at Fearing. Base personnel did all the loading of the remainder of their equipment while they relaxed. Both boys spent more than an hour that evening talking on the phone to their respective girlfriends.

A call came through for Tom almost as soon as he had said goodnight to Bashalli. It was his father calling from Washington.

"Tom. Just wanted to catch up to see how everything was going."

Tom told him of the progress they had made in the two weeks since the older inventor had left for the capitol.

"Gosh, son. That's great! Wish my little trip was going as well."

He told Tom about the great many issues that popped up, almost daily. How Senator Maxwell alternately tried to subvert every suggestion he made while having her assistant privately attempt to woo him to their side.

"I turn one way and am scolded about how nuclear technology is killing un-conceived gold fish and causing warts, and then turn around and am told how high I am held in their esteem and wouldn't I rather help them find simpler ways to create energy."

Tom could sympathize with his father. "Are you getting anything done," he inquired.

"Sort of, and behind her back. We formed a subcommittee to investigate the state of backup safety systems. She wanted no part in that, so we take our two hours a day and talk about the real reasons we are gathered together. So far, I've been able to convince a majority of the committee that there are safe ways to handle nuclear power, and that we can provide a safe method of transporting and storing nuclear waste. I may be taking them out to The Citadel to show how we do it."

They talked for a few more minutes, then Damon, sensing the tiredness in Tom's voice, ended the call with, "You get some sleep, Tom. Father's orders."

The dig the following day went without a hitch. Tom and Bud

attached an exit hose to the earth blaster so that the vaporized debris could be expelled outside of the dome. A special access hole was cut in the floor of the dome and the blaster positioned directly above. Because of the size of the hole required, the equipment would be used to make a series of parallel shafts. Tom had devised a cable and pulley system to pull the blaster back up once each portion had been completed.

After a slight repositioning, the blaster went back down, again and again, until the entire 112-foot deep and 17-foot wide hole was complete. Turning off the device by remote control, Tom suggested a wait of an hour for any particulates to be filtered out of the air.

They all entered the dome via a direct connection from the hatch of the *Nestor* to the airlock of the dome. Tom and Bud worked to place the capping device into and over the hole while the two officers wandered around the small dome in amazement.

They returned to the *Nestor* and Tom decided to check out the surrounding area. They had traveled barely 2,000 feet out from shore when the passive SONAR began beeping an alarm. Tom jumped to the SONAR station and began a detailed sweep of the area. Immediately, he found the source of the alarm. An undersea craft was moving from north to south less than a mile away.

He was about to ask the officers if they new of any U.S. submarine activity in the area when the alarm went off again.

A pair of high-speed contacts had broken off from the larger one and were heading directly toward the shore.

Tom jammed the throttle forward and the *Nestor* shot ahead. He steered it hard to the right knocking everyone else off their feet.

The two torpedoes streaked behind them by less that a hundred feet, and the *Nestor* rocked as the two undersea missiles exploded, sending out shockwaves.

He checked the SONAR. Their attacker was moving quickly out of the area. Rather than try to follow the armed sub, Tom decided to risk heading back to shore.

He felt almost sick when they neared the dock area. Tom's hydrodome was nowhere to be seen. The earth blaster and all other equipment lay strewn around and in thousands of pieces, and the hole they had dug and capped was sitting open, filled with water and debris.

CHAPTER 5 /
DRAWING BOARD, BACK TO (PART 1)

BUD AND THE TWO officers could only look on in horror at what had happened. On surfacing, they could all see that the dock had also been completely destroyed with only floating timbers to hint at its former presence.

"Who could have done this?" whispered Captain Perkins.

"How could they have gotten into territorial waters?" asked his cohort, Commander Fry.

Bud placed a reassuring hand on Tom's shoulder and squeezed. Tom winced, and Bud realized it was his injured shoulder. "Sorry, Tom," he said.

Snapping out of his momentary shock, Captain Perkins said, "Let's get after them. We can't let them get away!"

Tom shook his head. "Sorry, sir, but our craft are never armed. Theirs obviously is. All I can do is try to fly above them and get an idea where they might be heading."

With that, he adjusted several instruments and activated the central fan of the seacopter. It rose a few feet above the surface and began moving away from the shore.

Tom tried to get onto the path of the submarine but was unable to find any trace. After three hours they gave up. He took the officers back to shore and announced that he and Bud would return to Fearing Island.

Before the NOAA men departed he reviewed the SONAR recording. Tom noticed one major fact; whatever it was had been only slightly larger than Tom's own original jetmarine. "Unless they have some sort of coating like our tomasite, Bud," he explained, "that sub is about eight feet wide and just over fifty feet long."

"A one-man mini sub? Maybe a robot sub?"

"More likely manned by two or three people. At that size, my guess is that those two torpedoes were their entire load. We'll pick up some of the debris and take it back. Maybe I can figure out what those torpedoes were and where they might have come from."

"But, your equipment… all that work," Fry said.

"The hole can be dug out fairly easily before we pour the footing.

We didn't need that old dock for the test, but I'm guessing that you did," Tom told them.

"Not really. Plans were to dynamite or C-4 it, haul out the pieces and build a new, high-tech pier. My first thought is that whoever they are, they did us a favor. Of course, my second thought is that they may come back!"

"Not if Tom has any say about it," Bud stated.

Tom looked at the NOAA men "While I would like to share my impetuous friend's enthusiasm about my abilities, until we know who they might be all we could do is to either chase around trying to find them, or set up a security system. Or, both."

With the NOAA men picking up likely evidence on the shore, Tom and Bud dove down in their aquasuits and swam around looking for anything might have been part of the torpedoes.

Tom located several playing card-sized pieces of outer case and Bud found the almost-intact drive mechanism from one of them.

Bidding their NOAA associates goodbye, Tom and Bud departed for Fearing Island. As they were leaving, Tom told the two men, "I'll have a couple of our seacopters come back down and erect a special net barrier that will stop any more torpedoes. They will hang around and search for any signs of that sub. I plan to be back here in four days with the team to pour that footing and to erect the mooring mast."

Once Tom and Bud disembarked at Fearing, he arranged to have all the collected evidence transferred to the small jet they had arrived in.

"We'll turn it over to Harlan Ames and Phil Radnor," Tom said to Bud. "Let's go arrange to have that barrier set up." Arrangements were made with the base's Special Projects department. They promised to have a barrier stretched from the shore a quarter mile to the north, out in an arc five hundred feet away, and then back to land a quarter mile to the south.

"It will be up this time day after tomorrow, skipper," the manager of the department informed him.

It required far less time for Ames and his team to get back with Tom regarding the origin of the torpedoes.

"El Cause," Tom believed is what the Security man said. When he asked for a repeat, Harlan spelled it out. "L-C-A-Ws. A low cost anti-submarine weapon. We developed them back in the eighties and a couple countries still use them."

"That might have been one of ours?" Tom asked incredulously.

"Unlikely. Ours had a steel case. This one was a chrome-alloy. Italy and Norway made ones like this a few years back. About six feet long and six inches wide. They're supposed to be able to travel about two kilometers at around seventeen to eighteen knots and deliver a five-pound shaped-charge explosive. Just enough to punch a hole in a sub's hull. If this had a machined aluminum case I'd say it was the Norwegian variant. That one can be launched from about eight kilometers."

Tom thought a moment before responding, "There is a lot more damage than a pair of five pound loads could produce."

"Well, that's the standard payload of the Italian version. We're almost certain it's one of theirs. They are notorious for launching them during practice and then just leaving them out there. They're cheap to replace as opposed to the cost of finding and refurbishing them." He stopped, then added, "And, there are several explosives that can deliver quite the wallop these days. The lab is trying to get enough off the most charred bits to determine what may have been inside."

Tom thanked him and left to go to his underground lab. Once there he sat thinking about the possibility that some type of long-term security perimeter be erected. *I wonder why*, he thought to himself, *that someone would be attacking a NOAA site? Unless, it wasn't the site as much as it might have been me.*

He didn't like that thought.

While waiting for Security to complete their tests on the residue from the small torpedoes, Tom busied himself on a possible defense against future attacks. If, he assumed, the enemy is out to destroy or impede the creation of a base in Southern Florida, then a stationary system with detectors—most likely a combination of listening stations and metal detectors—could easily be placed near to the new base. He considered a placement about a kilometer out but changed his mind when he called up information on LCAWs indicating that they could easily be hand launched by a SCUBA diver.

Six-tenths of a mile out might be too far to detect something that only needed to travel a few hundred feet to its target.

Placement of a detection perimeter close by would require it being shielded so that ships and smaller craft in port would not set off unnecessary alarms.

Hours later he was coming to a conclusion regarding a new type of system that might be capable of detecting anything from a fish to

a submarine, when his phone rang.

“Trent said I’d catch you down there, Tom,” Harlan told him. “I call with news good and news bad. Your choice.”

“Hit me with the good first, please.”

“Okay. Both of the LCAWs were Italian-built. At least originally. The one we have the drive mechanism from shows some tinkering and re-gearing. It would have been able to travel at close to twenty-two knots. It also had traces of a nickel-metal-hydride battery technology that would give it a bit better range even with the extra torque load of the new gears. I’m thinking up to an extra half kilometer.”

“You’re telling me that a faster, longer range version is the good news?”

“Uh, yes. The bad news is that the residue we got out of a few of the pieces that didn’t sit in salt water show that the explosive used was TVAREX 4A.” He paused to let that sink in.

“Wait! That’s the explosive from Slovakia somebody used to try to cave in the BulleTrain tunnel, isn’t it?”

When Tom was digging one of the large tunnels for his TransContinental BulleTrain, someone had planted the high-powered foreign explosive where it would lead to the destruction of one of his digging machines.

“That would give us the enormous explosive power that blew the old dock apart, Harlan. Somebody if definitely not happy about something.” He told the Security man about his thoughts for a new detection system.

Using a series of special wavelength lasers mounted on underwater posts, they would quickly rotate in a full circle up, across, down and back to the starting point bathing the area.

“If anyone looks with the naked eye, even underwater, they won’t see anything unless they are right in the beam. With a special filter they might see what looks like a bright, red wall of light. I’m certain that placing these about two thousand yards apart will give us full protection. Anything breaking the beam would be detected and the alarm would go out.”

“What about those fish you mentioned, Tom?”

“The system could be tuned to ignore organic life in a certain range. Too small and it’s dismissed. Too large and the same thing.”

“Then what?”

“Then, a second system would ascertain what it is. If it’s a frogman or something solid, like a metal object, we can automatically raise the inner barrier nets. Durastress mesh will stop just about anything larger than a spear gun and certainly could handle the small torpedoes.”

Ames was impressed, but he had a question. “What if that attack was just aimed against you, Tom?”

Tom had been thinking about that. “The more I mull that over, Harlan, the more I come up with the fact that there was no notice that I would be down there. The only people outside of a few Enterprises employees that did know were the NOAA folks. I hardly think they could be involved in anything against me.”

Harlan finished the conversation with a warning: “If we’ve learned anything from history it’s to not discount anything that could be a danger to someone who seems to have the word ‘target’ floating over their head. Talk to you later, Tom.”

That evening at dinner, the conversation quickly got around to the explosion off the coast of Florida that had been reported in the news.

“I hope you were nowhere close to that,” Tom’s mother, Anne, told him. Tom looked at her and smiled. Before he could say anything to contradict her, she continued, “Because your mother really shouldn’t be told about things that place her favorite son, or her beautiful daughter for that matter, in harms way. It’s just like I was telling your father the other evening. If there is one thing I am thankful for it is that our normal, everyday kids are always safe and sound.”

Sandy gave a knowing nod as if it all made perfect sense to her. Damon, home for a five-day break from his Washington duties, rolled his eyes and then smiled toward his wife.

Tom also smiled. He had come to realize that when his mother spoke like this, she already knew something bad had occurred, but now that it was over she did not wish to know the details.

“Anyway, the NOAA folks will get to see the test mooring by this time next week. The mooring point is being finished over the next few days and we will be welding on the connection device to their ship the day before the tests.”

“What sort of tolerance will it have?” Sandy asked.

“Well, it depends on what part of the process you want to know about. If you’re talking about the act of mooring…” He looked at

Sandy who was nodding. “Well, ships should be able to come under any condition they would normally dock. All they need to do is get within about a dozen feet out and within an arc of about one hundred twenty degrees, and the rest is automatic.”

“When will they have the base completed?” Mrs. Swift wanted to know.

“They want to get their new pier built in about two months and transfer the first ship right after that. I guess they plan to work out of trailers until the buildings get done. That might take an additional couple of months. Why”

“I was reading that this is supposed to be one of the worst hurricane seasons ever, starting in about three months. I was just hoping that you might get all your work done before that.”

So am I, he thought.

On the day of the mooring demonstration Tom and Bud arrived just in time to watch the final connection of the onboard electronics to the ship’s electrical system. NOAA’s *Thomas Jefferson* was home ported out of Norfolk, Virginia and would not be one of the ships being transferred, but she was both the ideal size and configuration to put the mooring system to a full test.

Her forward end was elevated almost ten feet higher than her fantail that would demonstrate how the mooring masts could raise and lower automatically to compensate for various types of vessels.

The other advantage was that she was due to go into dry dock for a refit in two weeks and any welding points—or, if things did not go as planned, damage—could be taken care of without affecting her mission. This was to be her final stop before that refit.

Captain Perkins and Commander Fry walked up and shook the boys’ hands. “Wonderful day for it,” exclaimed the Captain. “We’ve got everything that makes Florida the best place to be right now.”

“By which he means that this is not yet hurricane season when this becomes a dismal, stormy place,” Commander Fry added.

Tom paused for a few seconds before replying, “Well, I’m glad that we are here today, then. I see that the ship is outfitted, and I spoke with our installation team. Looks as if they were completed with the mooring point work a full day early.”

“Without that pesky old dock here they had a clear field to work in,” Fry said. “And, I don’t know if this means anything to you, but our estimates are that the… uh… unfortunate damage that occurred and the clean-up your people did probably saved us in excess of fifty

thousand dollars."

"But," the Captain said sternly, "it isn't the way we would have preferred. Hell of a public relations thing if the truth gets out after I made an official statement that it was actually our controlled demolition. Speaking of which, if you are asked to verify that was a controlled demolition explosion to remove the dock, can I assume that we understand each other?"

Tom and Bud nodded without replying.

The four men walked over to inspect the mooring mast. It poked fifteen feet out of the water and stood offshore about twenty feet. A narrow walkway connected it to a rocky outcropping that had been the previous attachment point of the old dock.

It looked like a very narrow, very tall pyramid constructed of boxy metal tubes and cross-bracing. An armature hung down in front that featured a sphere on the end and a glass-enclosed array of sensors along the top of the arm.

"So, tell me exactly how this works, Tom," the Captain said. "The little one we tried out at your company was mostly static. I understand this one bobs and weaves around." He was smiling, but Tom understood that his request was serious.

"As the ship approaches, the forward mooring point on the ship sends out a signal that wakes the mast up. From that point they are in constant contact. At some point I intend to design a way to let them control the ship, like a very precise autopilot. For now, a panel on the bridge shows the pilot or captain what is required to make the best approach and connection."

"What about all that bobbing up and down?"

"Well, Commander Fry, for starters, we need to align the mast connection with the ship's mooring point and as level as possible. Just look at the *Jefferson*. Her fo'c'sle is quite a bit higher than her fantail. If this demo was to show a two-point connection you would see the forward one rise to match its corresponding shipboard point while the aft one remained closer to the water."

Both of the NOAA men smiled. Being officially Coast Guard men and both of them former ship's commanding officers, they understood the dynamics of mooring a ship.

Looking up at the starboard bridge wing, the Captain said, "Looks like Commander Beane is ready." He pulled out a walkie-talkie and spoke into it. "We're ready down here. When you are, please take your ship out one thousand yards and make a standard

approach. Call out if you need to abort."

"Roger. I'm waiting for word from the engine room. We've been having a little problem with diesel number two. Should be underway in three minutes."

Commander Fry leaned over and in a low tone told Tom and Bud, "One of about fifty reasons she is going in for a refit. She's been dead in the water nearly fifty times in the last three months. Just cruising along at ten or twelve knots and… *BLAM!* Stops dead."

The Captain had jumped as Fry clapped his hands together as he shouted '*Blam*.' "Stop that, Fry!"

Fry looked slightly chastised while the Captain was glaring at him, but quickly gave the boys a wink once his superior turned away.

Ten minutes went by before Commander Beane radioed that the *Jefferson* was ready. She slowly turned to port and headed out. Three minutes later they could see that she had reversed engines; water was churning underneath her and spreading out on either side.

"Is that normal?" Bud asked.

"Oh, perfectly normal Mr. Barclay."

The *Jefferson* swung to starboard and was heading around in a wide circle. A minute later she was pointed at a location down the coast from the mooring point and beginning to come closer to shore. When she was a few hundred feet away, she turned sharply to parallel the shore. Then, as she had farther out, her screws reversed tossing a lot of water forward and almost immediately slowing her to a crawl.

She continued moving ahead at a pace Tom was certain even an elderly person could out walk. Soon, however, her bow neared the mooring mast and she came to a halt. The mast had already moved up and the arm swung up and out. It ended up less than five feet from the side of the ship.

Everyone on the shore could plainly see the light show that was going on between the arm and the connector on the ship. In seconds everything was in the perfect position and the arm pushed out and shoved the ball into its socket on the ship. A strobe light went off for a few seconds signaling, Tom told the two NOAA men, that the connection was locked.

A cheer went out as the arm retracted several feet, drawing the bow of the ship closer to the mast.

It had taken just about thirty seconds, and the ship was firmly moored.

“As I understand it, if we had a second or even a third point set up then the ship would use its engines to swing the aft end around and into place. Correct?”

“That is what I plan, Commander.”

The Captain got on his radio and requested that the *Jefferson* detach and go around for a series of several more runs. “I want you to try coming up a few feet short and a few feet long, please,” he requested.

The test of taking the ship a few feet past the proper alignment went well. The commanding officer radioed that his panel showed him exactly where he was and offered a solution to move the ship into proper alignment. Once he performed the simple one-second reverse the *Thomas Jefferson* moved back just enough for the arm and the connection point to mate and pull the ship into the ‘dock.’

But, the system failed to compute a solution when the ship was aligned, yet almost ten feet farther out than she should be.

It failed yet again when the ship maneuvered in too close for the arm to swing up into position.

“Don’t say it, Bud,” Tom warned seeing his friend about to comment. “I will. It’s back to the old drawing board. The issue with being too far out should have been easy; I may have a programming bug. But, I never considered that the ship would just be in so tightly, almost up against the pier. Guess this test was a partial success.”

“Don’t sweat it, Tom,” the Captain said as he approached. “For my money—and the Government’s for that matter—this shows the technology is successful. The only thing is that it doesn’t yet take into consideration how accurate our ships’ Captains can be when docking. Most of them can ease their ships up against the bumpers with barely enough force to crack an egg.”

Tom nodded, but said, “The system is really designed for bad weather conditions, sir. I guess I’d assumed that if it was a nice day with no wind, they’d continue to dock as per usual, then use this system only in bad weather or at night.”

The Captain was about to say something when a gasp went up from the twenty or so people gathered to watch the test.

The *Thomas Jefferson* had detached and was going around for a final docking attempt, but it was clear to all that she was in some sort of trouble. Instead of the light gray smoke coming from her

diesel engine exhausts, thick, black smoke was pouring our of one and nothing appeared to be coming from the other.

"If she can't get that engine under control and get propulsion back on line, she's going to run into that channel buoy in about two minutes."

"Won't the buoy just bob out of the way?" Bud asked anxiously.

"No. That buoy is mounted to a rock formation that's just a few feet below the surface. She'll be torn wide open!"

CHAPTER 6 /

STORM FRONT

TOM GRABBED Bud by the shoulder. “Quick,” he almost yelled. “Back to the seacopter!”

They had flown over from Fearing Island that morning in one of Tom’s larger, cargo carrier seacopters, the *Schouten*, named a 17th century Dutch navigation pioneer Willem Cornelis Schouten. It was designed to not only carry freight over and under the water, it also was the first of Tom’s newest seacopters specially outfitted to tow an unmanned seacopter cargo module. In effect, it had a trailer hitch.

It was this capability that Tom hoped to use now.

As the two ran to the shore and leapt over to the upper deck of the *Schouten*, Tom was calling out his plan to Bud. Tom raced up to the control room, and Bud raced in the opposite direction and into the aft cargo chamber. With the slap of his hand on a large button, he caused the rear of the seacopter to open up like the trunk of a car.

Tom had the seacopter in the air ninety seconds after the emergency was first spotted and shooting out to meet the ship five seconds later. He called back to Bud on the intercom. “Drop the tow line right on the bow. I only hope the men down there get the idea.”

As the seacopter hovered above the deck Bud shoved the 1-inch thick, but amazingly strong, cable up and over the threshold. It tumbled down to the deck below where one bright sailor grabbed it and began hauling it over to one of the mooring cleats. Two others finally figured out what he was doing and ran to assist.

“They’ve got it cinched down, Tom. Haul away!”

Tom’s fingers danced over the control panel as he set the seacopter down as close to the water as he dared knowing that the surface effect would give him more pulling power. The *Schouten* moved far to the starboard side of the ship and the cable went taut. He could feel the resistance and poured on the power. At first it seemed that the inertia of the much larger ship would win.

Then, they ceased moving toward the rocks and the buoy at the same time there came a slight shudder thought the ship and up through the cable.

“She’s scraping, Tom. More steam!”

If I had more, I’d be using it, Tom thought. Then, there was

movement. The bow of the ship pulled away from the rocks and began moving to the right. Tom changed direction to where he hoped he could maximize the pulling power and still keep the ship from hitting the rocks again.

Five minutes later he had Bud pull in the cable. The NOAA sailors had been able to get their anchors released and the ship stood still in almost one hundred feet of water.

Bud arrived in the control room, a big smile on his perspiration-dampened face, at the same time Tom was setting the *Schouten* back down on the water near the shore.

The gathered crowd exploded in a round of applause as the two teens jumped back to the shore and tied the seacopter back up.

Out of the corner of his mouth, Tom murmured, "You're really sweating, flyboy. Couldn't have been that hard tossing out a little rope."

Bud stopped and looked at Tom who also stopped. "Professor? Have you felt the humidity down here? I mean, I'm a California boy living up in the cool, dry part of New York. This isn't sweat, it's condensation!"

The *Jefferson's* Captain radioed in his thanks and invited Tom, Bud and the two NOAA officers to have dinner on the ship. Normally Tom would have begged off but he felt that in lieu of the only partial success of the demonstration, it would be a goodwill gesture.

Being a small ship she didn't have a separate staterooms for the five officers or for the ship's eight Chief Petty Officers; they ate at a special table in the general mess room. Tom and Bud got a lot of "thanks" and "much obliged" compliments from the crew as they entered.

"Of course they are thankful that you saved us, Tom," Commander Beane told him, "but they are really glad to have you here. We broke out the steaks tonight instead of burgers and hot dogs. You've made thirty-seven new friends!"

Tom didn't get to the Swift house until after midnight. His father had gone to bed. He was to head back to Washington early the next morning for what he hoped would be his final two weeks dealing with the committee.

His mother and sister were playing a board game when he walked through the front door. He went over and kissed them both on the forehead, saying, "Don't ask. Long day. Mostly worked. Saved

a ship. Ate steaks. G'night!"

Sandy looked at Anne Swift. "I hope that Bud is a little more descriptive when I ask him about this tomorrow… uh, today," she said looking at her watch.

Anne smiled. "You will learn, unless you marry outside of the Enterprises sphere of influence, that you often have to wait to know what the heck is going on. Just try to get Bud to promise to tell you whenever he gets hurt. I hate finding out about Tom or Damon getting bashed around a day or two later." She crossed her arm over her chest for a minute and then got up. "Honey? Your tired mother is heading up. See you in the morning."

"Night, Mother. Love you!"

"And, I you, my darling daughter." Thirty seconds later, Sandy heard her parent's bedroom door open and close.

The following afternoon Sandy and Bashalli marched into Tom's underground office and lab. Bud, who had arrived a few moments before gave them a big grin and rose to give Sandy a hug.

Bashalli cleared her throat to get Tom's attention. He was focused on the screen on his desk. "I do not pretend to recognize the rather intricate device on which you lavish your gaze, Thomas," she told him as he looked up, "but I can assure you that dressed in this beautiful blue dress Sandra helped me pick out I am much better for your eyes." He looked at her.

Seeing the form-fitting dress she was turning around to display, he had to agree. "I'm with you on that, Bash." He reached for her hand and pulled her over for a hug.

"Six… seven… eight… See that, Bud? A full eight seconds of loving clinch and all you could manage was a fast three. Sheesh! What's a girl got to do to get a real hug around here."

"Well," Bud drawled at the same time he flinched expecting Sandy to hit him, "wearing a little number like that wouldn't go amiss, if you know what I mean?"

He had flinched too early and Sandy's fist gave him a playful punch in the upper arm.

"Are we supposed to have met you two somewhere?" Tom asked. He and Bud were notorious for either being late for dates or totally forgetting them. Sometimes they had a good excuse; they had been kidnapped several times and both had been in multiple automobile accidents—not their fault as they were quick to point out—which had kept them from various dinners, dances and movies.

“Nope!” Sandy declared. “I wanted Tom to see what he is going to miss tonight when Bashi and I go to that new teen club over in Oswego.”

The boys were bemused. “Uh, what club is that?” Tom finally got out.

“The Junction. It used to be the old railroad station there. But a new one was built a few blocks away so some investment company bought the building and now it’s opening up for anyone sixteen to twenty-two. No alcohol allowed.”

“And, from what Sandra showed me on the Internet, the drinks are more than just sodas. They serve big, fancy drinks with different soda, syrups and fruits. Very urbane,” Bashalli said.

“The Junction, huh?” Tom muttered. He was soon typing away. A minute later he looked up. “Well, this Junction place didn’t get bought by an investment firm. It was a private sale to a Gary Wolfe. Why does that name ring a bell?”

They all thought for a moment and then Sandy brightened. “Think back, Tomonomo. Gary Wolfe? Oswego?” She could see she was getting nowhere. “Man with three legs?”

Suddenly, Tom laughed. “Of course. The man who helped me figure out the whole turbine thing for the SkyLiner. Well, if he’s behind this…”

Sandy and Bashalli had met Gary Wolfe, owner of one of their favorite fashion clearance stores in the city of Oswego, many months previous. He had been walking down the street with an artificial leg—over his shoulder and it turned out to be his brother’s—and came to their rescue when they thought they were being tailed by a criminal.

He and Tom had compared notes. Gary was an avid and very successful powerboat racer and specialized in using jet turbine engines as his propulsion. Tom was struggling with a new type of jet turbine engine using a special blade placement. By combining their knowledge Tom had been able to succeed in building his QuieTurbine to go along with his test jet, the SkyLiner. In return, Tom assisted Gary by developing an automatic system for making hundreds of adjustments to the racing boat trim each second. Since then, Gary had never flipped another boat.

“Why don’t you call ahead and let him know you’re coming. You’ll probably get VIP treatment,” Tom suggested.

The girls were enthusiastic.

“I don’t suppose that we could convince the two of you that we need to be watched? Closely!” Sandy said with a sly smile.

“Gee, I’d like to but I’ve just got a day or so to come up with a fix to the mooring system we tested out in Florida. If this could wait—”

“They’re only having a one night opening night, Tom. That’s what opening night means.”

“Thomas?” Bashalli asked quietly. “If you are too busy then I can wait to show off this dress to the world. Perhaps we could go to this new club in a few days?” She looked at him ever so slightly sadly and he melted. Her lower lip was trembling. Tom knew that she really wanted him to come with them. He also knew that she would go with just Sandy, or even Sandy and Bud if he asked.

“Tell you what,” he offered. “We take the train over. That will give me better than an hour to work on my portable computer, but you all have to agree to leave me alone. Okay?” They all nodded. “Next, I want you to check with Gary to see if he has a quiet room I can work in for at least part of the time we’re there. Maybe another hour or so.” Again, three heads nodded. “What time do we need to be there?”

Sandy and Bashalli squealed with delight and Bud smiled at his friend.

“Nine o’clock,” Sandy told him. “I’ve got a better idea, though. How about if we leave you alone until eight to work right here. Bashi and I can even bring you dinner. Then, we’ll take an amphib over to Oswego and land in the lake. We can walk the three blocks to the club from the dock. I’ll even fly. You can do brainy stuff for another —” she checked her watch, “five hours.”

“But, you will check with Gary for me?”

“Sure. If you think another hour is going to make a difference. I’ll do it,” she said as if it were going to be one of the most difficult things to do. Ever!

They left Tom to his work. At six, Bashalli came quietly into the room and set down a paper bag. As she turned to leave Tom’s hand reached out and swept around her waist. He pulled her to him and gave her a squeeze. “Thanks, Bash. Looks like I may not need the extra computer time after all. I’ll see you in a couple hours and we’ll have a great night dancing and drinking some of those fancy soda pop and fruit drinks.”

She gave him a quick kiss and then sailed out the door.

By the time Tom was ready to leave he had figured out the issues

with the mooring devices. It would be necessary to build a sliding mount for the shipboard connections so they could retract in cases where the ship came in very close and could also extend over the side by an additional five feet to account for ships that didn't get close enough. He was happy and told the other three about his success as they soared through the darkening evening sky.

Gary Wolfe met them at the door. He warmly shook Tom and Bud's hands and gave each of the girls a polite hug. He led them to his private table and then spoke to one of his waitresses.

"I've got to go to a meeting across town now. Actually, I've promised to go to a book club meeting with my wife. A modern rewrite of a science fiction classic. This meeting's been planned for months, evidently." He winked at them. "She assures me that it was finalized just one day before I set tonight's event in stone. Penny here will help you. Just ask. And, if you need that quiet room, I've told her you can use my office." He got up and left.

They ordered four different drinks so that they could experience a variety of what the club had to offer. While Penny stood guard they hit the dance floor for five straight numbers.

Tom was exhausted by the time they got back to the table. Penny smiled and asked if they would like something to eat. "We have nuts and pretzels, chocolate covered dried fruits, spicy wings, or oriental meatballs with hot mustard sauce. Oh, and Mr. Wolfe says that tonight is on the house. He also told me that you might fuss about that, so he said to tell you that everyone in the club is being treated, not just you."

The evening went very well and they left the club tired but happy just before midnight. As the foursome walked back to the dock area, Tom had a sudden feeling that they were being watched. Without saying anything he motioned for them all to stop. Bud looked at him curiously but said nothing. They all listened.

There it was. Footsteps coming up behind them. Not the bold footsteps of someone out for a walk, but the furtive steps of someone trying to sneak up on them.

The boys moved the girls a few feet farther on and then turned to face whoever it was.

The man had been able to get to within ten feet of them. He stopped when they turned and raised his right hand. In it they could see the gleam of a gun.

"Good evening, Tom Swift," the man said in a flat American accent. "I don't know if you'll remember me, but I know you well.

Oh, I certainly do. You left me to die several months ago. I can never forgive you for that."

"I *do* remember you, Tristan Carlow!" Tom growled accusingly. "You were killed. Even your CIA handler, John Thurston was convinced. I wasn't certain and I sure was very wary of your intentions. What do you want?"

Carlow had posed as a fellow inventor during Tom and Bud's adventures with his Aquatomic Tracker. He had gassed the inventor and almost got him shipped out of the country in a wooden case. But, the CIA agent vouched for him. Carlow had been shot by one of Tom's enemies and both teens believed that he had been killed. His appearance was a shock to both of them.

"Well, I have a new master now. One who wants you to know that your days are numbered. Oh, don't look shocked. I'm not going to kill you, although I should after the way you deserted me. No. Instead I will pass on this message. Listen carefully now: 'Black is never dead. When your lives fade, all you will see is black!' Got that?"

Before Tom could say anything, Carlow spun and ran off into a nearby alley. Bud started to give chase but a quick shout from Tom brought him up short. "Leave him, Bud. We've got to get Bash and Sandy out of here."

The girls were holding onto each other and both looked terrified. "What did he want? And, what was that about you leaving him to die, Tom?" Sandy asked.

He reminded them both about his previous run-ins with the man.

"Wait. Do you mean he is the man who gassed you and placed you in the box meant to hold that wax statue of you? The one you were being given by that museum? And, he is the one involved with that man who sank a whole ship just to get one old statue?"

"That's the guy, Bash. I'm not at all happy to see that he is still alive. I've got to let Harlan know about this first thing tomorrow."

They had arrived at the dock. As a precaution, Tom thoroughly checked the amphibious airplane before letting Bud or the girls on. He wanted to make certain that Carlow hadn't sabotaged it before the confrontation.

The next morning as Tom was describing the encounter, Harlan raised a hand. 'Okay. But, how is it that he knew where you would be, Tom? How many people knew?"

Tom had to think. Of course, the list included everyone at the club who had seen them at the owner's table, and their personal waitress. And Gary Wolfe.

"But, Gary wouldn't have any grudge against me, Harl. He helped me and I helped him. Plus, he's a straight up guy."

"Okay. As you say. But, who does that leave?"

Tom couldn't think of anybody else until he spoke with Sandy later that morning. He made a quick call to his Security man.

"Harlan. Sandy just told me that she didn't actually speak with Gary Wolfe. She spoke with a woman at his corporate headquarters over there. She isn't certain but she thinks the woman was quite young and was called Britney."

"Did Sandy mention that you would be coming along?"

"Yeah. She actually made a big thing of it to this girl. Played me up pretty well. As if Gary wouldn't have remembered her and Bash. Do you think this Britney might have told someone?"

"Only one way to find out. I'll let you know what I come up with."

It took eight weeks before Harlan was able to gather all the information. During that time Tom and his teams moved quickly to work on the mooring points and get a start on the permanent buildings for the NOAA base in Florida.

When Harlan finally did call Tom about the matter, he had the complete story.

"That Britney girl was a temp. She worked for a national company out of Phoenix. She and about a hundred other college dropouts, all girls, were recruited by one man at the home office and placed all around the country. Most of the companies we do business with have had one of these girls for several months. Once the FBI tracked down the recruiter it started to fall together. Or, apart depending on your point of view."

"Do we know what this is about?"

"Yes and no. The recruiter must have gotten word that some of his girls were being questioned. He skipped the country through Mexico a few days before the agents went to the placement agency to get him. They did get some info from the girls. Each one had been promised a five thousand dollar bonus for information about when you might visit the companies they worked at. This Britney had quit her temp job with them a few weeks earlier to work for a local agency but she kept the phone number of our missing recruiter."

“So, she called him and he somehow got hold of Carlow.”

“Right. And, our Mr. Carlow is currently in jail up in Montreal on a passport fraud charge. They promise to hold him for at least three months, or until we can get an extradition request.”

With the network now shut down and a promise from Harlan to contact all temp agencies with information about such possible future action, Tom went back to work on his NOAA project.

A week later he had finished reviewing the final changes to the mounting mechanisms for the shipboard equipment when he received a call.

“Tom? This is Captain Perkins at NOAA. Listen, I wanted to tell you that we’ve got a couple situations down her in Florida.”

“What can I do to help, sir?”

“Well, first we just received word that our two largest ships are going to be transferred three weeks early. Your team is right on schedule with the mooring points for the first ship, but the pier still won’t be finished for the arrivals.”

“I’m not certain what we can do, sir. The basic issue is that your command selected another company to build the pier. I’ve got no control over them.”

There was a noticeable hesitation at the other end of the line. Finally, the Captain said, “That is situation number two. Murphy & Willets just gave notice that they are pulling out of the contract. Full default, but no explanation. And, since they’re giving up claim to any money, we can’t legally force them.”

“That’s not good business,” Tom said. “I’ll need a day or so to check with my father and our construction company to see if we can backfill for you.”

“I hope that you can, Tom. And, I hope that you can do it immediately. We’ve got a real problem. Hurricane season is coming early, and we’ve got what looks to be a full on Category 5 brewing out in the Atlantic. If it follows the normal route it’ll slam into everything from the northern Leeward Islands all the way across to Cuba and then probably turn north. Human losses are estimated to be in the thousands!”

CHAPTER 7 /

UNEXPECTED HELP

TOM WAS in a quandary. He knew that it was barely possible to step in to finish the NOAA pier in the next few weeks, and all but impossible to do anything about the forthcoming hurricane season. But, it almost sounded as if that is exactly what the Captain was requesting.

"Captain. I will promise to make every effort to get another crew down there to complete the pier in time for your ships to arrive. It sounds as if you want more from me." He expressed his concerns regarding the hurricanes.

"Oh, gosh no, Tom," the man replied. "I'm sorry if it sounded like that. I mean, the old saying seems to be pretty intractable. We just can't do much about the weather. At least, not the really severe weather. No. What we need is to get our ships ready to get out there to get real time reports back so that the areas that are going to be hit know about it in as much time as possible."

The conversation left off with another promise to try to pick up the slack left by the old construction company.

After making a few calls and securing agreements from several Enterprises department managers to provide the needed personnel and equipment, Tom's thoughts turned to what the Captain had said. Was there really nothing that could be done about the weather? Could the best possible results merely be better and more accurate predictions about what areas would lose property and lives?

He spent an hour making notes regarding an idea that was tickling the back of his mind. To be sure he wasn't going down a dead-end he looked up the specifics of several of his previous inventions. One he had counted on turned out to be a mental misstep. Several phone calls to Hank Sterling and out to a technician on Fearing Island completed his initial research.

Now was the time to tackle something he would prefer trying to put off, but it was something that was vital to know. He picked up the phone and dialed the phone at the desk of Munford Trent.

"Trent? Can you see if your impossibly complete phone book has a direct number for Dick Murphy at Murphy and Willets in Atlanta?"

"At what level should I give up trying and bring you in, Tom?"

"Oh, his secretary or an assistant. If you run into any blockade mention the NOAA project in Southwest Florida. That may get you a little farther up the chain of command."

Three minutes later his phone buzzed. "Tom. I was able to get to the man himself. You were right. As soon as I mentioned the NOAA project I skipped right to his office. Line five."

"Mr. Murphy? This is Tom Swift. I'm sorry to disturb you but I believe that you may have expected a call like this."

"Yeah, well…" the man grumbled, "I'm pretty busy but I guess I need to give some answers. The only thing is how do I know that you're not the same person who's been making all the threats?"

Tom was taken aback. "Threats, sir? What sort of threats? And, by the way, if you wish we can have this talk face to face or you can even call the general Swift Enterprises number and ask to be transferred to me."

"No. I guess I recognize your voice from all those press conferences you've been in. About the threats… just forget I said anything. Okay?" he asked almost pleadingly.

"Mr. Murphy. I don't pretend to understand what this is about, but I'm no stranger to threats. Do I take it that the reason you've pulled out of the NOAA project is due to some sort of threat you received?"

"Like I said. Forget about it," the man insisted. "What else can I do for you?"

Tom considered how far to push things, but opted to start with the reason for calling. "With your withdrawal from the pier project, NOAA has been left in a real fix. They've come to me to see if Enterprises can pick up where you left off. Normally I'd refuse but with the hurricane season almost here, they are desperate. I need to know where you left off and, if possible, to see if we could get—or even purchase—your designs so that we can move forward."

"The truth is, Tom—if I may call you Tom—"

"Certainly."

"Then, the truth is we are using a public domain set of plans the NOAA folks used for their West Coast facility on the Oregon coast. Our architect made a few changes, specifically to accommodate your mooring points, but it is primarily the same. I'll courier up a set for delivery tomorrow. If that's all…"

“I hate to push you, sir, but I feel that I need to press you for information about this threat. You see, I was also threatened the other evening. And, there is the matter of the mini torpedoes that destroyed the old dock while I was practically standing on it.”

He realized from the silence at the other end that Mr. Murphy was shocked into silence regarding Tom’s encounter. He filled the man in on what had happened.

“Oh, god! Then it’s true. The man who contacted me said that we’d get the same treatment that you did if we tried to complete the new pier. We never heard all the details, but I got the idea that he was talking about something very bad.”

“Perhaps if you told me what he said, in specific, I may be able to help. I don’t suppose that you record conversations?”

Murphy admitted that he did not.

“I’d rather work with you than without you, sir. I believe that my security team can provide us both with protection. Besides. With just two weeks to go until the first ship arrives we can’t be expected to pick this all up and move ahead for at least a week. Please step back into the project. I’ll make certain the NOAA folks say no more about this… well, this brief hiatus. What do you say?”

The man was breathing hard at the other end. Tom gave him a moment to decide.

“If, and I mean that will be a very big if, *if* we come back I won’t have the manpower to finish in two weeks. I’ve already reassigned half of my men. I’ll get what men I can back there by tomorrow morning if you can give me support with at least a half dozen electricians, three or four steamfitters or plumbers, and someone to manage them and liaise with my on-site manager.”

Tom agreed. “My security director won’t let me back up that sort of promise with anyone if you wont tell me, or him, about your threats.”

“I guess you have the right to know. A man with a slight foreign accent called me. I’ve got no ear for such things so I couldn’t tell you if he was from Singapore or Spain. It all sounds the same to me. Anyway, he told me that our project was meant to be a secret military base designed to attack his country and that their *people* would do everything necessary to keep it from being built. Including bombing the site if we were working there the following day. Or, ever again. We stayed away two days before I officially quit the project. I knew there had been some sort of explosion that took out the dock so I put two and two together and notified NOAA that we

were pulling out for good."

Tom promised to pass everything along and to have his team meet the M & W construction team the following day. "To the absolute best of my knowledge, this is just a small NOAA base. We've looked at the surrounding area and there is no practical way to put up anything other than a few hurricane-proof buildings. Not even an airfield. At most we are going to sink pilings and put a raised helo pad there."

Dick Murphy thanked Tom and ended the conversation by saying, "You've probably just saved this company. I had to make a choice between physical harm and financial ruin. Let's hope neither come to pass."

Tom, Bud and Chow flew down to Florida that evening. They landed at Naples Municipal Airport and hired a car for the thirty-minute drive to the dock for the short boat ride to the island. More than twenty cars and trucks were already parked in a makeshift lot at the end of the access road. Tom parked with them and they got out.

They could see the transport boat coming back across the channel. It looked to be large enough to accommodate twenty or more workers at a time along with a good amount of building supplies.

Fifteen minutes later they were pulling into the makeshift dock on the opposite side of the island from the new pier. A tractor hauling a flatbed trailer was waiting to take them the final quarter-mile of gravel road.

"How many o' those fellas are ours and how many are theirs?" Chow asked seeing more than forty men and women working all over the mostly-complete structure.

"We sent a team of eighteen here and the rest are from Murphy and Willets. They're doing all the concrete work," Tom explained pointing at the far end where a barge with a concrete mixer and what appeared to be supplies sat at anchor. A large bucket was suspended from a crane on one end of the barge and was swinging into position to make the next pour.

They walked across the new access ramp and onto the seven hundred foot long structure running parallel to the coast.

"They will park three ships on it, Chow," Bud said. This caused the older man to stare at Bud trying to decide if the young man was up to one of his old tricks or not. "Really, Chow. Honest."

Chow looked at Tom who nodded. “He’s right, Chow.”

“Okaaaayyyy,” he said slowly, “so what’s with them metal thingies ya got out there every so often?” He pointed at the first three mooring masts that had been erected.

Bud said, “Those are signal lights for Tom’s space friends, Chow. He’s hoping they will come visit now that he’s found some beachfront property.”

“And, just as suddenly as he was telling you the truth, Bud is now yanking on your leg, Chow,” Tom told the man. He told the chef the real purpose of the mooring masts and described the equipment that was being installed on the ships that would tie up at this dock.

“Hmmmm?” the chef muttered as he thought it over. “So, what about any other boat that’s comin’ in here?”

“Well,” Tom explained, “once the pier is complete, there will be secure points to bring smaller craft in at each end. Like that boat we arrived on. It will soon come around the island and right up to this pier.”

They grabbed hard hats from a table nearby and started walking toward the other end of the pier. Tom held up a hand and they stopped next to the fourth mooring point. The basic steel and Durastress structure was already mounted and a team of men they recognized as coming from the Fearing Island construction group looked up and smiled briefly as they swung the top section into place and began attaching it.

“Going well, skipper,” one man called out. Tom smiled and gave them a thumb and forefinger ‘okay’ sign before they walked on.

Everything looked like it had been going on for weeks rather than a few hours, so the three men headed back on shore and to the construction trailer.

After introductions were made, the manager showed Tom the plans and described where everything was in the process. He concluded with, “I’m sure that with the help your men are giving us we can get back on schedule by this time next week and finish the final hundred feet only five days late. How many of their ships did you say were going to be here early?”

Tom told him that two would be there in eleven days. “They’re the two longest and are meant to be at this end of the pier anyway. Ship three is a month away from reassignment.”

When they stepped outside Tom saw a pair of men walking up. Harlan Ames and Phil Radnor, the two top Security men at

Enterprises, stopped on seeing Tom.

"How are the security plans going, Harlan?" Tom inquired.

"You are going to see something arrive in about an hour, Tom," Harlan told him. "Hank Sterling and a couple of the boys at the Construction Company put together three special drones to ply these blue skies."

Based on Tom's own unmanned drones that patrolled over Fearing island, Swift Enterprises, the Citadel—the Swift's nuclear research facility in New Mexico—and the rocket base on Loonaui Island in the South Pacific, these jet-powered marvels could laze around in the skies for more than twenty-four hours at a time, zoom in at almost supersonic speed when they detected an intruder, and emit a super strong series of signals that they could literally force most known flying object into landing.

If a missile was incoming, the drones would sacrifice themselves by flying directly in the path of the object and detonate, destroying it before it might approach too close.

Tom looked at Harlan. Phil smiled and then said, "They took three drones that were coming off the line meant to be replacements next month at Fearing. Jake Aturian promises he'll get them replaced in less than two weeks. Anyway, Hank and his guys added a downward-looking multi-spectrum camera and magnetic detector. The drones will periodically swoop down over the waters out there and do a complete scan for anything underwater out to about fifty miles. The Coast Guard has promised to have a small gunboat assigned here by tomorrow and for the duration. They can chase down anything or anyone down there that might want to get too close."

"Mr. Murphy will sleep much better after today," he told the two Security men. "Um… there's just one thing. Those drones have to be refueled every day or so. Where are they going to land?"

Harlan smiled now. "Ah. I'm no engineer but I have been told that they will refuel at the Naples Airport for the next week, then they will land here. Your dad is having that small durafoam-laying machine sent over. It will be putting in a short airstrip over there." He pointed to an area behind the three building foundations.

The five of them had dinner with the construction manager and his second-in-command in Naples that evening. Chow spent ten minutes in the kitchen getting a recipe from the chef before they departed.

They left in Tom's jet, The Toad—a Swift SE-11 commuter jet—

afterwards. Harlan and Phil had been dropped off by a Swift Enterprises pilot on a cargo run to the Florida Keys, so they were in need of a ride home.

As they crossed the northern state border Tom asked, “Can I run something past you all?”

After a chorus of “what” and “who, us,” Tom replied, “Yes. I trust your opinions. And, this is really important. What would you immediately think if I said I wanted to do something to control the weather?” He glanced at Bud in the seat beside him and then at the other three seated behind. He was met with blank faces. “It is like this. In the past fifty years or so we’ve done a pretty good, or bad, job or messing up the atmosphere. Even with the Revivicators soaring over the Antarctic we are only putting a bandage on a larger problem. And, that problem is starting to hit back.”

Tom’s EnvirOzone Revivicators—commonly called OzoNuts for their doughnut shape—were a large group of autonomous floating ring-shaped devices. A combination of pollution scrubber and ozone generator, they maneuvered over the South Polar area cleaning the air and replacing the missing ozone layer. While they had managed to place a thin layer where it was currently missing, their mission success was to be measured in years or more than a decade and not the mere months they had been aloft so far.

“What do you mean, Tom?” Phil asked.

“Practically every type of destructive weather is on the upswing. Devastating rains in one place and killer drought just a few hundred miles away. Tornadoes have increased in numbers. Flooding, earthquakes—not weather, really—and unseasonable snow and cold. But the only one I think might be approachable, or partly controllable, are hurricanes.”

“I’ll ask for us all. Why hurricanes, skipper?” Bud asked. “And, why ask for our input? We’re not scientific geniuses by any stretch of the imagination.”

The security men and Chow nodded their agreement.

Tom had to smile. Most of his employees underestimated themselves. “Let’s start with the why you. Harlan? You and Phil use scientific method every day. You have some clues or an event and you need to make hypotheses, track down clues, test theories and come to a conclusion. Same things I do. Bud, you have the ability to ask just the right questions at the right times to make me either think along new lines or to zero in on one thing. You also give me a jolt at times to redirect my energies.”

“I ain’t good at none o’ that,” Chow grumbled. “What kin I do?”

“You, Chow, generally come to me when I most need to see what the common man thinks. There have been many times that your grounded viewpoint has pulled me back from something that might have ultimately been foolish. Plus, you come up with the questions I need to answer in order to get the solutions. All of you contribute to the success of practically very project I embark on.”

They all thanked Tom, cautiously, and then Bud asked, “What about this hurricane thing?”

“Okay,” Tom replied taking a deep breath. “See if what *I* believe to be logical makes sense to you. One of the most influenceable things on this Earth is water. It can be almost instantaneously changed from vapor to liquid and to solid. It can even transverse between the outer two states and skip the liquid state all together. In solid form it occupies a greater space than it does as a liquid. In a vapor state it can occupy an incredibly greater area, although it is intermingled with air at that point. It can provide an incredible squeezing force as a liquid without greatly compacting.”

He paused to see of there were any questions. When there were none, he continued, “Hurricanes consist of an incredible mass of water. Some people think it is vaporous water but that’s not true. It is good, old liquid H2O and a lot of wind and barometric pressures. If my assumption proves true, I may have a way to break hurricanes up before they can built up to the point where they do damage.”

“Don’t keep us in suspense, Tom,” Harlan insisted. “How?”

“Does it follow that if I can find a way to almost instantaneously vaporize big areas of the water, forcing them to blow outward and thin out, that I might be able to blow a hurricane apart?”

There was silence from his companions.

“Again… how?” came the question from Chow.

“That is what I’m not too certain about,” Tom admitted. “But my question stands. Does it sound like a theory that might work?”

There was a lot of discussion before they reached the outskirts of Shopton and were descending to the southern runway at Enterprises. The group opinion was that it sounded as if it might be a workable solution if, and only if, Tom could find a way to do it. And, a way to do it without resorting to anything that would prove to be more problematic than the actual hurricane. This one had come out when Phil asked about the possibility of using small thermonuclear charges.

After speaking on the phone with his father the next morning, Tom called Bud. “I’m supposed to meet Bash at The Glass Cat and take her to lunch, but I wanted to get your take on the conversation last night. Come on over to the big office.”

Five minutes later the dark-haired flyer came through the doors saying over his shoulder, “Sure, Trent. An iced tea would be great. Thanks!” To Tom he said, “I’m here, oh weather wizard. What is it you require of my small thinker?”

“As I said,” Tom told him indicating that Bud should take the seat across his desk, “I want to do a reality check. I had you four up at twenty-nine thousand feet when I was asking you about my plan. I just want to be certain that fear of me taking an nosedive if you contradicted me meant that I didn’t get absolutely honest feedback.”

Bud was grinning and getting ready to answer when the door opened and Munford Trent entered with two tall glasses. He handed Bud one, “Iced tea with lemon and a little sugar for you…” then gave the other glass to Tom, “…and a glass of ice cold tonic water with lime for you.” He departed as quickly as he came in.

“So?”

“So. In absolute truth I was completely stymied by what you were describing at first. It was only about five minutes into your description when it all hit me. You think that if you can find a way to super heat the swirling water up there in a few places that it will shove so much other water out of the way that a hurricane will sort of fall apart. Right?”

“That’s about it,” Tom said, “but I’m fairly certain it will need to happen as a storm is coming together and not just before one smacks into land.”

“Then, it all does make sense. I mean I’ll leave all of the millibars and isobars and chocolate bars to your brain, but I went home last night and filled up my kitchen sink. Then I swirled my hand around and around until everything was spinning in there. Finally I shoved my hand into the water and opened it up all of a sudden. It made the water start going crazy and pretty soon it all just quit spinning. If your solution is anything like that, then I’m with you!”

Tom was pleased by his friend’s response and initiative in holding his own experiment. After they finished their drinks and chatted about where they should take the girls out to dinner the following evening, Tom left for his lunch date and Bud for an appointment to demonstrate an SE-11 to a possible corporate client.

He had nicknamed the SE-11, The Toad because it resembled an

amphibian when viewed from the front. With a squat and wide body hung below the wing and the two jet engines perched on top like eyes, he was not alone in noticing the similarity.

After their lunch, Tom walked Bashalli back to The Glass Cat, She would be working until five that afternoon and then was going to a birthday party with Sandy. He kissed her at the door noticing her brother, Moshan, giving them a disgusted look.

As the door closed behind Bashalli, Tom turned and stepped onto the sidewalk. He heard the sounds of someone being knocked into coming from behind him and turned in time to see a medium-built man shoving a woman out of the way. As she hit the ground the man lunged toward Tom hitting the youth in the midsection. They both went down.

"You're a dead man!" the stranger shouted as he swung his arms at Tom. It was all the inventor could do to fend off the man's fists. And then as suddenly as it began, the man was no longer on top of Tom. In fact, he was slumped up against the front window of the café and was quickly sliding toward the ground.

Standing over Tom, his chest heaving, was the large form of Bashalli's brother. He held out a hand and helped Tom rise.

"Thank you, Moshan. Really. Thanks."

Moshan shrugged and said nothing.

Tom tried again. "What with you not wanting me to be so close to Bash… Bashalli, I'm a little surprised to see that you didn't take this as an opportunity."

Giving the young inventor a large, toothy smile, the Pakistani man replied, "You are the most important thing in my little sister's life, and she is the most important thing in mine. Of course I am going to protect you. If not for your sake, then to keep her from making my life a misery!" He winked at Tom and strode back inside the café.

Bashalli came running out. "Oh, Thomas!" she said grabbing him in a hug. "I was so worried when Moshan rushed past me. "He was growling and we had just kissed and—"

Tom shushed her and pointed at the still supine man. "Do you know this guy?"

"He came in earlier asking if I knew where you were. He told me he wanted to speak with you about an invention… Oh, no. I told him when you would be here, Thomas!"

He told her not to worry as they both began hearing a siren. In a

moment a police car skidded to a halt in front of the café and two officers jumped out. They assessed the situation and grabbed the mysterious man. He had been struggling to get to his feet but they handcuffed him and shoved him into their car before he could do more than get to his knees.

"Know that joker, Tom?" the younger officer asked.

"Oh, hey, Pete. Hello. No, I've never seen him before but Bashalli said he was asking around about me earlier today. You two have any idea who he is?"

The other officer answered. "His name is Tristan Carlow. We have a heads-up from the FBI to be on the lookout for him. Fits their description."

Tom looked at the officer. He was surprised, but decided to not mention that the man they had in their car was most certainly *not* Tristan Carlow!

CHAPTER 8 /

LITTLE SUBMARINE—BIG TROUBLE

TOM MARCHED into the office of Harlan Ames fifty minutes later. He was visibly angry and confused, so the Security Chief let him spew out his story without asking any questions. When Tom finally stopped talking, Harlan had a series of questions for him.

"Okay. Let's go back and look at all this. You met this Tristan Carlow in England where he presented himself as a… let's say a fellow inventor who wanted to team with you. You refused, politely. But later he gassed you and kidnapped you."

"So far, that's exactly what happened."

"Alright. We find out he is supposedly working for the CIA and for John Thurston. He even comes to your rescue when you are trying to escape that underwater fortress and gets shot for his troubles."

"Right. We left believing that he was dead. But he turned up in Oswego threatening me but not taking a shot even though he was armed."

"And now you've got someone using his name attacking you right here in Shopton." Ames shook his head. "I'll get on the phone with Thurston and see what's going on. In the meantime, Tom, I want you to only go out with either Bud or Phil or one of my other men accompanying or shadowing you. That goes for dates as well." When Tom looked like he was going to protest, Ames added, "Just for a few days. Okay? Until I can get to the bottom of this Carlow thing."

Tom agreed, under protest, to accept Harlan's demand. "What about Bash and Sandy? The real Carlow has seen them both and this new one has talked with Bash. I want some protection for them as well. Agreed?"

Ames nodded and picked up his phone. A minute later he had made the arrangements. "Done, Tom."

Tom returned to his own office and called a meeting of the heads of four departments. When they arrived at the large office in the Administration building, they all took seats around the low conference table.

"Two of you have never met I believe," he told them. "Let me make a quick introduction of everyone. Over to my left we have

Hank Sterling whom I'm certain you all know. Along with being the chief pattern maker here, he is one of our top engineers and helped me with one project I hope to piggy-back from. To his left is Paul McDermott, recently brought onboard to be our head of electronics. Paul and his staff have been known to take the odd napkin or placemat plus my indecipherable notes and even ramblings about dreams and turn them onto circuit boards and complete electronic packages."

He took a sip of water and continued.

"George Dilling is our Director of Communications, but it is his forte of understanding all about how electronic signals interact with and against different atmospheric conditions that is important to me. Finally we have Dr. Stephen Robbins from our Fearing Island base. Dr. Robbins was one of the lead scientists when I designed my space kite. I am thinking that we may need that expertise again. Plus, his original undergraduate degree was in Meteorology. Gentlemen."

"Please, everyone. Call me Steve. I just came back to the Swift family after getting my PhD at MIT. The whole 'Doctor' thing makes me nervous, like I'm now expected to be ten times better at what I do." He smiled meekly.

Tom told the group about his theory regarding hurricanes. There was lively discussion as three of them immediately understood what he was saying and then the forth, Paul McDermott, finally grasped the concept when Tom related Bud's hand in the swirling sink experiment.

"That makes sense," he stated. "I'd venture to say we've all done exactly that. So, how do we start?"

Everyone looked at Tom, so he began. "My belief is that we have two or possibly three things that need to come together." He started ticking things off on his fingers. "First, we must find a way to superheat a large area of swiftly moving saturated air. Secondly, we need to find a way to deliver the heat."

"What's the possible third thing, Tom?" George Dilling asked.

"We may need to devise a way to find out exactly at what point in time it becomes most effective and when it is either premature and the storm simply regroups, or where it is too late and we merely slow a hurricane down."

"But, wouldn't that be preferable to just letting a full-force storm hit the Gulf Coast?" This came from Steve Robbins.

“Sadly, if that is the best we can accomplish then it’s only something, but we’ll take what we can. Not really enough, though. Like coming in third in a race. What I want to do is succeed at this. I want to win. Hundreds or even thousands of lives are in the balance each year, and the storms are getting stronger and more frequent.”

They had to agree with Tom. The conversation turned to possible methods of superheating the water-laden air. Suggestions ranged from large propane tanks being dropped simultaneously from high-flying aircraft and remotely detonated to some sort of thermal cannon device.

“Aren’t there isotopes that can be used to make bombs that leave behind almost no radiation other than the heat they create?” George asked.

“There have been many experiments over the years going way back to the sixties. Lots of people thought that the neutron bomb could some day be used to excavate large areas of land, but it still puts out too much radiation and would be too uncontrollable to be our solution, not to mention against several international agreements and treaties. Zero Release Weapons are not here today. Perhaps in twenty years or so.”

“Lasers?”

Tom considered this suggestion. “If we could mount a high power laser in one of the *Super Queen’s* cargo pods and fly up over a building storm, we might try that. The only issue is that the light beams will just drive right through the storm. Even so, they may set up enough of a heat reaction to give us some positive results.”

“I have an ‘in’ with the Air Force,” Dr. Robbins told them. “A very close friend is a four star general in their airborne warfare organization and I know that they have a wonderful one hundred and twenty kilowatt unit mounted in an old 747. We might be able to talk them into loaning it to us.”

“Or, at least, allowing us to come along on a test run,” Tom said.

Several other possibilities were discussed but nobody could come up with a solid idea, so the meeting adjourned an hour after it started.

Tom made a few calls and was able to reach the Air Force man responsible for testing the large air-mounted laser system.

“It’s just a testbed right now, Mr. Swift,” he told Tom. “We’ve had some incredible successes and some splendid failures. It’s knocked a few targets out of the sky in the past, but we are concentrating

more on the tracking aspects these days than focal length or energy strength. She can, when asked, get off a powerful shot or two. The plane is sitting at Homestead Air Force Base in Florida right now. She's grounded for at least another nine months while the main runway, the one that is long enough for her to take off and land on, is going through the process of being torn out and a new one put in. Once that is finished, if you can get the funding cleared I am certain I can give you up to eight hours in the air and probably sixteen or seventeen shots."

Tom laughed. "I'll tell you what. I've got a new machine that can resurface that older runway in less than a week once we get everything set up. If you'll send me the specs, and if you are ready to go very soon, then I believe you can save millions and use a little of that to fund our test." He told the man about the ROKI resurfacer. When he mentioned the basic cost per one hundred feet, the man gasped.

"Surely you're jesting, Mr. Swift. In fact, if I wasn't pretty certain that you actually *are* Tom Swift I'd have already hung up on you." He sounded slightly annoyed.

"Captain Fredericks," Tom said calmly, trying to defuse a possible situation. "How about if I come down to the closest base or airport and pick you up. Tomorrow if you have the time. I'll bring you here to Enterprises and demonstrate the machine. Once you see it in action you will understand why our cost per hundred feet is about the same at anyone else's cost per linear foot."

It required two days to get Captain Fredericks up to Enterprises from his office in Texas, but the scowling man who stepped out of the *Sky Queen* at one p.m. was replaced by the man with his mouth dropped open in absolute amazement by two p.m.

"As the saying goes... If I hadn't seen it with my own eyes... well..."

Tom asked Bud to fly the man back to Texas. The Captain left with a bid from Enterprises that he assured Tom would be accepted. "We only have three others in hand and nine companies that refused to bid. Bidding closes tomorrow so we will make the selection then. I'll call you."

Two weeks later Tom received word that their bid had been accepted. "The even better news, Mr. Swift," Captain Fredericks told him, "is that the savings will pay for your little test flight and leave us with several million to use for other base improvements. You are helping us to an amazing win-win situation."

And so, four weeks later Tom found himself sitting in the upper deck of an old 747 that used to fly between the West Coast and Hawaii twice daily along with the flight crew and thirteen technicians required to operate the laser. The entire lower section had been gutted and was now a maze of high-powered equipment and catwalks they would all go down to once the jet reached cruising altitude.

It was a full week into the start of the hurricane season as the 747 rolled down the newly-rejuvenated runway lumbering into the early morning sky and turned south. Reports were being received about three different storms starting to build up east and southeast of the Caribbean. Pointing at a chart, Tom suggested heading for the nearest one, already approaching Category One.

"When we get there we'll need to be at about twenty-eight thousand," the pilot reported to them. "Below that and it will be too turbulent for this old girl."

"What's the focal point for the laser," Tom asked.

"Well, if you're asking if it is hotter at X point, then I have to tell you there is no X point. She's hot out of the barrel, so to speak, and remains hot out to about ten thousand feet. After that the beam dissipates too much to be effective."

"How hot at ten thousand," Tom asked.

"Still upwards to two thousand degrees, but not focused finely enough for our purposes."

"Ah," Tom said with a smile, "it might just be fine for my purposes. All I'm interested in is the heat. Dispersed vapor is actually better for *my* tests!"

The pilot, at Tom's request, swung wide and came up behind the unmistakable circular formation of clouds and winds. When instruments showed that the top of the hurricane was at just sixteen thousand feet, so Tom asked if they could come in at twenty-one thousand feet for the first run and then to twenty-six for the second.

The pilot obliged and soon had dropped their altitude.

Tom watched as the team of eleven technical experts swarmed over and around the power generating equipment and the actual laser maze. Contrary to science fiction, the laser was not a compact tube that simply spewed hot death out one end. The laser ran from one end of the plane almost to the other using a series of mirrors and light amplifying lenses. In all it made the end-to-end trip five times, intensifying at each step. Once it built to its firing power the

last thing it did was turn ninety-degrees and then fire our through a focusing lens and tube in the aircraft's nose.

The thick safety goggles everyone wore once the alarm sounded made it impossible to see anything inside the body of the plane, so Tom went to the cockpit to witness the first shot.

When it came it was so bright that it temporarily stunned his retinas, like a thousand of the most powerful flashbulb going off in front of him. His sight recovered enough to see the trail of missing clouds left as it shot down and through the storm. But, seconds later the gap filled in and the storm continued.

Test two, from a higher altitude, provided a more noticeable result. The beam was still hot enough and had spread out enough that it caused a much greater disruption in the storm flow. Like before, the storm rebuilt itself and continued on, but Tom was pleased with the reaction it had to the great heat.

Tests from high up and close to the storm showed that the separation from the second test gave them about the best results they could achieve.

They landed on the new runway several hours later. Tom thanked the crew and Captain Frederick who had come out to inspect the new runway. "Your team were wonderful, sir. I have a lot of great information that I'm certain will help me."

Instead of returning directly to Enterprises, Tom took a short hop over to the airport at Naples and then traveled to the NOAA base. He was pleased to see the two large NOAA ships sitting at the long pier attached by his mooring devices. They rode up and down on the small waves of the bay.

The three buildings were taking shape with the newly manufactured view window rings that would sit atop each building waiting in cradles nearby.

Tom had managed to find a formula for a high-SilicaQuartz glass that had been poured into circular molds. The one-inch-thick super glass was exceptionally strong to begin with, but the one-piece circular rings of it took advantage of the strength of the circle; Durastress u-shaped rings on the bottom and top of the ten-foot-tall glass added to its strength. These would be mounted on the buildings to house a rotating weather dish antenna, a telescopic camera system, and an observation room.

He looked out into the bay and could see two of the larger jetmarines installing the laser detection and warning system for the base. If he remembered correctly, they were about two days from

completion. Using his pencil radio he called over to them.

"Hello, Tom," came the voice of Zimby Cox, one of Enterprises test pilots and submariners.

"Hey, Zim. I'm at the pier. How are things going?"

"Great! I think we might get this all tied up by noon tomorrow. We had a test run last night. I brought my jetmarine in at three different levels and it picked us up immediately and sent out the appropriate warning."

"As I'd expect," Tom commented.

"Right. Next we sent out two guys in aquasuits. Even though they are great at hiding from SONAR, the man inside gets detected by the light, even crawling along the bottom or swimming along the surface. Want me to come get you and you can take a look?"

"No, You keep working. I'm going to speak with the NOAA folks and see if they have any feedback on the mooring systems. Talk to you back at Enterprises."

"Actually, skipper, I'm gonna come in, in about an hour. Stick around, I need to talk to you about something that happened yesterday."

"I'm going it to see the Captain anyway, so I'll be here when you get to the dock." After cutting the connection, Tom headed for the Office of Captain Perkins, the man named to be the base commander.

It turned out that Captain Perkins was no longer in command at the new base. He had been offered command of the Coast Guard station in San Diego and had jumped at the opportunity. The newly-elevated commanding officer was the former Commander Fry, now a full Captain.

"Congratulations, sir," Tom told him, "on both your promotion as well as your, well, promotion."

"It is very kind of you to say so, Tom. I'm afraid that things are a bit hectic as I get my feet wet, so to speak, in this new job. I have been so used to assisting the Captain that I am taking a bit of time getting back into the whole 'Fry. You are now in command' thing. What brings to here today?"

Tom told him about the test flight and the use of the high-powered laser. He also discussed what he was hoping to accomplish.

When he finished, the Captain told him, "Then I look forward to the day when I will not be commanding ships and people who only

bear bad news. Perhaps the day will come when I can get on the phone to you and order up a pre-emptive strike against a Hurricane Gladys or even Tropical Storm Jimmy."

Captain Fry had an appointment to tour the new buildings that Enterprises were constructing and asked Tom to join him. "I was fascinated to watch them as they drove those amazing pilings down into the bedrock," he mentioned during their brief walk.

"They're a byproduct of some self-expanding anchors I developed for a project over in Africa. We needed something that could basically be set on the ground and would anchor in so tightly that one could hold the weight of a five-ton vehicle. All we've done with them is to add the appropriate length of Durastress pole to the top. Drive then in and once they reach bedrock, they basically launch themselves into the rock and latch on."

"Whatever the technology used, Tom, the results are that these new prefabricated buildings your men are erecting will most likely be here a millennia from now. Yet, they assure me that one of those large panels," he was pointing to a twenty by ten foot panel hanging from a small crane, "weighs in at under one half ton. Amazing."

Forty minutes later as the Captain was going over some of the power and communications cabling needs with the construction manager, Tom slipped away and headed back to the pier. He arrived just in time to see one of the jetmarines making its way to shore.

Minutes later Zimby poked his head up through the hatch and waved. He climbed out and used a recessed set of footholds to climb back down to the pier.

"Hey, skipper," he said shaking Tom's hand. "It's really looking good out there. And, just about in time."

Tom tilted his head a little and asked, "Do you mean 'on time' Zimby?"

Sighing, the shorter man replied. "Sadly. No. We've been visited by what I believe is the little sub that torpedoed the old dock here." When Tom looked both confused and angry, he added, "It never came within five miles, but our passive SONAR picked them up. I might believe that it could be a Navy sub except that it sounds, I've been told by the expert here, like a diesel electric job. We haven't been using those for a couple decades at least!"

Tom shook his head. "The Navy hasn't had a full-sized one in active service since the nineties but they had one being used as a research vessel into the two thousands. But," and Tom looked around to make sure nobody was nearby, "there is supposed to be a

new class of DE sub undergoing testing. Could you have picked that up?"

"Anything's possible, Tom, except that this one sent out another torpedo. Not, I hasten to add an explosive kind. This one was a fairly slow moving camera robot. Looked for all the world like a weapon type, but once we intercepted it we could see what it really was."

Tom was horrified at the prospect of having a potential enemy submarine just a few miles off shore.

"Where is it? I would love to take it apart and see who made it."

"So would I," Zimby told him. "The only thing is that as soon as we fished it out of the water and started to bring it up on deck, it started beeping and we could smell something like a fuse burning. I tossed it overboard just in time. It went boom and became underwater confetti about three seconds later."

Tom asked if they attempted to give chase in one of the jetmarines.

"Yeah, for about three minutes until if became obvious that they can go faster than our thirty-two knots. I couldn't believe it but they were doing about thirty-five. It made me wish we had a seacopter. I could have hunted them down, then."

It seemed useless to discuss the chase so Tom asked, "Has it come back?"

"Not that we have heard. The last info we had on it was a heading that would take it about ten miles off the western coast of Cuba and going like gangbusters. She's not even slightly quiet at that speed, by the way."

"I'm beginning to wonder if we're putting up the detector system too close to land. I might want to rethink the four thousand yard mark we're using right now. What do you think?"

Zimby took off his ball cap and scratched his head. "Personally, I think getting it spread out even farther would be a mistake. But, and the guys down here with me got together last night and talked about it, we were thinking of asking you to add some permanent listening buoys or seabed sensors farther out. Like I said, that sub is noisy when it's running at speed. We think we caught it on our gear creeping in at about two knots as it is, and that must have been on electric at the time."

Tom had dinner that evening with the Enterprise team around a makeshift outdoor dining room. They invited the NOAA team to

join them, but had no takers for an al fresco meal amid the bugs and the smoke of a driftwood fire.

He flew back to Shopton that night, arriving around eleven. He was tired from the day's events but had several ideas swimming in his head, so he decided to remain at Enterprises and work for a few hours.

He entered several pages of notes regarding the laser tests and was about to turn to the matter of the underwater listening stations when his phone rang.

This must be an emergency, he thought as he grabbed for the receiver. Nobody would call here at this hour unless it was important.

"Hello? Tom Swift here. Who is calling?"

"Uh, hello, Tom. I was hoping to just leave you a message. I didn't expect you to be there at this hour," a slightly nasally voice told him.

"I'll repeat myself just once then I hang up. Who is this?"

"Oh, I'm sorry. It's been months since we last spoke. This is John Thurston with the CIA. I imagine that you remember me."

Tom felt his face beginning to warm up with anger. "Of course I remember you. You are the one who swore a blue streak that Tristan Carlow was, let me see, how did you put it? One of your most valuable assets? Isn't that it? And I'll take a guess that you know that your valuable asset didn't die back then and that he approached me and my friends a few weeks back at gunpoint?"

"I realize that things look pretty bad where Tristan is concerned. All I can tell you is that he *is* a valuable CIA, uh, retainer. Or, rather he was until yesterday. We used diplomatic pressures and had him released from jail in Canada. He was suppose to meet one of our agents within the hour—"

"And, let me guess," Tom said with hearty sarcasm dripping from every syllable, "he didn't show up!"

Thurston sighed. "No. Actually he did. He approached our agent up there and shot him, point blank! When the police arrived there was one dead agent with a note. It said, 'Thurston is next, then Tom Swift!"

CHAPTER 9 /

NOT A SOUND

BEFORE SAYING anything, Tom took a moment to collect his thoughts. When he was ready, he said, “Agent Thurston. I feel that you betrayed me somewhat back in the UK and I have been carrying a grudge toward you since. The few times your name has come up since then, I have gritted my teeth and not said anything. At best, Carlow is a turncoat. At worst, he has always been playing you and making you the fool. It is late and I am tired. Before I say something horrible, I am going to hang up. I will notify my chief of Security tomorrow. Good night, Agent Thurston!”

He hung the receiver up and sat back to think. In actuality, Tristan Carlow had inconvenienced Tom—including gassing and kidnapping him—but he had stopped short of real physical harm. He even interceded when the man he appeared to be working for—a Kranjovian named Ulvo Maurig—was about to kill Tom and Bud, and had himself been shot in the process.

Now, if it were not for the shooting and the note, Tom might have been willing to give the man some final chance to prove his allegiance.

But, not anymore.

He made what he hoped was a coherent call to Harlan Ames’ message machine before walking next door and climbing into the bed he kept for such late nights. In spite of the recent events he drifted quickly into sleep.

When Tom awoke his brain was filled with new ideas. So many, he realized, that it would take some time to organize them. Before he showered and went to have some breakfast in the staff canteen, he spent two hours making notes, sketching several devices and running more than a dozen complex formulas through his computer.

Sitting at a table with an omelet and stack of pancakes, Tom’s brain was still going over things when Bud plopped down in the seat opposite.

“Good morning, professor,” he greeted Tom. “Beautiful day for it.”

Tom smiled and said nothing for a few seconds while he poured

syrup on his pancakes, and then he looked back at Bud. “Beautiful day for what?”

“Anything. Birds are singing, flowers are in bloom, and I’ve just been invited to fly second seat in the Navy’s new prototype fighter jet. Life is sweet!” He told Tom about getting the assignment. It had been an open call to test pilots all around North America with three spots being available, each for a full day of orientation and flying the new Mach 3-capable super fighter that featured wings that not only swept back but also could be retracted by almost forty percent in fast flight. In that configuration they offered sufficient lift and control but cut drag significantly. Small body panels moved in conjunction with the wing position to seal any openings.

Although Swift Enterprises had not bid on the airframe, their bid for the turbine engines had made it to the final list of two only to be edged out when an old competitor, Lexington Propulsion, had offered theirs at a cost that undercut the Swift turbine by almost eight percent.

“Congratulations, Bud. When do you get to do this?”

Bud could almost not speak around the large smile that took over his face. “The day after tomorrow. I know it’s short notice but I just found out about it late last night. The original number two choice broke his leg yesterday in a mountain bike accident, so they called number four. That’s me. I’d love to invite you to come out to Texas to watch, but it’s not allowed.”

They talked for a few more minutes before Bud thought to ask about the laser test.

Tom detailed the successes and information he believed would help them in the long run. “Laser isn’t the way, though,” he admitted. “Not unless I can think of some way to shoot out about fifty laser-generated paddles all around the storm, wiggle their laser fingers and knock it apart.” He shrugged.

Bud left to attend to a few things before heading out to the Kingsville Naval Air Station near Corpus Christi that evening. Tom headed back to his lab and office to work on some of his ideas. He was soon deep in designing a circuit for what he hoped would be a series of listening posts to be planted deep into the seabed in Southern Florida. Initially he thought to repurpose an underwater listening device he had built months earlier to assist a rather unique individual who wanted to scour Lake Carlopa for its own possible version of the Lock Ness Monster.

He smiled to himself as he recalled the escapade. But, he became

serious when he realized that the sensitivity of that receiver and circuitry would not work. He could, however, rework the programming and reconfigure the computer that would digest all the audible signals, discarding things such as wave sounds, large powered vessels, fish and even the sounds of rocks moving along the bottom as the water ebbed and flowed in and out of the bay near the base.

Before heading home he completed a small-scale version that could be tested in the water tank located just off his lab. He dropped a waterproof speaker into one corner that would broadcast many of the anticipated sounds. Next, he set the receiver unit on a small shelf just below the surface at the other end of the tank. Returning to his computer he activated the receiver, what he privately was thinking of calling a SeaEar. Instantly the speaker next to the computer was squawking out numerous sounds. Tom could even detect his own key clicks as he started up the noise sequences, along with a low rumble he believed was the air conditioning equipment in a room next door, and a few small bubbles that were escaping from the SeaEar's case.

Getting up he went back to the tank and pulled the SeaEar out after looking to verify where the bubbles were coming from. A small dab of an instant sealant fixed the leak and he was soon back at the desk.

Working with the special program, he was able to block out all the external sounds in about a minute. Reaching over to another computer he pressed the Return key and more than a hundred mechanical and organic sounds came crashing out of the speaker. He turned the volume down and then said, "Here goes!"

He clicked his mouse over an on screen button.

In less than two seconds every sound had disappeared with the exception of one. Tom smiled. It was a recording of a diesel-electric submarine as it would sound from ten miles away, underwater.

It worked!

There were a lot of additional test to be performed but Tom wanted to get home.

When he walked through the front door half an hour later he was very pleasantly surprised to see Bashalli sitting on the floor with Sandy, playing some sort of card game. The Pakistani girl looked up, gave a little giggle and launched herself off the floor and into his arms.

"Oh, Thomas. I am so pleased to see you. I was going to be

pleased to see you last night but you did not come home so I left at ten." She tried to look disappointed, but he gave her a little squeeze and she smiled.

"Glad to be home. Hi, Sandy. Hey, Momsie. Dad not home yet?"

"He is meeting with a gentleman from one of the agencies that deals with this and that or the other thing. Some hush-hush Washington deal that he hinted could result in a large contract. So, he and guest are dining at some fancy place in Manhattan. Wash up," she told the three of them. "Dinner will be on the table in five minutes."

Over a meal of roasted pork tenderloin with a tart cherry sauce, Tom told them about the laser experiments and his time at the NOAA base.

"It sounds like Zimby and the guys are going to have the base all protected by tomorrow then," Sandy observed.

When Tom failed to respond, Bashalli said, "I think that Tom may have additional information and is trying to decide whether we should hear of it."

Tom chuckled. "Boy, you're getting good at reading my mind, Bash. And, yeah. What I haven't told any of you before is one of the reasons I'm going to be out of contact for a few days." He began by telling them about the torpedoing of the original dock, but omitted saying that it happened while he and Bud were at the site.

Next, he told them about what Zimby and his SONAR operators had heard the other day.

"We are putting up a good detection system to catch things close in but I'm thinking that it won't be enough. For starters," he said sensing questions, "this mini submarine might be able to carry longer range torpedoes than the ones they launched before. With a greater range of, oh, six thousand yards they could get a shot off and we'd only know about it when it passes the two minutes to impact point. When I designed it I was thinking more about divers or the small torpedoes that have barely that kind of range and run much slower."

"So, what do you do?" Sandy asked.

"I've been working today on a new listening system that will pick out the sounds of submarines and underwater craft including all known torpedoes. We'll plant several of them out at about the six-mile point. Nothing could get in close enough quick enough to fire off anything and then move out of range before a helicopter could

drop a small disabling charge on them."

"What about in bad weather?"

Tom, Sandy and Bashalli had all been smiling until Anne Swift dropped her own personal bombshell. He swung his head to face her, mouth agape.

Bashalli spoke up to cover Tom's obvious embarrassment. "I am certain that Thomas has some sort of extremely fast underwater missile or dart or net that will be deployed in such cases, no matter how stormy it is." She sounded determined to have one of them be the right answer. Tom reached over and took her hand.

"In fact, Bash has just given me the answer that I never even knew I needed until mom asked about bad weather conditions. Thank you." Both women smiled, proud to have made a contribution. "A couple months ago I started playing around with a high-speed underwater device that I thought Enterprises might make to give divers a way to send a distress message to the surface and then into the air as fast as possible. It's going to be part of the new Fat Man model Jake Aturian believes we can sell to the public. Now, I believe I can adapt it to provide a defensive piece to the detection barrier."

He told them about the distress device. Part rocket and part wide-band emergency broadcast radio the body was about the length and diameter of a paper towel tube with a long, pointed nose up front and small fins that would automatically flip out when launched.

A compressed nitrogen cylinder in the back third propelled it for the first two seconds letting it hit a speed of almost fifty knots. That was ejected and a solid fuel rocket motor increased the speed as the radio rocket was flung into the air and up more than a thousand feet. Even before it broke the surface the radio would be broadcasting the emergency signal, and once it reached the air, the GPS chip would add the specific location of the distressed diver.

"So, how fast will it go?" Sandy inquired.

"By the time it hits the surface from, oh, two hundred feet down, it is going about three hundred fifty miles per hour, which is about three hundred and five knots. Of course, if it is traveling all underwater, it would probably get up to about one hundred knots. I'll have to figure out how far it could travel, and then swap out the radio for a steering mechanism and some way to find a target, but I'd bet right now that if we mounted several of them on the inner detection posts and tied everything in with the outer listening posts,

a single dock-side computer could handle everything!"

Anne raised a hand. "I don't want to be a killjoy, but I have two questions. First, what can they do once they get to a torpedo or whatever? Second, if you say 'oh, we'll just add a little explosive to them,' then your father is going to throw a fit. Even more than when you built that first eGun of yours." She looked at him as if daring him to disagree.

"Well," he began, "as to what they will do, they will collide. And they will be built out of something very strong so they do not simply collapse. They will either puncture or at least hit hard enough to shove something off course. There won't be explosives in them. Not enough room for one but I agree that having something like a charge in them would make them a weapon."

Conversation soon turned to happier things with the girls wondering what Bud was going to be doing in the secret jet. They peppered Tom with questions until he held up both hands. "I give. I have no idea what our flyboy is going to be getting up to. And, I suggest that you ready yourselves to hear, 'I can't tell you anything about the aircraft,' type answers when he gets back."

While Anne Swift prepared dessert, the three younger people cleared the table and then went into the living room to listen to a new song Sandy had downloaded that afternoon. "It's a group from down in Albany and they played at the high school this year at Prom."

Although Sandy obviously enjoyed the music, Tom looked at Bashalli who was sitting there with a strained grin on her face. She looked at him and opened her eyes very wide as if to say, "*This is good music?*"

Two nights later Bud sat at the dinner table along with the Swifts and Bashalli and was regaling them with as much as he was allowed to tell about his test flights.

"Once you take off it just sits a few feet above the deck and then goes straight up. And, I mean fast! Then, when you get up to where you want to be it sort of flips over and then scoots away in level flight. You get hit with more Gs than Tom and I had in the old *Star Spear* rocket ship in some maneuvers, but some others are no worse than a carnival ride."

He told them about getting to go through a couple take-offs and landing on his own. "You can set it to do everything for you if you want, or do it all manually. You even select how many Gs it gives you and it decides the best speed and climb angles. Jetz!"

He saved the best news for last. “Lieutenant Tomlinson, my pilot, told me that the military aren’t too hot on the current turbine they’ve bought from Lexington. Actually, they’re not hot, but the turbine is.”

Mr. Swift leaned forward at this. “What are you telling us, Bud?”

“Well, just this. The exhaust gasses exit at about four hundred degrees hotter than the specs say they’re supposed to. Since this is a stealth jet that means that anything heat-seeking will pick up on the signature. And, that’s not all. The internal temps run so hot right now that the Lieutenant told me they can’t fly the test jets for more that forty-five minutes at a time. I just figured it was a fuel thing or a short test hops program, but he said that we were landing with thirty-five percent fuel loads.”

“Did your Major say anything about looking for an alternative?” Mrs. Swift asked.

Bud shook his head. “He said that Lexington keeps promising them to fix things, but they have another two months before the next engines are delivered.”

After dinner Bud begged off from playing a board game saying that he was tired. Bashalli had mentioned that she was opening her brother’s café at six the next morning, so he offered to drop her at her house. With no guests after nine-thirty, the Swifts said their good nights and all went to bed.

Tom used the entire next day to look into repurposing his emergency rocket radios for use off Florida. “I can even use them out at Fearing, Dad,” he said while the two had lunch in their shared office.

Damon had been wary when Tom mentioned his thoughts about turning them into little interceptors, but could see the logic. “I don’t really like it, but times are changing and we are running into more determined enemies. The only thing I would beg you to consider is not using them against organic targets.”

Tom had smiled. “Don’t worry, Dad. The entire system will classify each and every possible intruder and these will only be released against things like torpedoes and mechanical submersibles. No frogmen will be harmed in the making of these interceptors. Promise.”

By late afternoon he had finished his prototype conversion. He called over to the large test tank on the Enterprise premises and set up a five o’clock test time. “Please have that steel protective plate set up in the deep end. I just want the top edge peeking up out of the

water, Okay?"

The tank, which had been used for everything from the first tests of Tom's original jetmarine to his seacopters and most things submersible, was many times larger than an Olympic swimming pool and ranged from just under fifteen feet at the shallow end to fifty at the opposite end.

As the test time approached he picked up the small satchel that held the tiny torpedo and its firing system. He hadn't had the time to build a guidance system that would fit inside so this test would be made using signals sent from the firing board through a micro-wire that would spool out behind the device.

After placing the remote missile in the water and lightly tethering it to a line to hold it at eight feet in depth until fired, he decided to climb to the roof of the test control booth so he might have a better view of it as it zoomed through the water.

"You're all clear down here," the test technician called up to him.

Tom thanked the man and then counted down from five. As he pressed the button with one hand, his thumb and forefinger of the other hand held onto the small joystick that would send steering signals to the fins should it be necessary.

He never had the chance.

With a great amount of bubbles shooting out the back and spreading out and up from the tank wall, the missile shot forward. As it reached the half-way mark the rocket motor kicked in and it smacked into the steel plate one second later.

A shockwave spread out on the surface and began coming back toward the shallow end.

Tom climbed down. He and the technician jogged to the opposite end and examined the results.

Whistling, the tech muttered, "I'd sure hate to be on the receiving end of that!"

The Durastress body of the water rocket, although badly crumpled from the jarring collision, was sticking out from the two-inch thick steel plate. The nose appeared to be buried in about half way through the plate.

"Yeah," was all Tom could say. He asked that the plate be pulled out the next morning and that he be called when it was raised. "I want to check everything before that gets pulled off of the plate."

He tried to remain calm on his walk back, but halfway there he

had to jump into the air a little and click his heels together. “Oh, yes!” he exclaimed. It had been more of a success than he could have hoped for.

When he received the call at ten the following morning, Tom was ready with a digital camera and several measuring instruments. When he completed his examination he knew that the nose had gone in a total of one inch and three sixteenths. Enough, his research the previous evening told him, to plow almost completely through a standard torpedo casing and with enough inertial force to knock it dozens of degrees off course.

It would not be enough to puncture a military submarine—at least not a double-hulled type boat—but it would hit with enough force to let any intruders know they were being attacked.

He sat down and entered his findings, then turned to the matter of the homing and steering control circuitry.

In the middle of the afternoon, Bud walked into Tom’s small office next to the underground lab. Tom glanced up and smiled, then went back to checking the figures on his computer. A few seconds later something registered in his mind that he had just seen. He looked back at his friend who was just slowly climbing onto the stool he had dragged in from the next room.

“Bud” Tom said, alarmed at the pained expression on the flyer’s face. “What in the world happened?”

Bud tried to grin but it was obvious to Tom that he was in some degree of pain.

“You remember how I told you Sandy complimented me on my flat stomach the other weekend at the lake?” When Tom nodded, he continued, “Well, as I near twenty, it’s starting to mean I have to watch what I’m eating to keep that. Now, don’t get me wrong on this next part, but the exercise room at Enterprises doesn’t exactly have the most modern equipment.”

Tom knew he was not in the position to defend the status of the facility as he rarely found time to use it; even then it was generally only to use the treadmill to ‘walk off’ nervous energy when the weather was too bad outside.

“Did something break down and injure you?” he asked.

“The only thing that broke down was yours truly. A week ago I was driving by a new health club over on Culbertson Way that has been advertising ‘We have the best and most modern equipment in all of Upstate New York,’ or something like that. Anyway,” he said as Tom

grinned at him, “I dropped by there last night and let them talk me into a free half-hour session with one of their newest machines.”

“From the look on your face I’d guess that it was less exercise machine and more like some sort of torture device.”

“Just about. The name should have given it away. It’s called the Ab-Dominatrix.” Bud mouthed the word ‘Ow!” and Tom started to laugh.

“Serves you right trying to do some shortcut. You and I are the same height and you only outweigh me by about ten pounds, and I’ll bet you a jelly doughnut that it’s all muscle!”

Bug grinned, sheepishly. “Yeah, but you know how it is. A pretty girl says she likes something about you and all of a sudden you kind of go overboard—”

The phone rang on Tom’s desk. He reached over and picked it up. “Tom here.”

“Tom. This is Slim Davis. I’m down here in Florida,” the pilot and submariner said, shouting over the sounds of alarm klaxons. “We’ve got trouble. Looks like that mini sub has come back and it got to within about three thousand feet before it turned away.”

Alarmed, Tom asked, “Did they launch more torpedoes?”

“No. They just came in and swung back out.”

“Until we get an outer system installed we may have to—” Tom stopped. “Wait. Did you say it got into three thousand feet? But, the underwater microphones should have picked it up a lot sooner.”

“I know,” Slim started to yell and then realized that the alarm had shut off. In a quieter tone he said, “This time, *it came in as quiet as a mouse!*”

CHAPTER 10 /

TESTING A THEORY

TOM WAS alarmed until Slim assured him that a complete search of the bay had yielded nothing left behind by the intruders.

"It's almost as if they were trying to see just how close they could get without being detected."

Tom considered this for a moment. "And, you're positive they didn't drop a listening device or some sort of bomb that we'll run afoul of later? No magnetic mines that could rise up and damage a passing ship?"

"We made three sweeps, skipper. Visual, magnetic and metal. The only thing we don't have the ability to search for are chemical signatures in the water. If they left anything behind it is beyond our ability to find."

Tom thanked Slim and asked about the inner detection system.

"Up and running, Tom. We were on the inside doing a check on the number three post when the sub came in. I decided to not follow it because it turned around and hightailed it out of here, finally making all sorts of noise, but I had three men in the water and two of them would have needed to be left behind. Hope you aren't mad."

Tom assured him that he was anything but angry. "You made the same decision I would have, Slim." He went on to tell the man about the new outer detection and deterrent system he was getting ready to rush into production. When he told him about the test of the small underwater rocket Slim let out a long and appreciative whistle.

"Wish we had a few of those right now, skipper. I could have jumped in and hand-launched a couple at that sub and given them a good smack on the aft end!"

Tom smiled at the idea, but then wondered how such a fast launch system might work. He ended the conversation, saying, "I'll get back to you about that hand-launch thing, Slim."

Two days later Tom had produced a low speed prototype of his little underwater deterrent. He and Bud headed to the large test tank.

"What's this little U-Rock supposed to do, Tom?" Bud asked. When Tom stopped walking and looked at him, he smiled. "Underwater rocket. U-Rock? You'll have to admit it's better than my first thought: ATUM, A Tiny Underwater Missile." He gave Tom

another smile, hoping that the inventor would see his logic.

Tom started walking again. “I suppose if I can let you call things OzoNuts and Slabs, I can go with U-Rock. To answer your question, I’ve come up with a navigation and detection system that barely fits in the tube. I may need to lengthen it out by an inch or two. Anyway, it has two modes: Auto and manual.”

“Can I try to guess at this?” Bud asked. When his friend nodded, he ventured, “In the automatic mode it listens for anything in the water and then charges right toward it. Manual is where you tell it to go after something specific. Close?”

“Sort of. In the auto mode it performs a trio of searches. First, it listens for something that isn’t a recognized fish or ocean sound. Second, it looks for any magnetic signature in the water, and it can detect something out to about two thousand feet, its estimated travel distance. Third, it asks for input from the inner and outer detection stations. I was fortunate enough to find and off-the-shelf processor that can coordinate everything and make a split-second decision. Then off it goes.”

“What if the thing it’s going after moves?”

“It doesn’t stop looking once it gets a target, silly. It continues to search, actively, until it hits its target. Now, in the manual mode a diver can pull one off his belt and then use a small remote control. It will go straight forward in whatever direction the diver puts it. Or, the diver can send out micro-electric pulses of information and direct it up, down, left or right.”

“Are those the same micro impulses you used in the Slab and Hounds?” Bud asked. He was referring to the group of underwater submersibles Tom developed to help locate a number of sunken and missing nuclear submarines and torpedoes. The Hounds were smaller units that traveled hundreds of yards from the larger, controlling Slab unit looking for stray radiation in the water. Rather than trying to use ultra-thin wire to connect them, Tom had developed a modulation wave generator using tiny but practically undetectable electrical charges to send and receive data.

“Exactly that,” Tom said, nodding. “I had to miniaturize everything, and eventually I’ll design all the circuitry on a special processor chip, but that is basically it.”

Bud inquired about how long it would be before places like the NOAA base and Fearing Island would begin receiving them.

“That’s were I need to get Dad involved,” came the answer. “He and Jake Aturian have had a whole series of financial pow-wows about manufacturing capacity at The Construction Company and

budgets and all that."

They arrived at the tank where Tom suggested that Bud climb up on top of the control room. "Be up in a minute," he told the now-curious Bud. After checking with the on duty technician to make certain the steel plate was properly in the far end, Tom set the new test U-Rock in the water, facing to one side of the tank, and climbed up after his friend.

"Why the angle, Tom?"

"It needs to be able to detect the plate and set its own course. Here goes," he announced flicking a switch to activate the U-Rock. "This is a test of the auto mode." He pressed several points on the touchscreen controller, and the little missile let off a billow of bubbles and began to speed away. This time Tom had constrained the gas output so that it only launched the missile a few dozen yards before a smaller and longer-lasting rocket motor kicked in. It took about seven seconds to make it to the far end but Bud, using binoculars, reported that it hit squarely in the center of the plate.

"Great shot, skipper!"

"Stay here while I go get it and recharge it for a manual test," Tom requested. He climbed down and jogged to the far end. After examining it and determining that no damage had occurred when it hit the plate, Tom returned to the shallow end. Two minutes later he was scrambling up to the roof again.

"And," he said activating the remote again, "here goes the manual test."

He had again placed the U-Rock in the water at an angle. When he started it, it began moving toward the side of the tank, but with Tom's guidance inputs it was soon traveling toward the target. Bud noticed that a blue light flashed on Tom's controller as the underwater missile shot forward and struck the target. When he asked about the light as they climbed down, Tom explained.

"That lets me know it is on a definitive course for a target and that the operator can go hands-off from that point."

Bud went to retrieve the U-Rock and they walked back to the Administration building and upstairs to Tom and Damon Swift's office.

"That thing in your hand is dripping, Tom," admonished Munford Trent, pointing at the few drips still coming from the back end.

"Sorry. Bud will clean that up for you." offered Tom.

Trent just shook his head. "As long as it isn't anything likely to

eat through the carpet I'll just drop a paper towel and stand on it. Go on in."

"Successful test, Son?" Damon asked.

Tom and Bud told the older inventor about the dual successes.

"Well, I've made the call to Jake and told him I'd like to have about fifty of these run off as soon as possible. His response was unexpected."

Tom could feel a little dread tingling up his spine. He prepared himself for the worst.

"Jake says that he can reset line five by this time Friday, two days from today, and them give you Monday and Tuesday to build them. He needs to do a major reset the rest of the week for a new engine cowling. Are you in any shape to build that fast?"

"I had Hank finish the pattern set yesterday, Arv is vacu-forming the nitrogen tanks and casings for the rocket motors, and the folks in Electronics and Circuitry will be building the controllers starting tonight… now that I know this works." He held up the U-Rock proudly.

"Propellant?"

"The Chem guys are cooking up a batch and will be pressing it into the casings as Arv gets those to them. All the parts will be in place first thing Monday."

"Good. Good. Now, what about your tropical storm experiments? Have any ideas on what to do next?"

"I sense the room getting smaller and smaller as the words get larger and larger," Bud said edging toward the door. "I'll leave you to it. Bye."

Tom sat down across the desk from his father. "I like the way the laser caused some of the water to vaporize. For a few seconds it really did push things apart. The big issue is that it only was effective for a few seconds and in a very small area. I've got to come up with some way to super heat a much larger area."

"And, I'd venture to guess, in a lot of places either simultaneously or in rapid succession."

Tom gave one nod. "Right. I did a simulation in the computer the other day. If I can time it—well, if I can deliver whatever it is that will produce the heat into the right places and then time the detonations—it looks like we will get a good result from multiple simultaneous hot spots. But," he added with a smile, "if I can set these undiscovered miracle things off in sequence driving back

against the flow of the storm, the effect is upped by more that thirteen percent."

They spoke for another hour before Damon had to get to a meeting at The Construction Company. Before he left he told his son, "Now that your asphalt machine is back from Florida I've asked facilities to attend to the areas over there that need it the most. Jake is a very happy man. He loves that son-crushing machine." He saw Tom wince slightly but decided to press on. "I've asked Arv Hanson to build him a model and will give it to him on his birthday next month."

The following two days were a flurry of activity. When it appeared that a supply issue might hold up delivery of the detection and steering circuits, Tom raced around Enterprises and located enough of a similar component that only an hour was lost.

He entered the Chemistry building Friday morning and went to the Volatile Materials lab on the top floor. When the building was being outfitted, the facilities manager at the time had questioned Damon's desire to have the lab on the upper floor and not in the basement. "Safer down there," he had said.

"Ah," Damon had replied holding up one finger, "and how many floors might crash down if an explosion were to do significant structural damage? Up on the top floor, with a blast shield embedded in the floor itself, you only lose the ceiling and roof. Well, and any windows and a couple walls, but the idea is that the building remains intact."

The facilities manager had gone away shaking his head, but had come back an hour later to admit that the inventor's idea was the better one.

Three technicians were crowded behind a TomaQuartz shield preparing to perform a test firing of their latest formula. The lead tech motioned Tom to come in and crouch down with them.

"This is formulation five, Tom," he explained. We're looking for the best Newton Thrust curve and duration along with being impervious to saltwater. One through four were a bit weak."

Tom glanced at the readout board mounted above the window to the chamber. It was counting down and had reached eighteen seconds. When it hit zero, there was a great whooshing noise and a billow of smoke inside the chamber. The readouts showed that the little test motor was putting out about thirty-six pounds of thrust at its peak. When the test firing was over he noted with satisfaction that the total burn time was just over ten seconds.

"That was great," he complimented them as the fans began

extracting the exhaust gases and smoke. “What did the earlier test achieve?”

“About half that. Something in the F-class engine range but in the larger casing. We believe that a lot of potential thrust was lost in there, so we did a little tinkering with the formulation and then inserted a plug to reduce the overall interior width by a quarter inch. That was for test four, actually. Then, Larry there hit on the idea of having the insert, but making it out of really thin tomasite and then packing in additional propellant between that and the actual engine wall.” He pointed at the chamber and the readout.

“So, the engine does a normal burn from the bottom up and then turns the corner and burns back down the outside?”

“Yep. Adds a full second of burn time!”

“Out of curiosity, Steven, what did you do to the basic formula to make it impervious to saltwater and to give it the extra thrust?”

The third tech smiled. “I’d tell you that it’s proprietary but you’re the boss, so here goes. When we were heating everything up to liquefy it, we added a silicone compound for the water issues. It forms a seal around everything yet burns off just fine. For the added thrust, and this was Larry, again, we added a very fine red phosphor powder. It’s stable during processing but once things start burning, it turns into white phosphor and the leftover oxidizer in the fuel makes it go off at just under explosive force. If you want, we could add iron dust and make it shoot out sparks!”

The tech team said they had one additional test to perform and them would begin turning out the propellant loads in quantity. All would be on hand at the assembly line on Monday morning.

With that new invention proceeding on its own Tom returned to the matter of trying to control or disable hurricanes. He had a theory that came to mind while watching the rocket motor test firing and wanted to give it a try.

He placed a call to Hank Sterling on his walk back to his underground office and lab, asking the pattern maker and engineer to meet him.

“Thanks for coming over, Hank. Before I hit you with something new, how is everything going from your end for the little U-Rocks?”

Hank stared at Tom and said noting.

“Oops. Sorry, that’s Bud’s name for the underwater missiles.”

“I like it,” Hank said. “Everything from my end is finished and over in Aturian’s hands. I stand ever ready, of course, in case of last minute changes, but this is a pretty easy one from my standpoint.

So, what is this new project?"

Tom told him about the NOAA prediction that tropical storms were and would continue to be more deadly and in grater numbers year after year, and how Tom wanted to find a method to suppress or even knock down such storms. As he described the laser tests Hank's eyes began glistening. A moment later the large man turned away and sniffled.

Tom asked what was going on.

"Well," Hank admitted pulling out a handkerchief and blowing his nose, "I lost my Great Aunt Tillie to a Force Four hurricane that smacked into Alabama and Louisiana about ten years ago. She was a proud and stubborn woman who had been evacuated dozens of times in the past and finally had enough of the whole thing. She didn't leave and we never found anything from her old house. Just gone!" He blew his nose again and wiped away a single tear that escaped his right eye.

"Okay. I am so sorry about her being lost like that and I promise you that I'll try my hardest to make sure we can minimize or even end those deadly storms. Here's what I am thinking."

He outlined a plan to create a set of small yet amazingly powerful incendiary devices using white phosphorous, hydrogen and black powder along with small pods of plastic explosive that would be ejected by the initial blast and hurled at least a hundred feet farther out before detonating and adding a strong concussion wave to the incredible heat being generated.

"My best guess before I do any computations is that we're talking a sphere of about six feet in diameter to hold everything and then at least two hundred and fifty, inch and a half mini spheres for the ejectable pods. I'll rig up something to start fuses in those based on the initial explosive forces. I need you to create the large sphere out of something like polycarbonate. It has to be strong enough to allow the explosion to build up to give us maximum heat and power but it needs to then break apart as quickly as possible." He sketched a drawing of such a sphere that included a built-in pocket to hold the timer or radio controls to set off an explosive core that would get things going.

Hank agreed to have a 1/6th scale version ready the next day so that Tom could comment on it before moving on to the full-scale one.

When Bud came in late that afternoon Tom explained about the proposed test. "I'm aiming for the end of next week," he told his friend. "I will need you to pilot for me while I release the sphere

from the *Sky Queen's* hangar. You in?"

"Can we take the girls?"

"How far in trouble are we?" Tom asked. He knew full well—and often regretted—and feared the worse from his inability to spend as much time with Bashalli as he might.

"Well, I'm currently only in slightly warm water, whereas you, my best-est friend in the world, are in water that's best termed, 'getting hotter by the minute.'"

"I thought so. Sure. I was going to suggest that you and I hop over to Naples and then down to see Slim and Zimby and the rest of the guys. We can deliver the U-Rocks to them and give them a demo. Can you call Captain Fry's office and see if we can get permission to bring the girls onto the base?"

Bud did, and the following Thursday morning Hank assisted Tom in loading the large test sphere into a special cradle in the hangar at the rear of the *Sky Queen*. In the end, Tom's computations indicated that it would need to be almost seven feet in diameter in order to have the desired effect. It was a monster sphere weighing just under two thousand pounds, but the mechanized cradle could be moved to the edge of the open outer door and tilted to release the ball using a simple remote on a cable.

To maximize time with their girlfriends, Tom and Bud suggested that the ladies sit in the jump seats right behind the pilot and co-pilot seats. They spent the two-hour journey to the test drop zone in lively conversation. When they were twenty minutes away, Bashalli asked, "Can you just go to this area and drop this giant exploding ball, Thomas. Won't anyone notice it and worry that some invasion is about to occur?"

He shook his head. "Not to worry, Bash. The Enterprises legal department dealt with the U.S. State Department and the governments of Haiti and Cuba and Puerto Rica and all the others in the Caribbean. Everybody understands what is about to happen."

"Yeah," Bud added. "Only Cuba is throwing a wobbler about it. Their propaganda ministry cranked up the tired old, 'The U.S.A. is about to invade us and take away your children and eat your food and drink your cigars and make your wives work in fast foot restaurants,' sort of thing."

Tom looked askance at Bud, and then told the girls, "Quietly, their ruling government said they understand and look forward to the day when storms no longer kill people down there, but for the sake of their public appearances, they are rattling a few old chestnuts around in a tin can."

The tropical storm they were about to use for the test had been designated Felicity; she and her companions Gregory and Hildegard were beginning their slow build-up hundreds of miles farther out in the Atlantic. Currently designated a Force Two tropical storm, Felicity promised to provide ample response to any successful test.

Before heading back to the hangar, Tom placed a call to the Outpost in Space. When the station radioman answered, he offered to call for the commander, Ken Horton.

"No. All I called to ask was to have your SuperSight aimed at a specific location and to record the next hour. We're setting off an incendiary device inside a tropical storm and I want to get a good record of it. We'll do the close-up and you folks will do the medium shot."

"Not a problem. Give me the coordinates and I'll get that set up. What sort of coverage area do you want?"

"About twenty miles each side of center. Thanks." He gave the man the center point coordinates and then switched control over to Bud. "You ladies will be able to see the entire explosion and the results if you go back to the lounge and watch out the port side."

He arrived in the hangar a few minutes later. Donning a thermal and pressure suit and air supply, he made a quick radio check to Bud, depressurized the space and then he opened the hangar door. The *Sky Queen* had gone into a hover over the drop point, but the wind was whipping around inside the open space. He picked up the control and moved the cradle as far onto the hangar edge as possible.

"Okay, Bud. Ladies. I'll push it out on the count of three. Bud will take us practically sideways to the right so we are about five miles to the side when it goes off. I've set our SuperSight to track it as it drops. It will detonate exactly two minutes after release and at an altitude putting it right in the middle of the storm." He placed his finger over the release button. "Three… two… one… release!"

He pressed the button and the cradle tilted over, spilling the sphere out into nothing. The small drone chute that would keep it oriented with its control package upright expanded.

"She's away. Take us to the observation point, Bud," he requested as he pressed the hangar door close button. He barely made it to the cockpit before the device went off.

At first they could only see a bright flash deep within the clouds. That was followed a second later by a bright ring of flashes out from the first flash.

“That second one was all the little explosions,” he told the girls over the intercom. They should push things aside.”

The sphere had been dropped and set off about forty miles out from the eye of the storm, roughly sixty percent of the way to the edge. Tom was pleased to see a large opening begin to form in that part of the storm. In fifteen seconds he estimated that it was more than a mile wide and slowly continuing to grow.

What happened next was not what he had expected.

The portion of the storm next to the opening and farthest from the eye began to rotate on its own and it was soon obvious that it was going to split off from the main storm and possibly form a second storm.

He had an idea. “Quick, Bud, Take us down and right through that piece that is splitting off. If I’m right, we might just break it up enough with our turbulence to keep it from turning into a new storm.”

He called to the lounge. “Strap in. It’s about to be bumpy!”

As Tom climbed into his seat and buckled his harness, Bud took the Flying Lab into a steep dive and partial turn. As he leveled off Tom pushed the throttles as far forward as possible. In seconds they were flying at nearly Mach 2.

The giant jet plunged into the storm. It bounced a bit but no more than flying through any land-locked thunderstorm. He had Bud make a total of three passes before they gained altitude and took a look.

“Whew!” Bud exclaimed. “That was close. Looks like the big storm has healed itself and that little storm is breaking down. Good work, skipper.”

Tom felt that it was anything but good. He wasn’t certain why the larger storm had tried to generate the smaller one, but he was determined to figure it out before he made a future test.

CHAPTER 11 /

DRAWING BOARD, BACK TO (PART 2)

THEY LANDED at the airport in Naples, Florida two hours later. Tom spent part of the trip talking with the operator of the SuperSight camera at the Outpost.

"Boy, skipper. We got some amazing footage including the *Queen* racing in and out of that little bit that broke off. It was really amazing!"

Tom explained that it had not been part of the plan and asked that the entire video file be transmitted to the *Sky Queen* and to Enterprises' computer servers as soon as possible. He watched the footage in real time and then again at half speed. It was almost as if they had blown an arm off of an octopus only to have it begin to wriggle and to start becoming another, smaller octopus.

He was still shaking his head in wonder as they exited and locked the plane.

Knowing that they would arrive soon, Slim had hopped into a small helicopter the Enterprises team was using to ferry themselves to and from the island location of the NOAA base and the town. He was waiting for them less than fifty feet away.

"Hey, skipper. Bud. Ladies," he greeted them. With Bud and Slim's assistance, Tom removed the two boxes that contained the first twenty of the just finished U-Rocks and stowed them behind the rear bench seat.

The flight took them out over the Gulf of Mexico and down the coastline for about fifteen miles before turning back in toward the mainland. Soon, the long NOAA pier with the two long ships moored came into view along with the white two-thousand-foot airstrip and the completed buildings. A minute later the helicopter touched down.

"Captain Fry sends his regards," a young Coast Guard seaman told them as he rushed over. "He would like to see Mr. Swift on the the *Reginald Hunter*." He pointed at the nearest ship to them. "May I tell him when he can expect you, sir?"

Tom looked at Slim and then Bashalli. "It is alright, Thomas. I am sure that between Bud and Mr. Davis that Sandy and I will be entertained in your absence."

Tom followed the seaman to the pier and onto the ship. In the small wardroom he found Captain Fry busy with both an enormous stack of paperwork as well as speaking on a telephone. The Captain motioned for him to sit down.

"Actually," he was saying to some unknown person, "I would have expected a little better inter-service cooperation. I feel as if you are setting us adrift without benefit of weapon or flare gun. Good god, man. I'm one of you. Good day!" He looked at Tom, the strain evident on his creased face. "Hello, Tom. Good of you to come see us. I apologize about the temporary office; mine is being painted and the fumes are ghastly. That," he indicated the phone, "was one of the most uncooperative Coast Guard lieutenants I have ever dealt with. All we are asking is for a series of patrols along a fairly straight corridor."

"I'm hoping to complete the inner detection barrier in the next two days, sir. In fact, I brought with me the final piece in the puzzle." He told the commanding officer about the U-Rocks.

"Ah, yes. Well, that *is* very good news. I had been despairing of having no means to protect ourselves. Detection is fine, to a point, but watching a torpedo speeding toward you is most unsatisfactory when all you can do is watch." He smiled a hopeful smile. "The reason I asked you to come see me is that I want to borrow one of your jetmarine submarines and her commander. Mr. Davis, I believe, although Mr. Cox would equally be welcome."

Tom frowned a little, but asked, "What can my people do for you, sir?"

The Captain nodded and sort of hummed an, "U-huh." He took a deep breath and then said, "NOAA has a series of sensors buried in the seafloor of the Gulf. Two days ago, these tide-and-flow sensors suffered a breakdown. At least, that is what the folks above me say. I personally tend to believe that our little mini sub friends have been up to no good out there. I need to put three men down three hundred feet along with the replacement sensors, but I don't want to expose them to attack."

"I fully understand, sir, and will be glad to put Slim and his jetmarine at your disposal. I need Zimby Cox and his team to complete the outer barrier. How soon did you want to go?"

"Oh, immediately if possible. It's about one hundred twelve miles due west of here and Mr. Davis assures me that a departure any time in the next…" he looked at his watch, "…hmmmm…hour and fifteen minutes would see us out and back while the sun is still in the sky."

“Let’s go then,” Tom said. As they walked off the ship and down the pier Tom radioed Slim who, along with Bud and the girls, was nowhere to be seen.

“We’re about five hundred feet up around the north end, skipper. What’s up?” Tom told him of Captain Fry’s request and that he had agreed to it. “I’ll be there in five minutes. Can you radio the jetmarine and tell then crew to get ready to depart in ten?”

Slim arrived shortly having taken a cross-wise shortcut. The jetmarine was positioning itself next to the pier when he arrived. Captain Fry had gone back to the ship to call for his dive team, but discovered that two of his men had ended their normal shifts and headed back to land.

“Don’t worry, Captain. Bud and I will go with you and the other man. We’ll use our aquasuits and with his help should have it done in no time.”

They were about to hop over to the deck of the jetmarine when Tom thought of something. “Be right back,” he called as he ran toward the helicopter. He came back clutching three of the U-Rocks. “Never can tell,” he said to Bud as they were closing the hatch.

With Tom remaining at the controls, Slim and Bud showed the NOAA petty officer how to get into and use the diving suit. “How long do we have before we need to come up?” he asked.

Both Bud and Slim shook their heads. “You don’t have a limit. That thing on your belt draws seawater through and separates out the oxygen. Then, it scrubs excess CO2 out, adds back in O2 and you’re re-breathing before you know it!”

“Okaaaayyyy…” he said warily carefully eyeing the small device, “but what about ascent time or decompression?”

Again, the two Enterprise men shook their heads. “Not necessary. First, we’ll swim out near the bottom. The best part is the suits maintain a sea level pressure environment at all times. No compression, no decompression,” Bud told him.

By the time they arrived, the petty officer had filled them in on the procedure for shutting off the power, detaching the broken sensor array and electronics package then reattaching the new ones, and then re-energizing and testing the devices.

“We’ve got two to replace, sirs,” he told them. “About three hundred yards apart.”

“That’s great, and please cut the ‘sir’ stuff,” Bud told him.

Once the sub was on the bottom Tom came back. “Slim? Can I go

out and stretch my legs? I know you've been through the replacement process but I can probably catch up."

Slim was about to say something when he saw a look in Tom's eyes. He looked down at the U-Rock in his boss' left hand and the two of them in his right. "Oh, yeah. No problem, skipper. I'll keep a look out for mermaids."

Rather than using the one-man airlock, Tom decided to flood the large cargo hold on the aft, starboard side. The three men swam out heading for a green object several hundred feet away. As they neared it, Tom could see it was actually yellow and the blueness of the water had combined to make it appear green.

It took almost no time to see what had gone wrong with the sensor package. The case had been forced open and the interior was a mess of twisted wiring and smashed electronics.

Bud gave Tom a look. Tom gave a slight shake of his. He had no evidence that this was from the same folks prowling around in the mini sub, but it looked very suspicious.

Working together, they removed the first sensor package and had the new one installed and tested in less than five minutes. Unit number two didn't appear to have any damage until they had disconnected it. The wiring running between the box and a floating antenna on the surface that transmitted the data had been yanked out and loosely tied to the mounting anchor so it might appear to be fine at first glance.

"Skipper! It's Slim. We've got company. Coming in from about one-six-zero. Pretty quiet but it's going about three knots. We have a fix at nine thousand yards. It's heading right toward you."

"Slim. I don't want to jeopardize the jetmarine. Back slowly away and head for that indentation we spotted a mile east of here. Hide there."

"What are you going to do?"

"I am going to get Bud and our petty officer buried in the silt and then I may have a real world test to make with our little U-Rocks!"

Bud helped him bury the petty officer but suggested that he stick around to help.

"Okay, flyboy. Here's one of the U-Rocks. Hold for my signal. I want to wait until we have a visual on this sub. Unless, that is, they fire first. It's set on automatic. Just press the small red button between the fins, get it lined up in the approximate direction, and pull your arm away. Two seconds delay is all you get."

They moved about fifty yards away from each other and settled down to the bottom. Slim fed them periodic position reports until the mini sub was within two thousand yards.

Neither Tom nor Bud could see anything until it approached to about twelve hundred yards. Then, the white nose could be seen in the distance. It had slowed and was cautiously coming in at what Tom estimated to be less than one knot and just a dozen yards off the bottom. Tom looked over to Bud. When the flyer failed to glance his way, Tom gave him a call using the disguised underwater communication system in their suits.

"If they come much closer then I'll fire off one of my two. You hold off until I say."

"Why don't we hit them on the nose and then try to get another couple of hits in their screw. Maybe we can disable them and take them prisoner."

"Only if they attack, Bud. If they run then let's let them. I wouldn't want to see what kinds of weapons they might be carrying. Okay. Stand by. I'm lining my first shot up and pressing the button… now!"

Bud could see Tom swimming backwards a few yards before the rush of bubbles told him the U-Rock had begun its trip.

A second of so later the rocket motor kicked in and the underwater missile streaked toward the mini sub. They could not see precisely where it hit, but a rush of bubbles coming from the hull of the sub told them all they needed to know. The U-Rock's hard shell and pointed nose had breached the hull of their enemy.

The sub made a quick turn to the left and both boys could see her screw start to spin faster and faster. She shot away, trailing more and more air until it was out of sight.

"Whoo-hooo!" Bud let out a yelp and a cheer. "Great shot, skipper. Right on the nose!"

"The U-Rocks work and that's what's important. Petty Officer, Robbins? You can come up now, and Slim? Come get us."

When they were onboard the jetmarine and out of their suits, Tom filled Slim and his five crewmen in on what had occurred. "I hope they learn from the experience," he told them. "The thing we now know is that their hull is thinner than the two-inch steel plate I used in my tests. Now, let's get back to Florida and have dinner. I've got a lady waiting."

"Hey," Bud complained. "What about mine? Isn't she a lady?"

"Yours is my sister, Bud, and someone about whom I never make judgment calls."

The dinner served in the completed base services building—where the kitchen and dining hall were located—was a celebration. Captain Fry was elated when he heard the news of their repulsing the mini sub. His base crew, now at thirty-seven—half what it would be once the base was in full operation—gave Tom, Bud and the jetmarine crew a rousing cheer. Then, several of them hauled Petty Officer Robbins up on their shoulders and paraded him around the room.

Bashalli and Sandy looked on with pride as their guys were applauded and praised. They were still glowing about Tom and Bud's accomplishment as they boarded the *Sky Queen* and headed back to Shopton later that night.

Even Tom had to admit a satisfaction over the puncturing of the enemy sub. He tried to subdue his enthusiasm when relating the episode to his father and was mostly successful. Damon Swift understood that Tom was very pleased with that success and let him have his 'moment' because he knew that his son was also greatly disturbed by the almost disastrous results of the incendiary sphere test earlier that day.

When the conversation got around to the test and Tom admitted to the very obvious failure, Damon asked him, "But, did you learn anything from it?"

Tom, who had sat down across from his father and assumed a glum expression suddenly sat up. "Oh, gee. You always used to drum that into me. 'Try something. Collect the results, whatever they are. Learn. Try something new.' Your grandfather taught you that, didn't he?"

"Yes he did and it is as appropriate today as it was back when he was your age. So?"

Tom had to think about it for a few minutes. Finally, he ventured, "The first thing we discovered is that it had an almost immediate effect and along the lines of what I wanted. However—" and he continued on for more than five minutes detaining what both his live observations and the video from the Outpost showed. In the end he concluded by saying, "I now believe that we may have placed the device too near to the edge of the storm. I'd like to try again but moving the drop spot inside the last one by about twenty percent. What do you think?"

"I think that as long as you are willing to dive in and out of

anything that seems ready to form outside the storm then you should do another test. Before you go charging out of here, I want to read this to you. I should have told you earlier but I wanted you to remember about the learning thing. Anyway," he picked up a piece of paper, "From the National Weather Bureau. Regarding Tropical Storm Felicity. At 0800 yesterday the subject storm was classified as a Category Two storm with a predicted increase to Hurricane Force One before making landfall over the southeast coast of Puerto Rico. At 1115 a device was tested by a private concern. Said device had measurable impact. At 1230 Felicity was downgraded to Tropical Storm Force One with projected landfall at only Tropical Storm Force Three. The storm is expected to lose force over land and dissipate."

He looked up at Tom. "It did do something after all." He smiled and slid the page across the desk for Tom to read.

"Well, I like this and all, but I'm going to do some redesign of the sphere. I think one of the problems is that it blew out with greater force around its equator. I think I need to make the next one expand and heat evenly in all directions. Plus, the little globes need to cause an evenly distributed shock wave."

"Your drawing board awaits, Son."

Tom spent three days with Hank and several of the technicians who had assisted in formulating the explosive phosphorous mixture. He explained that the previous device had blown out more around the central area and horizontally. What he wanted the next one to do was to blow our equally in all directions.

"Well then," Hank told him, "we might do away with that drogue chute and just let it all tumble. Also, we can put the control package right in the middle."

"So," Tom said, "no matter how it orients itself we get the same results. That's exactly what I have in mind."

On a detailed review of the footage from the Outpost, Tom noticed something that he had missed previously. The more than two hundred mini-explosives had not gone off at the best possible time. Rather than being blown straight out and exploding just as they reached the point where gravity began causing them to fall, most had actually exploded thirty or more yards below. This would be partially remedied by having them shot out equally in every direction, but he began thinking that the entire group might need to be timed to go off about a full second sooner to provide optimum force and heat.

He cornered Chow the second day when the cook wheeled in a cart loaded with two steaming bowls of home made chili and a couple of thick turkey sandwiches. When Tom asked about the duet of servings, Chow told him, “Ole Buddy-boy called me an hour ago and said he was gonna be headin’ this way, and just in time fer vittles.”

“Sure sounds like our Bud. Hey, Chow? I have a question for you.”

“Long as it don’t need a science-y mind, go ahead.”

“Here’s the basic issue. If you have a balloon filled with, lets say little pellets, and the ball has a spring mechanism to shove them out in all directions when the balloon pops, how do you keep the ones on the bottom of the balloon from falling faster than the ones on the top? You know, what with gravity pulling them?”

Chow removed his ten-gallon hat, pulled out a bandana and wiped his bald head. Tom could see his face slightly contort as he considered the matter. Pretty soon, the older man was fanning his face with his hat and looking at the ceiling.

“Nope,” he declared. “Lest you got some sorta way ta make the springs in the bottom o’ that ball less pushy, or delay the push, I cain’t see no way o’ doin’ what ya want. Sorry, Son.”

“No need to apologize, Chow,” Tom told him. “That’s pretty much what I came up with but I wanted the opinion of someone who isn’t burdened with trying to see the *scienc-y* stuff. Here’s the other alternative. What would you think if I told you that the small pellets were on the outside of the balloon and that they each got pushed out connected to a tiny wire, and when they reached the end of the wire, then the big balloon pops with them out at exactly equal distances?”

Chow seemed to be bogging down in the concept so Tom drew a picture showing a large ball with all the little balls standing out in every direction.

The cook’s face brightened. Oh, yeah. Now I see it. Sure. Now that makes sense ta me. Kin I ask ya what this is about? Ya don’t seem the sort to go makin’ balloons an’ pellets.”

Tom explained about the hurricanes and his attempt with the first device. He added that he hoped to make the next one so that everything went off at one time providing an even larger area of coverage.

Chow tapped a large index finger on the diagram on Tom’s desk.

“Seems like that’ll do it!” he announced.

“Do what?” Bud asked as he entered the room. “Cause Chow to make normal food?”

“That’ll just about do for you an’ yer nosy questions, that’s what!” And, so saying, Chow turned and pushed his cart back out the door.

After Tom explained what they had been discussing, Bud inquired, “How in the world are you going to do that?”

“I’m going to try to rig each of the small explosives with a powder charge and a tiny spool of micro-wire. At the command from the controller, all those little charges fire and shoot the little globes out. When it detects that all of them, or perhaps even something like ninety-eight percent of them, have reached the end of their lines, the big sphere goes off and all the little ones do as well. If my figures are correct it should add about eighteen percent to the overall explosive force and possibly a percent or two to the heat factor.”

As they ate Bud asked several additional questions that Tom had ready answers to. When he stuffed the last bite of sandwich in his mouth, he told his friend, “Then I have to conclude that you’ve thought this all out. When do we go back down there and try again?”

“The Legal department is working with all parties and countries involved. It should be easier this time since the first test actually had a happy ending.” When Bud looked quizzical, Tom told him about the lessening of Tropical Storm Felicity.”

“That’s terrific!” Bud told him.

Hank had the new sphere—now looking like a giant golf ball with all of the indentations for the explosive globes—ready the next day. He carted it to the Volatile Materials lab himself and sat watching as the technicians carefully packed all the components into the two halves and on the outer surface, assembled and sealed it, and then pumped the high-pressure hydrogen into it.

He next delivered it to Tom in the underground hangar.

“Big, nasty explosive balls. Get ‘em while they’re cold and stable. Big, nasty explosive balls!”

Tom had to laugh. Not only did the ‘golf ball’ now look more like a bumpy hedgehog all rolled up, it sported explosive globes in at least seven different colors. When he inquired about them, Hank would only say that a decision had been made to try to make things a little more colorful.

Tom received a call from Harlan Ames at home that evening.

“Skipper? You recall that impostor Tristan Carlow?” Tom said he very much remembered the encounter with the fake. “Well, he finally cracked. Seems that he is an Aussie ex-Patriot who’s been stripped of his citizenship and turned mercenary. The real Carlow paid him twenty thousand dollars to scare you and give you a beating. Says Carlow told him to only injure you a bit, maybe break an arm, and then to get away after informing you that Carlow was going to do worse.”

“So, how did the police already have the description of this other man. Didn’t it come from the FBI?”

“Fake fax from an untraceable number. Possibly from an old notebook computer that Carlow then trashed. Seems he wanted the police to capture his doppelganger, but probably not until the man had hurt you.”

Tom thanked Ames for the information.

Word came through the next morning that two test windows had been approved. One was at 1700 local time that very afternoon and the next was in two days at around 1100. Tom checked with a few people and decided to load up and head down for the one today. He caught Bud just before the flyer was going to call Sandy to suggest a date.

“Hate to spoil it for you, Bud. I *could* call Red Jones and ask him if he is free.”

Red was another of the Enterprises pilots. He recently had taken a six-month leave of absence while he took care of his ailing daughter. She had been diagnosed with cancer and had been given a three-month prognosis. Through the insistence of Red and his wife Ginnie, she had been accepted in an experimental treatment program. It turned out to be a success—she was on the road to recovery—and he had returned just a week earlier ready to get back to some sort of normal life.

“As much as I would like to let Red get back in the saddle, skipper, I must insist that I be sitting in chair two. I’ll see you up top at one.”

When Bud arrived and climbed the two flights of stairs to the cockpit he was surprised to see the bright orange hair on the back of Sidney “Red” Jones’ head, and to see that it was currently occupying the pilot’s seat. Tom came out of the SuperSight cabin just behind the cockpit and sized up the situation.

“Well, Bud, you did say you only wanted to be the co-pilot. You never said anything about the first seat. Say hello to Red.”

Bud quickly recovered from his surprise and held out a hand. “Great to have you back with us, Red. I hear Patty is just about back to her old self. It’s really great news.”

Red spun his seat around to face Bud and Tom. He shook the offered hand and smiled. “I love my little girl and have no regrets about taking the time off, but I sure missed this old girl.” He patted the seat back.

“I’m going to watch everything with the SuperSight so I figured I’d need two more along. Red will fly us down, you can go back and shove the ball out and then run back up here to assist in case we need to do the old dive and rush around routine again.”

They flew a little farther out over the ocean than before so that they could increase speed to above Mach 2. Tom wished to get to the area at least a couple hours before the drop time to make a thorough video study of the new storm—Kara. He directed Red to take an approach from due east of the northern edge of the storm.

“Give me a big circle right over the outer edge, please. After the first circuit, take us in about seventy percent of the way to the eye and repeat the circuit. I want to see if any specific place looks better than the rest.”

Fifteen minutes before the drop time he returned to the cockpit and gave Red the coordinates of the drop zone. “We’ll hover at fifty thousand feet. Bud, you go get ready. Once I’m set up I’ll give you a countdown.”

Tom and Bud left the cockpit while Red maneuvered them to a spot less than thirty miles from their current point.

With six minutes to go, Tom was just beginning to focus the SuperSight scope on the area the sphere would detonate when the video signal went crazy for about two seconds.

Red called back to tell Tom, “My instruments just went a little haywire for a second or so, skipper. Fine now, but it was really strange.

Tom was considering what might have caused both the aircraft instruments as well as his video equipment to have problems when Bud’s voice came through the ship’s intercom system.

“Skipper? Red? We’ve got a problem back here. I started opening the hangar hatch and a lot of very acrid smoke started coming out. I had to back out and slam it shut. Something really bad is going on in there!”

CHAPTER 12 /

NEVERMORE!

TOM CALLED out to Red. “Pop the hangar door open without decompressing. It’s got to be the sphere. If that goes off inside, it could knock us out of the sky!”

Moments later Jones called out, “Hangar door open and I saw the sphere dropping away trailing all sorts of smoke—Geez! It just —” The *Sky Queen* was rocked by the shockwave of the exploding sphere.

Bud came sprinting along the upper corridor. Tom joined him and they bolted into the cockpit.

“I believe you were about it say that it had exploded. Right?” Tom asked the slightly frazzled pilot. Red just nodded. “Okay. Bud and I will check for damage in the hangar and you get us down to around ten thousand feet but away from the storm.”

The two boys went back and climbed down a rear access ladder directly to the main floor and next to the hangar hatch. Bud was still in his protective suit, so Tom grabbed one from the wall and climbed quickly into it. Bud picked up an extinguisher in case there was any residual fire while Tom unbolted the airtight hatch.

Scorches marked the floor and ceiling as well as the roll-out plate that had held the cradle. It was nowhere to be seen but Tom suspected that it had fused to the hot sphere and had been sucked out at the high altitude. Nothing was very hot so Bud set the extinguisher down and joined Tom in inspecting the hangar. “Anything look too bad?” he asked.

“No. Mostly superficial. We’re lucky you spotted the smoke and called out. And, we’re extra lucky that the sphere hadn’t fused to the floor. Then, we’d never have gotten it out. I don’t want to think what might have happened if that thing exploded inside.” He shuddered.

They went back into the corridor and shut the hatch. Tom activated the outer door and was happy to see a green light indicating that it had shut and sealed. They got out of their suits and headed back up to the cockpit. While Red and Bud turned the plane and headed back home, Tom got on the radio and called Enterprises. He apprised his father of the failure and their close call.

“We may omit that part when telling the story to your mother.” It was good advice. “I’ll make the necessary calls to notify all the

interested parties. Did you want me to reschedule?"

"Until I know what might have happened, probably no, Dad."

On their return, Tom asked Red to taxi the *Sky Queen* to the largest of the repair hangars. A team would check everything and make any necessary repairs. Unless they found something dire, the jet would be ready by the following afternoon.

Shaking hands with the pilot, Tom said, "Well. Welcome back and I'm sorry your first assignment almost could have been your last."

"Part of the job, skipper. Part of the job."

The next morning Tom went straight to the Volatile Materials lab to report the unexpected early detonation. The technicians were so stunned that they had to sit down for a few minutes. "Geez, Tom!" the lead tech said in a woeful tone. "What could we have done wrong?"

"I can't begin to think what it might have been, Alan. Don't be too quick to try to accept what blame there might be. The controller pack was sealed so there was no way a stray spark or even any generated heat might have leaked. I assume that you used the same chemical and gas mix. Right?" The tech nodded. "There was nothing left for us to recover so I guess I want you to check and recheck everything. Test the phosphorous and all of the materials. I'll go test the duplicate controller pack."

Before he could reach his lab, Tom's TeleVoc button announced an incoming call. These tiny communicators used a combination of brainwaves, jaw movement and muscle interpretation to recreate, in the sender's voice, conversations that were sent via a central computer/router and then on to the intended recipient's TeleVoc.

"*Tom here.*"

"*Skipper. Radio room. I've got a call from Ken Horton up at the Outpost. Do you want to take it now or can I route it to a land line?*"

"*I'm just arriving at the underground hangar. As long as Ken can hold another sixty seconds, route it to my desk down there. Thanks!*"

Line three was flashing when he arrived and sat down. He picked up the receiver and pressed the button. "Tom here. Is that you, Ken?"

Following the normal second-and-a-half delay—due to the total of 44,600 miles the signals had to travel up and down—Ken's voice

came on. “Hello, Tom. I know that you hadn’t asked for us to be recording the test but we were watching it. It didn’t seem to go like the first one so we did a little checking. I was waiting until I thought you’d be back at Enterprises before calling. Hope this isn’t too late.”

“Too late for what, Ken?”

“Well, as we were watching the *Sky Queen* get into position we had a blast of microwaves come right up toward us. Must have gone through or around the *Queen* as well.”

Tom had a glimmer of dread suddenly growing in the pit of his stomach. “What wavelengths?”

“Near I-R, Mid I-R, and Far I-R. Pretty high infrared-type frequencies and enough to actually cause us a two second period of interference even up higher in the television frequencies.”

“Thanks, Ken, I think you just gave me the answer to a really nasty headache.” He told the Outpost commander about the instruments going haywire for a second and the premature explosion. “Before I let you get off, could you detect where it was coming from?”

“Somewhere pretty near directly below where you were. Probably a bit north in order for it to get to us over the equator. It was a wide blast which is why only the edge of it hit us at all. If it had been narrow beam we might never have detected anything.”

Tom set up an experiment with the backup controller pack and a microwave transmitter. As he dialed through the three hundred gigahertz range and up to three hundred terahertz he was only mildly surprised to see that the controller suddenly began sizzling and sparking. A meter registered that it was sending out spurious electrical pulses through the lines that would normally be connected to the detonator.

And that, he said both with satisfaction and worry, *is the solution to that!*

He called the Volatile Materials team and told them they could stop testing their materials, and then he explained the microwave beam and his experiment. “I’ll prepare a controller that is fully shielded for the next test. I’ll let you know the timing.”

Tom headed up the stairs and across the tarmac. He noticed that his giant asphalt-rejuvenating machine was slowly moving along one of the north runways. It appeared to be resurfacing the only commercial runway within the perimeter walls and usually saw little to no daily traffic. However, he recalled that it had been the very

first east to west runway installed, and time was more the factor in its degradation than use.

When the young inventor arrived at the shared office his father was sitting at his desk in contemplation. He looked up, tried to muster a smile, and failed. Pointing at a chair across the desk, Damon Swift cleared his throat.

"Before you say anything, Dad, I need to tell you about what caused the near accident." He plunged into the report of the microwaves and his test. Finally, his father held up a hand.

"I agree that this is something we needed to know, however, just before you walked in here I received a call from the Secretary of State. Not from one of his people, from the man himself. He informed me that more than a dozen reports of the accident had hit his desk. From the Windward Islands to the Leeward's, from Bermuda to Mexico he has been inundated in the past several hours with reports and demands by various governments that these, and I quote something he quoted to me," he picked up his notepad and read, "'This series of poorly disguised atomic bomb detonations must cease.' Now, you know and I know, and even the Secretary himself knows that these have no nuclear materials, but he has just told me that all further tests are to be abandoned!"

Tom was stunned. He could not find words to describe the frustration he was feeling. Finally, he placed his hands on the edge of his father's desk and rose, turned around, and walked from the room.

He was still in a state of shock an hour later when there was a small knock on the door of the large lab he kept in the Administration building. When he failed to acknowledge the knock it was repeated. Finally, Sandy Swift opened the door and looked in.

"Ah. Trent was right. You are here… or…" she saw the look in her brother's eyes, "you may not be here after all." She turned and spoke to someone still in the hallway, "We might be too late, Bashi. He's gone over some sort of edge I think. You might need to perform mouth to mouth resuscitation."

Bashalli giggled as she came around the corner and into the room. But, when she saw Tom's face she immediately stopped, her hands moving up to her mouth where her fingers ended up resting against her lower lip. "Oh, dear!" She tentatively walked over to Tom and then cradled his head against her shoulder. "What is it, Tom?"

He seemed miles away, but suddenly pulled slightly away from

her and shook his head. Looking up into her worried face he gave a rueful grin. “My latest invention is being deemed to be a dangerous weapon instead of the possible salvation it could be.” He pointed to a couple lab stools and the girls obediently pulled them over and sat down.

He told them about the latest heat bomb and how it had been bombarded by a mysterious microwave beam and had to be tossed overboard. He omitted telling them about the near disaster.

“That is so unfair,” Sandy declared. “I mean, you almost had it right with the one we watched. This one might have been the perfect solution. Who do they think they are to be telling you that you can’t drop another one?”

She was so indignant that Tom would have laughed if he hadn’t known that this was just Sandy’s way of expressing frustration.

“I admit that it seems unfair, but until we can convince at least our own State Department, even international waters are out of bounds for us. All I can do is prepare for the time when sanity prevails and I can prove that the next device will have no problems. Say,” he said realizing the two girls must have had a reason for their visit. “What did you come here for? Certainly not to listen to my tales of woe.”

“We came to see if you would escort us to the Yacht Club this evening, Thomas,” Bashalli told him, taking his hand in hers. “There is to be a dinner and a dance tonight, but only for couples. No singles allowed and one from each pair must be a member.” She looked at him, hopefully.

“Well, I guess I’ve got nothing else to do… Sorry. That didn’t sound very good. Let me try again. I find that I have the first of possibly many evenings free for the foreseeable future. I’d love to take you, Bash. What about your ditzy blonde friend?” He jerked his head in the direction of Sandy.

She jumped up from her stool, reached out, and tweaked Tom’s nose. “Harumph! I’ll give you ‘Ditzy!’”

“Sandra will be arriving on the arm of some mysterious, dark-haired flyer from California, I have been led to believe. I hear that he is a passable dancer and somewhat adept at conversation as well.” She smiled toward Sandy.

“First of all, he isn’t all that great of a dancer,” Sandy stated with a sad shake of her head, “but he stays off of my toes and that’s important. Secondly, he generally turns the conversation to things regarding flying, but that is also to my liking. And, he is both a

gentleman and a pretty darned good kisser!"

Tom found that he was able to laugh. He had been so downhearted that it was a great relief.

It was agreed that the boys would pick up their respective ladies at six. The ladies in question left saying that they needed to look for proper shoes for the evening's event.

Tom's evening started off poorly when he got a flat tire just blocks from Bashalli's house. He gave her a quick call explaining that he would change the tire and be there about fifteen minutes late. He arrived at her parent's and was saying his hellos a few minutes earlier than expected, but had forgotten about his greasy hands and left Mr. Prandit looking at his own right hand, now smeared and dirty.

Bashalli and her mother had headed for the kitchen before either of them began laughing out loud. As Tom and Mr. Prandit came in and washed their hands in the sink, the two women scurried back into the living room where Tom was certain he could hear giggling, and not just from the younger Prandit.

Bud's car was in the parking lot at the club sitting in a space very near the door. Tom and Bashalli found a space a few rows out and went inside. The large event hall had been set up with about thirty eight-person tables, each one featuring a beautiful flower arrangement. Bud popped up from behind one and beckoned to Tom. Like the great parking space out front, he had found seats at a table very close to the dance floor.

It appeared that things would degenerate into a comedy routine as the other two couples at the table bobbed and ducked to look under, over and around the overly tall flowers, trying to make introductions.

Bud finally got out of his chair and walked to the side of the room and into the door to the kitchen. He came back a minute later with a large pair of shears that he used to snip the stems of each flower in their table's vase by at least fifteen inches.

A waiter appeared next to him and was on the verge of asking the flyer what he thought he was doing, but Bud stopped him. "Oh, great. Glad you came over. As you can see, someone on the entertainment committee neglected to properly trim this bouquet. If we could just pile these onto your tray… there's a nice man. Thanks!"

And, with that, the slightly bewildered waiter wandered away with a tray full of garden clippings.

A man at a nearby table leaned over and asked Bud if he could borrow the shears. Since Bud had neglected to place those on the tray, he handed them over. “Pass ‘em on!” he suggested.

Within five minutes the wait staff was collecting all of the vases and returning them a few minutes later trimmed down to the point where people could actually see over them.

Following a nice but rather salty dinner, the band struck up their first number. The foursome got up and began dancing. By the end of the first set it was obvious to all that this would be an evening of slower dances with the emphasis on romantic tunes from the past seven decades.

Before the evening was over Tom had forgotten all about this frustrating past couple of days.

He was still feeling wonderful the next morning as he sat at the breakfast table in the Swift home. He had come up with an idea while trying to fall asleep the previous evening and wanted to go to Enterprises for at least a few hours to begin taking notes and making a sketch or two.

Sitting on his desk when he arrived was a note:

Tom,

We examined everything in the chemical load of the weather bomb and found nothing out of the ordinary. I realize that you told us to forget it, that you had the answer, but I, or rather we couldn’t head home without making certain we hadn’t messed up.

We hope this helps somehow. *Alan*

Larry Steven

He set the note back down on the desk. It felt great to have a group of dedicated employees and, yes, friends wanting to do their very best.

Sitting down at the computer, Tom tried to organize the sketchy thoughts and bits of ideas that he remembered this morning. When

he hit a snag in his memory, he went through a ritual of reminders to try to jog something out and into his conscious.

Chemical, elemental, physical, mathematical…

Air, land, water fresh, water ocean, underground…

Beginning with A, B, C, D, E…

Eventually he remembered the main idea that had come to him as he was falling asleep. It involved outer space and a physical reaction. He began writing things down.

When he was finished he sat back and closed his eyes, then opened them and read what he had written. It almost made sense. There must be, he had noted, some way of influencing the gathering storm clouds from high above. From outer space? Some way to superheat fairly large areas—perhaps three, four or even more of them—all at once. If these areas were properly spaced and the super-heated water vapor could expand enough, the storm should be blown out in many directions all at once.

Not, as he originally conceived, simply knocking one piece down with his heat bombs. He now felt that attacking the entire storm in one concentrated effort was the way to go.

The only questions all centered around a single word. “How.”

How could the heat be generated, especially since dropping what amounted to bombs out the back of the *Sky Queen* every day or so wasn’t going to be either practical or even acceptable to the many tiny nations that made up the islands of the Caribbean?

How to get whatever might generate the great heat up to… there? Where was “there” exactly?

How to generate the enormous power he knew would be required to generate the enormous amounts of heat?

How? How? And, how?

The best minds of the military and big business had barely cracked the power equation making the 747-mounted laser into a practical defensive weapon. It was unlikely that he could build a laser ten times larger, or even bigger than that. Or, power one. Lasers, then, appeared to be a dead end.

But, what did that leave?

He made additional notes and left to go for a walk around Enterprises. Although normally a Monday through Friday company, there were always plenty of employees working on Saturdays and even a few most Sundays. Tom nodded and greeted several of them

as he hiked all around the central buildings. He headed over to the repair hangar to see if the *Sky Queen* work had been complete and wasn't surprised to find five men finishing up things in the plane's hangar.

"Hey, skipper," one of the men called out. "She'll be ready to go in another two hours."

Tom climbed up the portable ladder the men were using to access the now-cleaned space. "What all did the fire take out?"

The man that had spoken to him stood up and came over. "Well, the basic structure was okay; that tomasite and Durastress of yours are fantastic. But, we had to pull out the entire ventilation system between here and the compressor room, replace both of the storage shelving units on the port side, melt and chip out what we assume was the mounting bracket for the cradle you had in here, and replace all safety straps, barrier systems and some unprotected wiring harnesses. We're sheathing the new ones."

"Pretty long list. You know, this really could have waited until Monday."

The man grinned. "Yeah, but who knows whether you might need to rush off in her at midnight tomorrow? Naw. The guys take a lot of pride in keeping this girl in top shape."

Tom slapped him on the shoulder and went around thanking each of them for their hard work.

He went home and spent the rest of the day in his room, thinking about all of the "hows," and then took Bashalli out for a quick dinner date that night.

Monday morning rolled around and Tom was at his desk before eight. An hour later a video call came through from the Swift's station in Key West.

"Tom. It's Graham Kaye," the telecaster greeted him. "Harlan Ames always sends me the Be On the Lookout notifications whenever he's on the hunt for someone."

Tom acknowledged this.

"Well, other than keeping a good close lookout on smugglers, refugees and the like, we rarely have anything for him."

"What have you got today," Tom asked.

"We've had BOLOs for one man from three sources, Harlan, the FBI and the CIA. The thing is, I think I spotted the man in question last night when I was out to dinner. Have you ever heard of some

guy named *Tristan Carlow?*"

CHAPTER 13 /

ANOTHER DIRECTION

WHEN TOM didn't move or reply immediately, Kaye asked, "Did we freeze up the connection?"

"Uh, no, Graham. It's just that I do know that name. He's apparently let it be known that he wants to kill me."

Now it was the telecaster's turn to be momentarily speechless. Finally, he said, "Ah, rats! I just knew that I should have come back to work last night to see if I was right. Now I've probably let him get away. I'm sorry I let you down, Tom."

Tom tried to reassure the man that he did not feel "let down" at all. "Have you notified anyone besides me?"

"I wanted to talk to you first because the CIA's notification lists you as an 'interested party.'"

Tom transferred Kaye to Harlan Ames' office and then went back to work. He was no closer to finding a solution than before, and now he had the worry about Tristan Carlow weighing on his mind.

By late Friday morning he believed that he was getting a handle on the enormous amount of power that might be required to generate enough heat to interrupt the flow of a hurricane but not on the specific delivery medium.

Five hours later a knock on his door startled him. He had been so engrossed in investigating the best way to instantly over-excite the water molecules inside the storm clouds that the noise was like a gunshot.

"May Sandra and I enter, Tom?" the tentatively smiling face of Bashalli asked.

Tom rose. "Golly, yes. Come on in Bash. Hey, San. What are you two doing here?" He accepted and returned a kiss from his beautiful girlfriend.

Bashalli looked at Sandy who spoke up, "Remember that tower over in Oswego we went to for a dance contest? One year ago?"

Tom did. It had turned out to be a 7-hour mini-marathon that left the fifty or so couples tired, thirsty and sore.

"Yeah. Why?"

“Wellllllll, it’s that time of year again. And, it’s for a good cause,” Sandy added quickly. “I know we all went out dancing just last week, but this is different. The last time we did this event more than two hundred kids from low income homes got warm, winter coats and gloves.” She and Bashalli looked hopefully at Tom.

“Normally I’d say okay—”

“Wonderful!” Sandy squealed. “We’ll pick you up in an hour.”

“Wait, wait, wait.” Tom told them holding up both hands. “I said, ‘normally.’ The truth is that I’m so desperately behind on my project to try to control the hurricanes down in the Caribbean that I really can’t spare the time. Sorry.”

Both of the girls’ faces fell. It made Tom feel wretched.

Approaching him slowly with her eyes down, Bashalli told him, “It is okay, Thomas. I am certain that a few more or a few less children provided for will not make any real difference.” She placed one hand on his chest and patted it twice.

As she turned away, Tom was about to break down when he noticed the wink his sister had just given the Pakistani girl. Placing one hand on her right shoulder he stopped her forward motion and turned her around.

And, though she tried her best to continue looking sad, she also could not help herself as a shamed grin came to her lips. “I’m sorry, Tom. Sandra thought that I might pour on the guilt to convince you. The fact is that she has run into difficulties getting Bud to agree. He claims that between his projects and your projects…”

“Okay. You got me,” Tom stated. “I need a night off and it *is* Friday, after all. I’ll call Bud and tell him.”

“You’ll have fun this year. I promise. There’s going to be a one-hour break in the middle and live entertainment including this man who does an amazing light show with lasers and that sort of thing.”

By the time Bud and the girls returned, he had ordered up a small amphibious plane from the stable of aircraft always kept on hand at Enterprises. It was flight-checked, warmed up and parked as close to the underground hangar as possible so they had to only walk a few dozen yards to climb in. Within minutes they were taxiing out to the newly restored north runway and five minutes after that had turned and were headed to Oswego.

Tom brought the plane in a wide, sweeping turn and landed on Lake Ontario. He taxied the plane up a ramp onto the lakeside airport grounds and parked it between an older Beechcraft and a

shiny, new Gulfstream.

The Tishamingo Tower, home of the nightclub that was the site of the dance contest, was a ten-minute walk. As it was a relatively warm early evening, the two couples strolled there.

After checking in and getting their badges and team numbers—this year along with sponsor funding, an invited audience of local business executives would be on hand to make wagers-for-charity on favorite couples—they found the table they had been assigned. There was barely enough time to introduce themselves to the other couple at the table before the bandleader had the orchestra blare out a musical "Ta-Da!"

"Welcome and good wishes to all of you. You know the rules. Fifty-five minutes of non-stop dancing and music, five minutes to run to the little dancer rooms, and then it all repeats!"

The drummer did a short riff on his snare and the hit a single cymbal beat.

"So, up, up, up and on the floor boys and girls, men and women, and any others of you out there. We'll start the evening with hits from the nineteen-sixties!"

With that, the marathon began.

When the hour-long break came, all but one couple were still going strong. Although game, the older man and woman had to bow out when his knee began hurting. They left the floor to applause from everyone else.

It was what came next that made the trip worthwhile to Tom.

The lights went out except for a single, small spotlight that illuminated the face of a man standing on a platform at the back of the hall. Everyone turned as he introduced his light show.

Hidden machines pumped out thin clouds of vapor that the lasers passed through. Lights criss-crossed and danced around forming animals, buildings, planets and even human faces. Tom was amused to see one that looked like his father but who Sandy later said she believed to be the astronaut, Neil Armstrong.

Most of the show was, while fascinating even to Tom, things he had already seen or even played with himself. But the grand finale twenty minutes later is what had his full attention.

"We've had a lot of fun with light," the entertainer told them, "but did you know that light can do work? Oh, I don't mean as in just being light. How about *this?*"

His assistant wheeled in a medium-sized balloon onto the dance floor. Tom noticed she had already rolled out a sheet of clear plastic to protect the wood floor.

They all watched as the light show danced around the hall, coming closer and closer to the balloon until suddenly all the lights were focused directly on it. It grew.

It swelled and inflated until it was at least three times its original size. Suddenly and with a big puff of steam, it exploded!

There were gasps and then cheers from the audience, followed by applause.

The man thanked the audience, had the lights create an image of his business card in thin air, and then his part of the show was over.

By the end of the evening it was obvious to Bashalli that Tom's mind was in a completely different place than it had been in the first half of the contest.

They all fell into a taxi van and headed back to the lake.

When Bashalli asked him what was taking his concentration away from her, he grinned and replied, "Sorry, Bash. It's that light show. The finale gave me an important idea about my weather project and you know what happens when an idea hits me."

She nodded. "You remain with me in body, but not in mind." She laid her head on his shoulder.

He promised to take her to a fancy restaurant within the next few weeks to make up for his lack of attention. She would have loved the gesture, he knew, but a gentle snore coming from the vicinity of his right shoulder told him she had fallen asleep.

His mind was going a mile a minute and Tom didn't feel the least bit sleepy. The flight back to Shopton went by without incident and by five a.m. they were all home and sound asleep.

On Monday morning, he placed two calls; the first was to Munford Trent. "Can you please arrange to have all calls intercepted? I'm in need of complete seclusion today and possibly tomorrow. Only company-vital things and then only if dad can't or won't handle them, please."

The second was to Chow. "I'm going to be working absolutely non-stop until at least midnight, Chow. Can you arrange to bring lunch, dinner and have a late snack delivered around ten? Nothing that I need to sit down for. Sandwiches, roll-ups. That sort of thing?"

“Why, shore. Ya want me ta tippie-toe in and just sorta leave things, or do ya want me ta give ya a little nudge and let ya know vittles are waitin’?”

“A quiet, little nudge will be fine. Thanks!”

He then began writing copious notes about what he had seen at the dance and what he wished to do. He understood the principle. The balloon had been bright red and all the lights had been as well. That meant that their light was absorbed as heat so even the low power of the little lasers the man used would quickly turn the water droplets he had spotted inside the balloon into hot steam.

That expanded until the balloon could handle no more pressure, and had burst.

Of course, it would not be possible to color the clouds to scale up the process; tons of dye would be necessary.

And, as his earlier demonstration had proved, laser light alone was not powerful enough to do much.

What might be? Obviously, a nuclear explosion, but nobody would sanction that approach. His heat bombs were a physical approach but he felt that a new path was opening up showing him that some type of energy delivery system would provide the ultimate solution.

Tom was interrupted by a call from Dick Murphy of Murphy and Willets Construction. “What can I do for you, Mr. Murphy?” he asked wearily.

“You can tell me what the heck is going on with my payment for the Florida work!” the man practically yelled.

Tom took a breath and replied, “I have no idea what you are talking about. What payments?”

The man huffed, then exclaimed, “I’ll just bet you don’t know. My contract with the U.S. Government was for two point two million dollars for that NOAA base work and all I got was a lousy one point two. That’s what!”

Tom wanted to laugh at the stupidity and greed of the man. “May I remind you that you backed out of the contract, came back with a partial crew and that my company came in and did three weeks worth of work in less that two. The Government paid the rest of the money to us for our work. You didn’t do it; you didn’t get paid for what you did not do. It’s that simple. Goodbye!” He cut the connection.

Tom sent a quick email to Harlan Ames telling him about the call

and then put the matter out of his mind.

He worked well past midnight and only turned in when his eyes began to sting and his vision went blurry.

When he awoke, it was after ten the next morning. He went into the small bathroom and splashed cold water on his face. His eyes were bloodshot and still stung. The light made him squint in pain. Thinking it might be an allergy he put in some special antihistamine eye drops. That hurt even more. *Nothing to do but visit Doc*, he thought.

Arriving at Doc Simpson's dispensary he was shown into the physician's office by the nurse at the front desk. "Doc'll be with you in five, Tom," she told him. "Want some coffee? You look bushed."

He nodded. "Thank you, Andie. Couple of sugars and I think I could even use a little milk."

Doc walked in as Tom was finishing the hot drink. "Cat?"

This confused the inventor. "What? Cat?"

"Yeah. The one that dragged you in. You spent another night working straight through, didn't you?" When Tom looked at him with bloodshot and guilty eyes, Doc went on. "Let me look." He pulled out his little light and flicked the beam across the inventor's eyes. Tom flinched as the light seemed to sear into his eyes. "Hmmm? I'll have to put a special stain in them to see if you've scratched the cornea, but my guess is that you've got some sort of Uveitis. Inflammation of the eyes. Let's take a closer look with a magnifying glass."

The examination proved Doc's initial diagnosis to be correct. He then put some drops in Tom's eyes that immediately took away the pain he had begun feeling and another set of drops for the actual condition.

"Drop one, twice a day. No more. Drop two. Three times a day. And," he handed Tom a small vial of pills he had just taken from a cabinet, "these you take according to the schedule on the label. Basically one twice a day for five days, one once a day for five and one every other day for a total of five final pills."

Tom was about to thank him and head back to work, when the medico dropped the bomb.

"And, you will be going home right now to rest those orbs of yours in a dark room. Andie will cease her desk duties and drive you home. There you will suffer the ministrations of your lovely mother for no fewer than two full days. Arguments can be registered with a

very large man named Bruno who hangs out behind O'Malley's Irish Pub in Dublin. That's Ireland, not Ohio or Oregon, by the way."

As Tom gave him a rueful grin, Doc finished with, "If necessary I can contact the DMV and place a multi-day invalidation on your license, have Chief Slater come over and handcuff you to your bed, or ask Bashalli to sit with you every waking minute and keep you at home. Your choice."

"Is it that bad?" Tom asked.

"Not yet, but we caught it very early. Another day or so and you might be in danger of injuring the eye by rubbing at it or having one or more little blood vessels in there rupture. Good-bye, Tom."

He spent the two days of confinement making notes and doing research on his computer. Evidently Doc had called ahead because his mother came into the room promptly three hours after his arrival, unplugged his monitor and carried it from the room. Over her shoulder, she called back, "You get it back for another three hours after eight tonight, dear."

When he arrived back at work his eyes felt practically normal. He took out his notebook and read through what he had written during the previous days. Much of it made sense but some of it he circled and put question marks over.

All in all, he now believed that an airborne, but much higher altitude, platform would be needed. In some manner he would then deliver thermal energy enough to literally boil the swirling clouds apart.

That was the point where his thought processes failed him.

It was technically possible to build any sort of flying device. Swift Enterprises was well versed in vehicles flying with propellers, jet turbines, liquid and solid fuel rockets, repelatrons and more. Getting something up there wasn't the question. The question was: what did he put up there?

It was swiftly becoming a chicken and egg quandary for the young man. Tom didn't much like quandaries. They made him feel as if he was missing some salient and very basic fact, one that anybody else could see but was eluding him.

He decided to go back a few steps. The thing that had caught his fancy—the light show at the dance—still seemed to be the springboard. Picking up his notes he went over to the small sofa and laid back to read through the notes again. An hour later he set the stack of papers on the table and closed his eyes. They weren't

hurting, but they felt tired.

He opened them to see the face of Bud Barclay leaning over him.

“Hello in there,” Bud said in a slightly eerie voice. “What’s going on in Tomville?”

Tom sat up and stretched. He checked his watch as saw that he had been asleep for about two hours. “Not a lot, flyboy. I’m hammering my head against a wall but I can’t actually identify what the wall is. It’s annoying and frustrating.”

He filled Bud in on his ideas from the exploding balloon trick. Bud generally enjoyed listening to Tom when the inventor was in a mental corner. Often it had been Bud’s innocent questions that sparked Tom to see the solution. This time, both of them sensed that nothing Tom said was prompting Bud to ask anything.

“I’m sorry, skipper. My quarterback brain can store all sorts of patterns, plays and tricky moves, but this light and water and spinning eddies in the troposphere have me doing my own spinning. It’s getting me nowhere.”

After Bud left, Tom went to his desk and leaned his forehead into his hands.

It had his head spinning as well.

CHAPTER 14 /

CRIMINALS OF THE CARIBBEAN

TOM'S MONITOR flared bright white and came out of sleep mode the next day as he sat in the large office he shared with his father. On the screen was a flashing red circle with the words, "Telecast Request: Key West Center" blinking on and off. He set the papers he had been studying aside and pressed the Space bar on his keyboard. Instantly, the connection was made and Graham Kaye's face was smiling at him.

"Hey, skipper. I thought I'd try to redeem myself over the blunder with that Carlow guy the other week." He looked hopefully at Tom.

"There's nothing to redeem yourself from, Kaye. But, I'll take any good news you can throw my way."

"Okay. When you transferred me to Harlan Ames that morning he told me all about the troubles you've been having in South Florida, including your run-ins with that little white submarine. So, I've been keeping an ear open for anything about both Carlow and the sub. I think I hit pay dirt today."

The inventor leaned forward in anticipation. "Don't keep it to yourself. What have you got?"

Kaye, who was obviously sitting at his desk in Key West now leaned back and steepled his fingers together. He smiled and replied, "Early this morning, a Navy C2-A plane took off from the deck of the *USS George Washington* about two hundred miles southeast of Tobago on a run back to Florida with two injured crewmen. They flew over Grenada at about eighteen thousand feet. Guess what they saw?"

Tom could guess but preferred to let his telecaster have his moment.

"There's some desolate piece of scrub grass, rocks and a small airfield located about a half-dozen miles off the northern coast. It's called Ronde Island. On the North side of that little island they spotted what they first thought to be a large, beached white whale carcass inside a cove."

He told Tom how the plane had circled the island once to get a better look. It turned out to not be a whale, but the hull of a submarine.

“Here’s the thing,” Kaye continued. “As they passed over the airfield on that island something made all their instruments go haywire. Knocked both engines out. They were able to get one back up running before they hit the water and limped up to Homestead Air Force Base, but whatever it was that they flew through really knocked them for a loop.”

Tom instantly thought about the beam of radio waves that had almost spelled disaster for the *Sky Queen* and her cargo of the heat bomb. He told Kaye about the incident.

“That sounds pretty suspicious, skipper,” the man in Florida told him. “What can we do? Do you want me to notify the Navy and have them go in?”

Tom had a better idea. He explained his plan and then thanked his telecaster for his diligence, and signed off. He picked up his phone and made a few calls.

Two days later, Tom, Bud and Zimby Cox climbed into *The Ballard*, one of the newest and fastest of a new class of mini seacopters stationed at Fearing Island. Tom set a course that had them skimming the surface almost due east for a few hundred miles. He set down on the ocean surface, keyed in the proper sequences and *The Ballard* sank from view.

Fairly certain that they would not be detected at a depth of one thousand feet, he aimed the craft on a heading that would have them pass north of the Virgin Islands. An hour after passing them they came up to two hundred feet and turned due south, heading for Grenada. They arrived two miles off the coast of the small island Kaye had told Tom about late that evening.

In the morning, Tom and Bud donned hydrolung suits and left the seacopter by its main airlock, heading for the island.

Tom and Bud crawled up onto a small beach area and looked over at the white bulk of the small submarine lying on its side.

“What is it, Tom?” Bud asked.

“Not really sure, Bud, but my guess is it’s a modified Yugoslavian Y 36-class sub. Something like sixty-five feet long and just tall enough for people to stand up inside. If I remember, these can carry about a half dozen divers and a crew of two or three plus a couple torpedoes.”

“Like the ones they launched in Florida that almost took us out?”

“Yeah. The only thing is, I believe these are supposed to just have a single screw on the back, but I can see two. Someone went to great expense to jazz this one up. Otherwise, it wouldn’t be half as fast.”

"So, what do we do?"

Tom looked around. Seeing nobody, he motioned to Bud. "Let's go behind that small bunch of scrub grass and dig in. Come nightfall we'll get inside and see if we can put it out of operation. Permanently!"

They crawled up the small beach and over the top of the raised grassy area. As Tom hoped, there was a slight indent behind. They pulled off their diving gear and buried it a few yards away, then turned to making themselves invisible.

A half hour later they could hear footsteps and the sounds of several men talking. As they neared, it occurred to Tom that they forgot to wipe out their tracks in the soft sand. He only hoped the men weren't too observant and were more intent on the submarine.

Two minutes later his hopes were dashed as a pair of Asian men stood on the grass over them with guns pointing down. In a broken accent, one yelled out, "We… them men… got! Come!"

As Tom and Bud scrambled to their feet to take on the two men, it was soon all too obvious that two against seven, all seemingly armed, was not good odds. Raising his hands and nudging Bud to do the same, Tom said, "We surrender. We don't want to fight—"

Something exploded at the back of Tom's head and he pitched forward, to be joined by Bud a second later.

* * * * *

Tom's head snapped up and his eyes fluttered open. Although the room was dark he could make out three people standing in front of his chair. As his vision cleared a bit he could see that there were two rather disheveled Arab men and a young, beautiful Asian woman standing there. Both men looked bored. But, the woman was watching Tom as if she was a hungry animal and he was about to be her next meal.

"I am glad to see that you have not been incapacitated by the clumsy efforts of my… well, they are men, but they are not mine. You, however, *are* mine, Tom Swift."

Tom tried to speak but discovered that his throat was so dry that all he could manage was a slight raspy squeak.

Seeing his discomfort, she barked out something in what sounded like a Chinese or Mongolian dialect. One of the men shrugged and moved out of Tom's sight. He returned a moment later with a small paper cup full of warm water. The woman took it from the man's hand and held it to Tom's lips. "Drink slowly, Tom Swift. Wet your mouth and your lips, then I am certain you will have

many questions for me."

Tom nodded slightly as he continued to drink the water. Too soon the cup was empty. He sat back, swishing the last of it around his mouth. She nodded toward Bud and one of the Arab men brought a cup to the flyer.

"I will save you the trouble of asking the three obvious questions," she told him. "To start, my name is Shi-yi. Gow Shi-Yi, from my mother's Vietnamese family. But it is the name my father gave me that should interest you. Li Ching con Gái. Daughter of Li Ching!"

"Jetz! *The Black Cobra!*" Bud exclaimed jumping to his feet. He looked at his hands almost as if he had expected them to be tightly bound to his chair.

Seeing that Tom was less amazed, she turned to face him. "Perhaps you do not believe I am who I say. Is this a truth?"

Tom shrugged and also stood up. He too discovered that he was not tied to his chair. "Whether it is true or not, it may be of no consequence. As far as we know, the Black Cobra might be dead." He could see the woman's face reddened under her yellow complexion.

"He may be. Even I do not know. He has disappeared. If he lives, he makes no attempts to contact me. But," she looked at the floor, almost as if embarrassed, "I am not his full daughter. All my life I have been told of how I was an unhappy surprise to him and my mother, a wife of a minor dignitary he wooed and bedded. On my sixteenth birthday, he celebrated by declaring me to be free of parental control. It was on that day that my mother disappeared. I suspect that he had her eliminated."

"But, if that's true," Tom said, "then you owe no allegiance to the Black Cobra."

She raised a finger and beckoned Tom to come closer. "Not an allegiance, but I am certainly willing to use both his notoriety and his money to achieve what I wish most. What *is* that, you might ask?" She smiled a particularly evil smile at Tom.

"I could guess," he told her.

"Please. Do not bother your great scientific mind, Tom Swift. I shall relish telling you. What I seek most is the same notoriety my father had. A name that made the world quiver with fear!" Her eyes flashed wide and Tom could see the hint of madness that was behind them.

He sought to find the words to keep her on edge without pushing

her over it. She would be a potentially deadly foe if he went too far.

Li pulled a chain around her neck up from the tight blouse she was wearing. She slowly fingered the object that dangled on the end of the loop. A moment later she stopped and almost coyly looked up at Tom. “Would you like to see what I have?” she asked, favoring him with a smile she probably meant to be seductive but one that practically turned Tom’s stomach.

Without apparently seeing his look, she held the black onyx object out to him. It was a square with a tiny carved black cobra on top, coiled to strike! *The sign of The Black Cobra.*

Tom took a calming breath. “We have seen that before. If it is the original, then you must have received it from Li Ching, or at least have taken it from his corpse.”

Li nodded slowly, not taking her eyes from Tom’s as she replaced the chain around her neck.

“Very astute, Tom Swift—” She whipped her head around to Bud who was beginning to ease away. “Stop right there, Bud Barclay! Move back to stand next to your friend… where I may keep one eye on each of you.” She moved her head slightly, still watching the boys. “žiūrėti tiek iš jų” she said to the henchmen standing by the right wall. “I have told my men to watch you. If you try to attack me, you die. If they fail, they will suffer; they know this. They will not fail.”

“Will you tell me a few things?” Tom asked her.

“Perhaps. If it pleases me or if it gives you some discomfort. What knowledge is it that you seek?”

Tom wanted to cover everything over the past many months. “Were they your MIG jets that attacked us over the South Pole?”

She nodded but did not seem willing to elaborate.

“Those pilots killed themselves rather than be taken alive. And, of the few bodies that could be recovered, they were nearing death from various diseases and cancers.”

A slight upturn of one corner of Li’s mouth told Tom he was on track.

“The flight of more MIGs over Africa around that same time? The attack on General Abu Ramsay?”

This time, her face clouded with a scowl. “Those were mine but they failed me.”

“In what?” Bud asked.

"They merely flew over you and did not destroy your precious giant aircraft. That was their sole duty. They failed me and they are no longer among the living. Their last act was to tantalize you. To avenge the theft of that shiny tower of yours. You have me to thank for that attack."

Tom restrained an icy shudder as he realized how cold, calculating and insane the woman was. He asked about a few other incidents. She freely admitted to most.

"The submarine that followed us all over the Atlantic and then attacked us under the ice cap? Yours?"

"One of two submarines I used to have at my disposal. The first mysteriously sank a year ago when it was attempting to bring me a cache of nuclear torpedoes stolen right out from under the noses of a group of now-wealthy Russian guards. All those marvelous warheads, now somewhere hundreds of miles off the tip of India. Such a waste." She sighed.

"How many men?" Tom asked, unable to keep the anger out of his voice.

"How should I know?" she stated, scornfully. "All I know is that the Captain I sent to, uh, secure it was also to find enough people to at least get it to me at my base." She shrugged, again.

"Where is that?" Tom asked.

She shook her head and wagged a finger at him. He realized that she wasn't going to blurt out any information to him.

"Okay. You've lost two submarines. What about the little white sub that destroyed the dock at the NOAA base in Florida? Why that attack?"

She laughed a tittering, and lilting laugh. "Tristan's little sub. Oh, it's an amusement to be certain, but it is not of any importance. He came to me with the submarine, stolen I believe from some old master, and said we could—oh, how did he put it, now? We could terrorize the coast and get someone to pay us to stop. Well, *someone*..." she said narrowing her eyes and looking pointedly at Tom, "... poked a hole in it and almost sent it to the bottom of the Gulf of Mexico. He tried to repair it, but it eventually popped its cork and barely made it here. It's on the other side of this little island of mine unable to get going because of all the electrical damage someone's tiny torpedo did to it."

She smiled at Tom and he returned the smile. She quickly looked away.

"It is of no matter, as I say. My plans are much larger than his

small imagination could ever understand. I know that you are attempting to control the weather. Tom Swift, killer of tropical storms. Tom Swift, slayer of hurricanes. Isn't that what you intend?"

Tom did not respond.

"Very well. There are three very nasty storms coming this way. The first will sweep over the island tomorrow night. The next about twenty hours later and the third two days after that. When the first one *hits*, as your weather forecasters say, there will be just two people on the island. Can you guess who?"

Bud looked at Tom. They knew exactly whom she meant. A silent signal went between them and neither would speak to her or give her any satisfaction by showing panic or fright.

Besides, Tom knew he had an ace up his sleeve. Neither Li Ching's daughter or her henchmen had made a thorough search of Tom's clothing. And, while they had removed his radio pen, they had not taken his shoes.

As she stood watching them for some sign of a reaction, Tom overlapped the toes and pressed down. He felt more than heard the special switch in his right shoe depress. It would now broadcast an emergency beacon. He only hoped that someone would pick it up.

A familiar face poked around the corner of the door.

Tristan Carlow!

"Ah. Tom. Bud. So nice to see you here. Is our hostess treating you well?" When neither responded, he continued, "Has she told you why I am particularly angry with you? Your little underwater device put a very big hole in my sub and ruined a lot of the electrical systems. It was all I could manage to get away and come here. Those Yugoslavians made the hull from something I can't weld a patch onto. Why would you do such a thing to me?"

He let out a barking laugh and his face turned red.

Calmly, Tom told him, "You have tried on several occasions to kill me. Kill us," he tilted his head toward Bud. "You almost got us on the Florida coast and were coming in for us again out in the Gulf of Mexico. You and your sub got what you deserved."

"Why, you son of a—"

"Tristan! Stop now," Li demanded. "I told you to not go back in to destroy more of the sensor network but you decided to do it anyway. Be thankful you got away with your life. Now, leave us. Go play with your sub. We will leave tonight."

Carlow glowered at the boys but turned and left the room.

“So, you are going to leave us on this island at the mercy of the storms,” Tom stated. “Do we at least get to know where we are?”

“You swam here using one of your famous Tom Swift inventions, no doubt. You must already know where you are. This stalling gets you nowhere.”

“Actually,” Bud spoke up. “We don’t exactly know where we are. The Caribbean for certain, but we got caught in some sort of beam and all the instruments went out.” This was true but not the current story. He was counting on the weapon being fired automatically, or by someone who might not tell her each time it was used. “We could be anywhere in a three- or four-hundred mile radius.”

Seeing the look of consternation cross her face, Tom gave a quick nod of agreement. “Bud’s right. Whatever it was that hit us knocked everything out. We tried flying in a great circle to see if we could spot a navigation point, but eventually were forced to crash land. We only just got out with our diving gear.”

Li was smiling openly now. She bragged, “You were swept by my new weapon. It is also responsible for the little accident you seemed to have had with one of your heat bombs weeks ago. Totally undetectable and working in the range of… well, I won’t be telling you that information, but suffice it to say that once perfected, I will have the power to knock any aircraft out of the skies!” Her eyes again went wide with momentary insanity. She composed herself before continuing. “I will soon rule the skies.”

“Why try to kill us back then?”

“Is it not obvious?” Her eyes flashed something like anger, but they soon narrowed. “I want you to be dead because then I can use the weather for my own purposes. Before you inquire, I plan on waiting until just the right storm comes along and ruins the island of Cuba. Then, my men will move in quickly and take over. Then, I will have a base of operations right in your back door, only you won’t be home. You will be dead!”

She let out an almost maniacal laugh then quickly subdued herself.

“You find your lives about to end on the island of Ronde. We are just over three miles from Grenada. This patch of land is only five square miles and was a former possession of Great Britain before it seceded two years earlier and was taken control of by a Supreme General Kia Gam, a former high military official from North Korea ousted during an unsuccessful coup.”

“So, there are other people here? You’re leaving them all to die?” Tom was livid with anger.

“Oh, do calm yourself, Tom Swift. The General went on a cleansing spree and forced the fifty or so inhabitants to leave. Goats and all. They are on Grenada. He set up a small airstrip at the southern end of the island along with these few buildings and reigned over a garrison of thirty ex-Korean soldiers until his death six months ago. Officially it was termed natural causes, but I suspect the man who then contacted me and attempted to sell me this island may have had a hand in that. I came four months ago with many of my own men. The Koreans left in a great hurry.”

“Of natural causes?” Bud snorted.

“No. In several transport planes. The last I heard they are under arrest in Cuba.”

“And, you are just going to give all this up and leave?” Tom asked.

“There is little to, as you say, give up. Once the hurricane season ends I will be interested to see if anyone comes back to claim it. With my new weapon practically finished, I can’t afford to be tied to one location. That would make it too easy to attack me. No. I’ll continue doing what I have done for several years. Move. Strike. Move again. Lie low.”

Tom felt a slight vibration in his right foot. The signal beacon! It was picking up a return signal acknowledging that someone had heard it. Tom let out a silent sigh of relief. Li seemed to be ready to terminate the conversation.

“Before you go, can I ask why the attack on the NOAA base?”

She smiled sweetly at him and answered in a small voice. “We can’t have all those people trying to let people know when a bad storm is about to destroy them. Can we?”

With a motion and a single word order, Li left the room while her men grabbed Tom and Bud and shoved them back into their chairs. This time, their hands and feet were tied securely and they watched as heavy-duty brackets were screwed to the legs of the chairs and then to the floor.

Once they left and locked the door behind them, Tom tried rocking his chair; it did not move so he told Bud, “They really don’t want us going anywhere.”

“You think we’ll end up staying in this building when the storms hit?”

Tom nodded. “That’s their intention, flyboy.”

Small bits of light shown through various holes in the roof of the building. Now that Tom began examining it, he could see that the

roof and ceiling were the same thing, made of corrugated metal that would probably rip away at the first big gust.

As the day progressed, the room got hotter and the boys grew more hungry and thirsty. Tom wondered if dehydration and starvation was also an intent of their captors. As the sunlight was waning outside, they heard the lock being opened.

"Well, well, well. My buddies." It was Carlow. He had a determined look on his face as he leaned forward and into Tom's face. In a whisper he said, "Now listen to me. In spite of everything you might think, I am still loyal to the CIA. Thurston is circulating the stories about my escape and the murder of that other agent to keep my cover. I'm leaving the sub here for you. Li thinks it's a lost cause, but all you need to do is wait for high tide in about five hours, dig out a bit of sand behind her and she should slip back into the water. And float upright. The patched nose will hold down to about fifty feet."

"Why should we trust anything you tell us, Carlow?" Tom hissed. He watched as Carlow took a pocketknife out of his shirt, opened it and reached around behind Tom. A second later Tom felt the handle being pushed into his fingers.

"Take it. Keep the blade behind your fingers if they check you and then cut your way out when we fly out of here. You'll hear the airplanes. They're old Soviet Antonov A-32 military turboprops and really let you know they're in the air."

He patted Tom and then Bud on their heads and left the room. As he left the room, another man came in with two old soda bottles and straws. He shoved one bottle in front of Tom and swung the straw so he could grasp it.

"Drink… you!" he commanded. After a tentative sip, Tom decided to trust that it was just water. He drank.

Bud got the same treatment. Three minutes later, the man was gone and the door locked.

They waited ten full minutes before speaking.

"Do we trust him, skipper?" Bud asked.

"I don't," answered Tom. "At best, he's a double agent. At worst, he planted the knife on me in hopes we'll try to escape and then Li and her minions can kill us. I've already cut my hands free and can cut you loose, but we stay here in case they come back. Then, we try to get the drop on them."

Moments later they sat chaffing their wrists and ankles to get circulation back in them. As they did, both could hear the roar of turbine engines coming from somewhere on the opposite side of the

little island. First one and then the other of the two aircraft passed overhead just as the last of the sun disappeared.

CHAPTER 15 /

BLAST TEST IS A GO

FIVE MINUTES later, the door handle was rattled and twisted back and forth. Tom and Bud sat stock still.

"Skipper! You in there?" came the welcomed voice of Zimby Cox.

They jumped to their feet and went to the door. "You bet, Zim," Tom called out. "Have they really left?"

"Seems so," came the answer. "I waited until they passed overhead and then made for the highest point of land to look. Nothing. No lights. I guess they've left. Stand back."

They did so and soon the door gave a mighty shake and a thud and fell forward into the room. Beyond them, highlighted in a portable lantern's light, was Zimby with a small device in his hands that Tom recognized as a Swift SonoRam, one of the portable tools Enterprises had developed for the police. Using sub-sonic frequencies, it emitted a single, solid blow each time it was activated. The old door and hinges had withstood one shock before caving in.

"Did you two gentlemen call for a limo?" Zimby asked with a big grin.

"Did we ever, Zimby old man," Bud told him, giving their rescuer a bear hug.

"When did you make land, Zim?" Tom asked.

"Four hours ago, skipper. Other side of the island. I thought I was being clever trying to keep the island between your signal and me. Almost walked right up to ten or so of them. I ducked behind some packing cases and waited for them to leave the area, then I did a little mischief and made my way around here."

Tom's eyes narrowed. "What sort of mischief?"

They could see Zimby looking down at the floor and scraping his shoe around in a figure eight. "Well, I sort of undid the fuel drain plugs in the wings of one of their planes and replace it with chewing gum. About now they will be hitting the altitude where the gum will shatter and all their fuel will run out."

Bud grinned, but Tom looked shocked. "Zimby. What if they can't get to a landing strip? What if they crash?"

Now, Zimby looked horrified. “Oh, geez! Sorry. I was only thinking about them having to make an emergency landing somewhere they might get captured. I never considered that they might crash.”

Tom patted the man on the shoulder. “We don’t know where they are going or how high they will get. If they head west of here there are plenty of islands, like Cuba, where they could land. Perhaps nothing will happen.”

Zimby knew that both Tom and his father hated doing anything that might mean loss of life, but his zeal had gotten the better of him.

Tom turned serious. “Guys? This is something that never passes beyond this point. Unless there is some official inquiry, Zim’s tinkering never happened.” He looked at both of them until they nodded agreement.

“What now?” Bud asked.

“How far out did you leave the seacopter, Zim?”

“About a fifteen-minute swim. Want me to go get it?”

Tom nodded. “Come into the north end of the island.” While the last of the sunlight dwindled, he and Bud walked down to the beach to investigate the small submarine, Zimby trotted over the crest of the island and donned his hydrolung gear. Minutes later he was zooming out to sea and the waiting seacopter.

Thirty minutes later he surfaced just a few dozen yards off the beach near the submarine. Tom and Bud signaled him with the lantern he had left with them. He raised and activated the large searchlight on front of the hull.

Setting the controls to maintain position, he climbed up the ladder and jumped in over the side. He was quickly at Tom’s side where the inventor was finishing brushing off the sand from his own suit.

“What’s the story, Tom?”

Tom told him about Carlow and the on-and-off nature of his relationship with the CIA and with Tom and Bud. As he spoke, Cox kept slowly shaking his head. When Tom had finished the story about the knife and promised of using the sub to escape, he finally said, “I don’t trust him. Or it. I say we tow this hulk out to deep water and scuttle it right now!”

Bud agreed.

So did Tom.

Zimby swam back out and brought a tow cable to shore. With Bud's assistance, Tom was able to get it attached around the small conning tower and periscope. A few moments later they were back onboard the *Ballard* and were slowly pulling the sub off of the sand.

Tom was slightly surprised to see that Tristan Carlow had been right. Once back in the water the sub righted itself and floated high in the water.

At a speed that seemed excruciatingly slow, the *Ballard* and her tow made course directly to the east. By the following morning they reached a point where the water was more than four thousand feet deep. Plenty, Tom believed, for a proper burial at sea for the submarine.

With Zimby at the seacopter controls, they pulled along side. Tom carefully opened the white sub's hatch, almost expecting it to be booby-trapped. It proved to be safe, so they sipped inside and turned on their powerful flashlights.

The interior equipment had been all smashed and disabled. Nothing was left unharmed. Whether this was done long ago or just to sabotage the sub before Li and her people left the island would probably never be known. The hole in the nose was blocked with what looked like white packing tape, nothing more. *So much for 'Good to fifty feet,'* Tom thought.

Bud called out. "Found the scuttling valves, skipper!"

Tom moved over to an array of three valves. Though unmarked, the open grating at the inner side of each valve told Tom that once open, seawater would pour into the interior, probably flooding it within minutes.

"What about the diesel in her tanks, Tom? And the batteries?"

Tom shook his head. "The tanks have been left open and will be dry by now and the batteries are all missing. That's probably why she is riding so high in the water."

"Good. For safety, skipper, you head up the ladder and wait for me at the hatch. I'll open these and get over there, but I may need your help getting out if this thing floods too fast."

Tom was about to argue when he saw the look of determination in his friend's face. Placing a hand on Bud's shoulder, Tom nodded and turned around. By the time he reached the ladder and aimed his flashlight back toward the valves Bud was starting to turn the first one. Water began gushing from a point behind an equipment rack

right under the hatch.

Both young men made it up and out of the hatch before the sub began settling lower in the water. They were back onboard the seacopter and in the control room when the white sub began listing to one side. As the open hatch tipped into the water, they could all see the escaping air and water vapor rushing out.

Two minutes later, the white submarine was gone.

Without a word, Tom took the controls, raised the seacopter off the water and headed back to Fearing Island at top speed.

Moments later the radio squawked to life. “Enterprise to Tom. Come in.”

Picking up the microphone, Tom answered. “Tom here. Go ahead.”

“Hang on…” There was a pause and then Tom’s father came on the line. “Son? I wanted to tell you about something. I’m not certain how far along you are in checking out that little island, but International Air Control out of both Florida and Honduras have been reporting about a pair of unauthorized, military-looking aircraft that seem to have come from the vicinity of Granada and were heading due west when one of them just dropped from the sky!”

Tom looked at both his friends and shook his head. “How do they know that?” he asked.

“Both Honduras and Nicaragua scrambled jets to intercept them and had just arrived on site when one of them nose-dived and went straight down through some clouds and into the sea. The other one evidently tried to avoid them, but gave in when one of the fighters fired a few rounds across their nose.”

Tom told his father about Li Ching’s illegitimate daughter and her insanity. He mentioned their brief capture and fairly easy escape with Zimby’s help and how they scuttled the submarine.

“You might want to notify John Thurston at the CIA, Dad. His erstwhile agent, Tristan Carlow was last seen with the woman who Bud wants to start calling The Black Widow. One, both or neither of them might have been in the aircraft that crashed. The State Department might want to notify whichever country the other one landed in to take everyone prisoner.”

The older inventor agreed to make the necessary contacts. Before signing off, Tom added, “Dad? We now have information that tells me our Black Widow was completely responsible for the explosion

of my heat device, and she most likely was the one who contacted all the different island governments to stir up suspicion. Perhaps if she is captured, or dead, we can get on with our next test?"

"I'll see what I can do about that, Son. See you at home tonight."

"Thanks for covering for me, skipper," Zimby told him as Tom cut the radio connection.

"Actually, there's nothing to cover, Zim. Who knows which of the planes actually crashed? Or, for that matter, why?"

By the time they reached Shopton, it was nearing dinner time. Zimby headed off for a date while Tom and Bud went to have dinner at the Swift home. The conversation was kept light with only a few hints about things like the sub scuttling and finding out that Li Ching's daughter was behind many of Tom's woes lately.

"Does that include the helicopter attack by that renegade Navy man?" Anne Swift asked. She referred to a man who had insinuated himself into a rescue operation of a sunken Navy submarine, and then proved to be determined to ruin the rescue. He had disappeared only to surface weeks later in an air attack on Tom, Bud and the girls as they drove home from dinner one evening.

"Li all but admitted that she had provided the helo and the special black paint. She seemed pretty angry over what she called his 'bungling, American laziness,' and other things."

"Good thing he was a bungler," Sandy declared, "otherwise he might have done more than just ruin your car, Tom." She looked at Bud. "He might have scratched the paint on this fine late model Barclay."

The phone rang. Mr. Swift excused himself. "I'm expecting a call. Sorry to break house rules."

When he came back three minutes later, he was all smiles.

"That was Undersecretary Miles from the State Department. She had some good news, Tom."

Tom looked expectantly at his father.

"She tells me that State has contacted all the local governing bodies of the Caribbean island groups regarding your run in and the Navy's problems with Miss Li. Most are in agreement that an Asian-sounding woman was the one who contacted them with the, uh, 'news' about the nuclear nature of your heat devices."

"What do they believe now?" Tom asked.

"Well, with the exception of the Netherlands Antilles, all have

tentatively agreed to not protest one or two future tests. At most they seem to be asking for is the chance to have representatives check the devices before they are deployed. Puerto Rico wants to have someone on the *Sky Queen* when she goes out, but other than that, it appears that you are clear for testing."

"How can you allow all those people to check Tom's heat thing?" Sandy asked. "I mean, they can't all come in one big group to Enterprises. Can they?"

Damon Swift chuckled. "Actually, I told the Undersecretary that we would allow a single contingent to come to the airport in Naples, Florida for a two-hour examination. Unless you have some other idea, I suggested a week from today. She feels that any of them who are in earnest will be there; the others want to make a bit of a noise, but will back down."

"That's great!"

Tom began making preparations the very next day. He gathered everyone that had been in on the creation of the first heat bombs and filled them in on the situation.

"This is Wednesday. We need to have the completed and fully checked bomb ready by late Monday. Bud and I will fly it down to Florida on Tuesday and set up for our… guests? They have been told to be at the airport no later than ten a.m. Wednesday. According to the NOAA folks, there is going to be a tropical storm that'll be building up to hurricane strength sometime late Wednesday morning."

"Is that the target?" inquired Alan from Volatile Materials.

Tom nodded. We will be taking up a modified version of the device. It will be about twenty percent larger—with corresponding increases in the materials your team needs to assemble—and we'll be dropping it a little closer to the eye of the storm. I don't believe we'll knock the storm apart with a single device, but I'm looking forward to a much higher impact than our first test gave us."

A flurry of activity followed over the rest of the week and through the weekend. By late Sunday afternoon, the new heat bomb was assembled and everything except the actual ignition had been tested and re-tested.

For his part, Tom made certain that no outside interference would set things off before he wanted them to. But, as a special precaution he arranged for the *Sky Queen's* hangar to be outfitted with special Durastress panels to provide an even greater degree of protection in case of an accident.

By Monday evening word came through the State Department that about seventeen scientists and officials representing eleven island countries would be in Naples for the examination.

Sandy and Bashalli had been pestering their boyfriends to be allowed to come along. Tom was hesitant. “What if we have another attack on us?” he had asked the girls. “The last thing Bud or I want is for you two to be in harm’s way. Can you understand that?” He looked hopefully at them.

Both girls shook their heads. “No, Tomonomo,” Sandy told him. “Ready for this, or not, but Bashi and I love you two and would rather be with you if there is an accident than to try to live without you.” A tear ran down her face and she reached out her right hand and clasped Bashalli’s left hand. She could feel her friend shaking and squeezed harder.

Tom and Bud took the girls in their arms and gave them hugs. Finally, Tom stepped back and said, “If you can get mom and dad to agree, and get Bash’s folks to go along with it, then I can’t refuse you. Just remember that we take off at noon tomorrow. With,” he looked meaningfully at them, “or without you.”

Come time for takeoff, both girls had already been onboard and firmly settled in the lounge of the giant aircraft for more than two hours. Sandy, who had been trying to teach herself to knit, was struggling with a tangled ball of yarn while Bashalli leafed through a magazine.

Red Jones and Hank Sterling were also onboard to act as pilots for the run.

When they arrived in Florida, they were met at the airport by Captain Fry from NOAA. “Greeting, Tom. Bud. And, the two lovely ladies. Welcome. I came up to see if I might be allowed to accompany you on this test?”

Tom told the man he would be most welcome.

“Wonderful. Then, I will leave you to your preparations and shall return tomorrow for both the walkthrough with your guests and for the take-off.” With a wave, he departed before Tom could invite him to dine with them that evening.

A new set of checks were made of the device and launching system and then rechecked before the clocks hit nine a.m. on Wednesday. When Tom slipped out of the Flying Lab and onto the tarmac shortly after that, he could see eleven waiting ‘corporate’ jets that he assumed held most or all of the people who came to check out the device.

A single small car drove over and the driver leaned out of the window. “Are you Mr. Swift?” When Tom nodded, the man continued. “I’m Lawrence Murphy from the airport management. I’ve got something like twenty people over there…” he jerked his head toward the waiting line of small jets, “itching to come over here. When can I let them loose?”

Tom became concerned. “How many are there?” he asked.

“Uh, I’m pretty sure there’s nineteen or twenty. Why?”

Tom told him they were only expecting seventeen. “Have you got a good security team?” he inquired.

Giving Tom a grim look, Murphy replied, “I wish! I can call up Naples finest at a moment’s notice or drag one of our four TSA people out here, but those jets all provided diplomatic immunity papers. What do you want me to do?”

Tom asked the man to get a team of two or three senior police officers, preferably plain clothed ones, as soon as possible. “I’ll brief them and then we’ll check everyone’s credentials. I guess you can stop over there and let folks know that we are still waiting for State Department okay to allow them onboard. Tell them it should be about thirty minutes. Thanks!”

An unmarked police car arrived eight minutes later. A police Lieutenant and two Detectives climbed out. After showing Tom their identifications, the Lieutenant asked what was going on.

Tom filled them in on the possibility of one or more unexpected extra participants. Before they arrived he had made a quick radio call to his father who promised to get to the Undersecretary immediately and call back with any information she might be able to provide.

The call came through a few minutes after the police arrived.

“She tells me that nineteen were eventually okayed. I’ve sent through the final list complete with photos. It should be on your computer now.”

Tom downloaded and printed the file and gave copies to the three officers. He then waived at the waiting jets and made a “Come over” motion with his arm.

As the dignitaries and scientists arrived, the local officers scanned the group. Tom made a silent head count. There were twenty people there.

Tom muttered to himself, *One of them is probably a spy!*

CHAPTER 16 /

OLD TECHNOLOGY—NEW TRICK

THE LIEUTENANT nudged Tom almost imperceptibly. Tom followed the man's gaze toward a single man standing apart from the main group. He was looking around and immediately turned away when he saw Tom and the officer looking his direction.

"I'll go see what your uninvited guest wants," the Lieutenant told Tom and began moving in a wide, sweeping path so as to get around and behind the man. One of the detectives came over and Tom told him what his superior was doing.

In moments the three officers had taken positions about fifty feet away from the potential intruder and were starting to slowly and almost lazily close in. Tom caught the Lieutenant's nod and turned to face the crowd.

"If I can have all of your attention," he called out. A few seconds later the voices had all faded out and everyone, including the suspect, had turned to face Tom. "I am Tom Swift and I want to thank all of you for your time, and your patience, especially this morning. In a few minutes we will be taking all of you onboard the jet behind me. She is called the *Sky Queen* and is the jet we will be dropping our storm-defeating device from in a few hours."

As he told them about the basic technology, the officers closed in on the suspect. Bud, who was standing slightly to one side and behind Tom saw that the suspect was tensing up and seemed about to bolt, so he stepped forward and called out, "I'm the pilot!" This unexpected pronouncement caused confusion, but did the trick. The suspect paused a split second, unsure of what to do. It gave the officers enough time to grab onto his arms.

Everyone there heard the scuffle as the man was handcuffed.

"What is going on!" demanded a Caribbean man who wore a jacket with the flag of Martinique on the pocket.

"We were provided with nineteen identity papers and photographs. The man with the police officers is neither on that list nor does his face match any of the photos provided." Tom explained about previous attacks and attempts to ruin the plans to control storms. As he told them more, the crowd changed from a group experiencing disbelief at the perceived attack on one of their own into an unsympathetic group almost ready to attack the interloper.

"He has no ID," the Lieutenant called over. "We'll take him with us after we help do the necessary State Department checks. If you could all please form a line, we'll get you okayed in less than five minutes."

The group shuffled into some semblance of a line, and the Lieutenant and one of the detectives checked them over. As they passed through, Tom escorted them into the shade of the left wing of the *Sky Queen*. Once assembled, they entered the aircraft and headed aft to the hangar deck.

Less than an hour later, they all left, satisfied that the device inside the *Queen* was nothing more than what Tom said it was.

As they were departing, a statuesque woman with exceptionally smooth, mahogany-colored skin and the lightest blue eyes Tom could remember seeing stepped over to speak with him.

"Hello, Thomas Swift," she said, offering her hand. "Do you remember me?"

"I absolutely recognize you, ma'am. You are Dr. Angelique DaRocha. How are you, doctor?" He shook her outstretched hand.

"I am very fine, Mr. Swift. I do not know if you will remember the occasion, it must have been seven or eight years ago, but I had the pleasure of visiting your father at the large construction facility you had in New York. We met briefly."

"I do remember that. I understand that you are to be our official observer for the flight later today."

She nodded her agreement.

"Did you recognize that man the police took away?"

"No. His face is unknown to me. I can tell you that from his bone structure I believe that he is not from any of the Caribbean islands. At least, not anyone with a family history here. He strikes me more as African and possibly from the east. I overheard him speak on a phone while we waited for you to be ready to receive us. His language was not one of those I know of. Not Caribbean in any case."

They were interrupted by the late arrival of Captain Fry. "Sorry, sorry, sorry," he told Tom. "Forgot we were running a test of your perimeter system today. Had to stay until everything was finished. Absolutely wonderful results, by the way. Oh, hello," he said as if just now seeing the doctor.

As he introduced himself and began making small talk, Tom excused himself and went inside to make a call to Harlan Ames.

After filling the Security man in on what had occurred, he suggested that a call to the local police might be prudent. “You may want to notify the CIA and have dad talk to his contact at the State Department.”

They received word that the tropical storm had faltered and that it was anticipated to build again that night. The flight and drop was rescheduled for the following day so Captain Fry offered to take Dr. DaRocha on a tour of the NOAA facility.

That evening, the doctor joined Tom and his crew for dinner. It was a fun and lively evening that ended just shy of midnight. The doctor returned to her jet for the night and Tom and crew settled in inside the *Sky Queen*. Captain Fry dozed in the lounge.

When they took off the next morning, it was with the news that the tropical storm was, indeed, building strength and would be a Force 1 hurricane within six hours. Tom hoped to drop the heat bomb in just three.

Arriving on-site and at a safe altitude of sixty thousand feet, Tom invited the doctor to the small cabin behind the main cockpit where his SuperSight video system would provide the very best view of the action. Bud agreed to remain with her to operate the equipment while Tom went to the hangar and suited up.

After making a final round of checks, opening the outer door, and even pulling out a portable detector that would register any outside radio interference—it showed nothing—he began the countdown over the intercom system.

“I’ll release the device in ten… nine… eight…” and he continued to, “three… two… right… NOW! She’s away. Drogue chute is out and everything looks stable. Bud? Can you put the laser distance beam on it and give me the altitude starting about thirty thousand and then every five thousand, please?”

“Roger, skipper. Still above fifty.”

“I’m heading up now,” Tom said as he closed the hangar door and re-pressurized the room.

Before he could open the inner door Bud called out, “At thirty-thousand feet.”

He reached the SuperSight room as Bud was telling everyone, “Twenty-five thousand. Five thousand to detonation. Estimated forty seconds.”

Bud saw Tom and made to get up, but the inventor motioned him to stay seated.

"Ten seconds"

"Will we see anything?" the doctor asked, not taking her eyes off of the large high-definition monitor that Bud had focused to give a close enough look so they could all see the falling heat bomb.

"Bud will pull out a little now, but yes. We will see the bright flash and then should see parts of the storm get shoved—"

The screen displayed the brilliant flash of the bomb as it detonated, right on time. Doctor DaRocha's face opened in a huge smile as the storm began to push out in all directions from the point of detonation just seconds later.

"Look at that," she said in a hushed voice. "The entire part of the storm down there is just shoving aside and breaking up. Amazing!"

It *was* an amazing test, but as Tom knew the storm would reform within the next quarter hour, but at a lower intensity.

They remained on station until this happened and then made some measurements.

"We'll have to wait for the NOAA folks to verify it, skipper, but it looks as if it has gone back to a medium-strength tropical storm. It should break up as it goes over land." Bud told them.

"Most impressive. Most impressive, indeed, Tom," the doctor complimented him. "I will be reporting that continued testing should be approved. I wish you all the possible luck. People's lives depend on your success."

Later that afternoon Tom dropped her off back at the Naples airport. The control tower asked him to hold on the tarmac while the police Lieutenant came to give him information.

It turned on that the report was about the intruder. "He is a scientist from Uganda who snuck into Montserrat the other day and bribed their pilot to let him hitch a ride. He won't say anything else, so we're turning him over to the FBI tonight. We've notified the Montserrat constabulary to detain the pilot."

Five days later they had heard nothing else about the man or the pilot, but Tom had not been idle. He spent the time pulling up file after file from the archives, trying to find some sort of inspiration. He knew, and had had several discussions with his father about it, that dropping bombs into hurricanes was not the ultimate way to go. He was looking for a higher-level solution.

And, he found it.

When Bud dropped by the underground hangar to see if Tom

wanted to go to lunch, Tom motioned to a stool by the workbench. "Take a seat."

As Bud settled onto the stool, he looked eagerly at Tom. "What's up?"

"Glad you started out mentioning that, flyboy. The truth is, I think our next test needs to *be* up. Way up." Seeing that Bud expected more, he continued. "Remember when we flew the space kite?"

Bud's eyes showed that he did. Tom had discovered an almost molecule-thin film that reacted with infinitesimally small particles of energy called subtrinos. As these particles—a type of cosmic ray—passed through the membrane they interacted with tightly compacted neutrinos and changed their energy state. Hitting a second plate coated with one of Tom's other discoveries, Intertite, gave them great momentum that exerted pressure against the framework of the small spaceship and gave it enough of a push to soar skyward into space.

Working in conjunction with yet another of Tom's inventions, his Gravitex which acted like a combination tail and anchor, Tom's space kite was able to soar using no other power than that needed by the instruments and the air circulation system.

What he and Bud most remembered was the near-death experience they suffered when the kite went out of control.

"Listen, skipper," Bud said looking serious. "As much fun as it was to soar up with no excessive G-forces and to float around like a kite, I seem to recall that once you got the bugs hammered out, and after we rescued the *Sea Charger*, that you quietly retired the thing. I saw it hanging from the ceiling over in the old storage building a couple months ago."

Tom grinned. "Well, the good news is that I believe I have a new use for the technology now. The better news is that it won't require you or me or anyone soaring up there." He pointed to the ceiling.

"Uhhh, what then?"

"See if you follow my logic. We need a way to deliver tremendous amounts of heat energy into multiple locations of these storms. All at about the same time." Bud nodded. "Fine. It is technically possible to do this with a series of Swift cargo jets all hovering around and high above any given storm lobbing the weather bombs down, but that would be a logistical nightmare and far too expensive."

Again, Bud nodded. “Sure. With as many storms per season as they get in the Caribbean, it could never be something Enterprises could afford to do. So?”

“So, We need an almost permanent way to put something up there, high enough to provide the heat energy but not something in any kind of orbit. We’d never get the right combination of orbital placement, specific time and storm location to align.”

“I’m glad you kept me from asking a stupid question. Thanks, professor. Where does that leave us… you? Some giant balloon filled with your heat bombs? A repelatron platform?”

“Nope. Remember the space kite. That’s important. In fact, I’m going to have to come up with some other method of delivering the heat energy besides the bombs, but the delivery vehicle is what I’m talking about now. I’m going to repurpose the Gravitex and all the other parts of the propulsion system from the space kite. I have to come up with something that uses very little energy over an extended period of time. Months, perhaps. Repelatrons are too power hungry and a balloon can’t lift everything we need.”

It dawned on Bud what Tom meant. “Ah. And since the space kite creates its own lift from the cosmic rays that are all around us anyway, whatever you put up there should be able to just stay up. Right?”

Tom nodded, happy that Bud had put it all together. “And, since the lift and the anchoring can be controlled, we could move the storm killer right over wherever it’s needed.”

Bud’s face looked slightly confused. He stopped smiling. “Alright. You’ve got this Death-To-Storms thing up there. What does it do?”

Now it was Tom’s turn to stop smiling. “In all honesty, flyboy, I have no idea. I’ve only gotten as far as figuring out that I can build the platform. Sure, we know that the enormous heat our bombs create is enough to give a storm a good kick in the stomach, but I’m kinda stumped about what will give it the old one-two punch from up there.” He shrugged.

They talked about it for another hour before Tom reminded Bud that he had a date with Bashalli that evening.

“I’ve got to go shower, shave and get into a suit. Bash made me promise to take her out to Maison des Ouistitis, a French restaurant that has recently changed ownership.” His junior high school French teacher and her husband had just reopened after the old owners retired, and had put their life savings into it.

Tom was warmly received by Mrs. Pettit, his former teacher. She remembered how quickly Tom had picked up on the language basics, but also recalled how far off his mind was most days.

"Oh, Tom. It is so nice to see you again. My, my, my. You have made such a name for yourself. I am proud to have been part of your more pedestrian education." She looked at him with obvious fondness and pride. "Oh! My manners," she exclaimed turning to face Bashalli.

"This is my girlfriend, Bashalli Prandit, Mrs. Pettit."

"It is so nice to meet you. Have you been together very long?"

"Well, Thomas and I met just a few weeks after his eighteenth birthday and I am quite happy to say we have been together since then, even if he did not realize if for several months." She smiled at their hostess who returned it along with a knowing wink.

"Just you hold onto his hand and keep him grounded, dear." She escorted them to one of the best tables in the restaurant, overlooking all the other diners. "The owner's table," she explained. "Reserved for only our most favored guests."

After Tom and Bashalli had ordered their meals, she asked Tom, "What is it that you and Bud are working on? More of your cloud destroying bombs?"

Tom explained his latest angle on the storm management. She also remembered the episode when Tom and Bud almost lost their lives when the Gravitex in the space kite lost its hold on the Earth and the kite sailed out and away. She let out a shudder at the memory.

"But, you will not be going up there?"

"No. Feet firmly on the ground or maybe up in the *Sky Queen*, but not up with the new… well, I haven't even given any thought to what to call the thing. That'll have to wait until I can figure out how it will all work."

Bashalli promised to help him think of a good name once the time came.

"The one thing I do not quite understand is how it will remain tied to the ground. I do understand that it will not be by a physical cable, but how will this pulling force work?"

Tom refreshed her memory about the Gravitex, but she still had a question. "No. I *do* recall all of that, but didn't you once tell me that this Gravitex device relies on solar rays? And, do those not only radiate around us when the sun is shining on us?"

Tom began to nod and then it hit him. “My god. You’re right, Bash. But it isn’t the Gravitex I have to worry about. I can overcome that. It’s the propulsive forces that keep the thing up. As soon as we go into nighttime, the thing would fall out of the sky.”

He looked miserable until Bashalli took his hand and asked, “Is it possible to generate these tiny cosmic particles? Would it require more power than one of your marvelous Solar Batteries can deliver? And, could you not use that battery at night and then recharge it in the sunlight the following day?”

Tom brightened. He pulled her closer and gave her a kiss. “You’re so absolutely right, Bash! That’s the perfect solution. We already have the equipment in my large lab. I can generate enough of the subtrinos for a few hours at a time to keep the platform flying. It will be up above clouds so it will always have good sun exposure by day, and that high up it will actually have a shorter night than down here on the ground. Perfect!”

He was so happy that he barely tasted their appetizer that Bashalli declared to be “amazing!”

By the time dessert arrived, a flaming crepe stuffed with local blackberries and sweetened whipped cream, she had managed to get his full attention.

And, by the time he returned her to her parent’s home at midnight, he had all but forgotten the storm project.

However, the following morning he went in to work, even though it was Saturday, and spent many hours making notes, sketches and running calculation after calculation. By the time he left in the late afternoon he was satisfied that he was on the verge of being able to design and build the platform for his system.

He and Bud spent Sunday sailing on Lake Carlopa with the girls and returned home after his parents has retired for the night, so it wasn’t until Monday that Tom had the chance to speak with his father about his plans.

“That’s a wonderful approach, Son. I would only ask about one thing. Your Gravitex is a pretty narrowly focused beam of energy. Will there be any troubles if an aircraft happens to fly right through it?”

“Only if it suddenly stops and stays right in the way. Besides, for backup purposes and more stability and steerability I believe I want to use three beams pointed at various land masses.”

Mr. Swift was about to comment when the intercom buzzed.

"It's a woman senator, Mr. Swift," Munford Trent told him. "Senator Murphy. She sounds a little, well, on edge if I might be so bold. Are you in?"

Damon looked at Tom. He still stung recalling the treatment she had given him in Washington D.C. a couple months earlier when he would not acquiesce to her demands to back her non-nuclear energy plans.

Giving a sigh, he said, "No. I'm in, Trent. Give me fifteen seconds to count to ten a couple times and them put her through. Thank you."

"I wonder what she can want," Tom asked.

"I've absolutely no idea, Son. We'll find out together."

The phone buzzed and a light came on. Pressing the button that opened the connection to the speakerphone, Damon said, "Hello, Senator. What might we do for you today?"

"*Mister* Swift. I have a small bone to pick with you and also some information you will not like. First, I do not appreciate the manhandling, in a business sense, that you and your brat son gave my brother in the NOAA base deal in Florida. I don't know what you think you were doing, but he has been forced to file for bankruptcy because of losing that contract to you."

"Madam Senator," Damon said holding up a hand to keep Tom from saying anything. "I have no idea what you are talking about. Are you trying to tell me that Murphy of Murphy and Willets is a relative of yours?"

"You ought to know that already. You took some sort of revenge on me through him!"

"*Senator*. We did no such thing. I'm not certain what your brother has told you, but we were called in by the federal Government but only *after* he and his company backed out of their commitment to that project. Not before. We did not seek that contract, but we came in and completed it so that millions of Government tax dollars would not have been wasted. Some of the contract money was paid to us, of course as we performed the work Murphy and Willets could not."

There was a pause at the other end. When she spoke again, it was with less anger and more of a self-satisfied tone. "Be that as it may, I am calling you to inform you that all funding for your current weather project has officially been cut off. Let's see how you like it when *your* livelihood is *pulled out from under you!"*

CHAPTER 17 /

UP IN THE AIR

DAMON LOOKED at Tom as the connection was cut and broke out laughing. Tom looked shocked and was on the verge of asking what was going on when Damon pulled out a handkerchief and wiped his eyes.

"Oh, that woman. She's just opened her own coffin, climbed in and is in the process of nailing the lid shut from the inside!"

He explained to his still shocked son that he had spoken weeks earlier with a group of senators and congressmen and congresswomen about Senator Murphy. She had been rattling many, many doors asking, demanding and begging for support to, as one of the group told him, "Put the screws to that smug Swift!"

"Not a single one of them like her or want to sign up on her programs. That includes her anti-nuclear vendetta. I must tell you that I did already know about her and her brother. It appears that the reason she is so vehement about nuclear energy is that her brother was once disqualified for life from having anything to do with any nuclear plant construction."

"Why?"

"Gross safety neglect charges were proved on a coal-fired power station project about six years ago. He not only cut corners in materials, bidding ones that met the specs and then installing sub-quality and cheaper-to-him parts—many that quickly failed—but he also was so lax in the safety of his crews that he lost three men in an accident on site. Because he was in the running for two nuclear plants, the NRC decided that his attitudes and lack of attention would be potentially catastrophic. Hence, the 'for life' ban."

While Tom mulled this over, Damon asked Trent to connect him with Senator Quintana from New Mexico. When the man came on the line, Damon explained what had just happened. There were several sharp intakes of breath on the line before the story was completed.

"Any chance that you recorded that, Damon?"

"We record every incoming call, Pete. Plus a few outgoing ones; not this one however. I'll have the file emailed to you in the next ten minutes."

"And, I'll keep you advised."

The call ended a minute later, just as Tom came to the full realization of what had gone on and why his father had not been shocked or even very angry.

He was about to ask for a fuller explanation when his computer beeped. Whipping around at the unusual sound, Tom stalked over to his desk just in time to see the first of a series of words appear.

Well. Well. Well. Hello there, computer kid. Taxman at this end. We have some news that even your Harlan won't be able to access. Interested?

It had been months since the mysterious entity known as "Taxman" had taken over Tom's computer and sent him a message. Whoever he/they were, they had access to some very important and usually very top secret information. This information had been vital to Tom on several occasions in the past. He typed back:

You bet! Nice to see you back. What's up?

Any onlookers?

Tom answered:

My father. He's across the room.

He's fine. Have news for you.

2 jets left a small island one day not long ago. 1 landed in Honduras, the other in the water. You may remember.

What H. government won't let out is that downed jet crashed but stayed intact long enough to put out 3 life boats. Supposed to be all crew.

17 very bad men en cárcel. Muy

bueno news. For your interest, group included one Tristan Carlow. Also many Asians of several former nationalities. All wanted. All heading for their own governments' pleasure. TC is back in CIA hands.

Did those include a woman? She claims to be the daughter of Li Ching.

Sorry to disappoint. All male cast in this show. Might be in other jet. No news coming no matter how many of your tax bucks have been handed out. We'll see.

Tom tried to think of something else to ask. When it came to him, he typed:

Is Carlow a good CIA man, a double agent, or some sort of turncoat?

Un-nice! Traitor. Bad! Bad man.

No cookie for him!

Tom chuckled, which got his father's attention. "Something good?"

Tom gave him a brief explanation as he typed:

Thank you. When do you think you might know more?

He waited for three minutes before deciding that Taxman, whoever he or they were, was finished communicating.

"I'm certain your Taxman won't mind you sharing the information with Harlan. I know for a fact that he has been on the phone with all sorts of departments in D.C. and even to the police in Honduras and Nicaragua."

Tom called the Security chief and filled him in.

"It would really make my job a lot easier if this Taxman would just keep me in the loop," Ames commented.

After lunch Tom went back to his office and lab in the underground hangar. Knowing that function, rather than form, should come first, and knowing that he really didn't have a clue of what he was going to be sending up to disrupt storms, he was at a loss for where to begin.

After turning his monitor on, he started calling up pictures and specifications on the systems he knew would most probably be part of the construction. That started with the power to generate the heat that would be necessary to do the job. And that, he thought, was going to mean lots of uninterruptible electrical power.

And so, the first thing he moved into tentative position was one of the Swift Power Pods. These marvels could provide a steady stream of high-voltage power for more that three years at a time. Encased in an all-but-indestructible case was a core of nuclear material that, as it decayed, put out incredible amounts of neutrinos. These were used to excite plates of several rare-Earth elements that were surrounded by a special gel material that turned the non-radioactive nuclear energy into electricity.

Of course, he muttered to himself, *that is just the start. All that electricity will have to be amplified and stored before I can use it.*

He knew that this meant that a bank of super capacitors, capable of instantly absorbing high amounts of power and letting it build up until it could be released in microseconds, would be the next components. After doing a few calculations he felt certain that it would be necessary to have at least twenty-four of the paint-can-sized one-thousand Farad units would be able to store and shoot out a pulse of power strong enough to knock out any power station on Earth, if mis-aimed.

But his intent was to concentrate this energy somehow and turn in into almost pure heat.

Small, lightweight but powerful transformers came next to be followed by much of the circuitry that would go into building up, enhancing, modulating and finally releasing this incredible level of energy into... into... He still was unsure what this would all go into and come out of.

Tom tallied up the weight of his current set of components. Twenty seven hundred pounds. He was reasonably sure that this figure would at least double and probably triple. At the very least,

this gave him a starting point for the vessel all of this circuitry and power would need.

After checking a few measurements, Tom called up his CAD program and set a twenty by twenty-foot scaled grid near the bottom of the screen. Turning on the desktop 3-D Telejector, he immediately was rewarded with a fully-dimensional version of his screen display floating in air in front of him. He next placed a spacer the entire width and about eight feet high on the grid. The floating model now featured the spacer. This would be where the… whatever it was that would do the magic… was going to go. He sat back a moment, rubbing his chin in thought, then raised the spacer height to ten feet.

The four-foot diameter power pod was placed in the dead center of the "floor" above the spacer. Around it Tom set the capacitors, and just outside of those he place shapes designating the transformers and other circuitry that would handle the power in and out of each capacitor. This all would, he knew, run so hot that it might be necessary to leave part of the ship open to the frigid temperatures it would encounter at ninety-thousand or one-hundred-thousand feet to provide enough cooling. On further consideration he realized that even at that rarefied altitude there was moisture and dust that could ruin any exposed components. Leaving a "window" open was out.

He ran more calculations and came up with the figures that told him how much cooling equipment would be necessary. This would be greatly aided by being able to run the heat exchange coils on the outside of the ship. Or, possibly in some sort of mini-cooling towers.

He was about to congratulate himself when he saw one quite large problem. He forgot to allow for the Gravitex and all the other propulsion equipment. It was becoming a logistical nightmare. There were far too many things inside that need to be close to or right on the bottom of the ship.

He needed a second pair of eyes from someone who was finely attuned to design and engineering. He picked up the phone and made two calls. Half an hour later Arv Hanson and Hank Sterling walked through the door.

Tom spent twenty-five minutes explaining the situation, the necessary components and the lack of full knowledge. He then looked at them.

"How crazy am I to start this without a plan for what will make this thing work?"

Hank, who had been staring at the CAD design of the known components, shook his head. “Don’t believe you’re any crazier than normal, skipper, but this is a real poser.”

Arv was more upbeat. “At least you already know what it is that you don’t know. Is that any help?”

The discussion went on for another full hour before Hank had to leave. “If something comes to me later, I’ll give you a call,” he promised.

Arv stuck around for a few minutes more, but he too left for another meeting.

Tom sat there until a thought hit him. He placed one more call and asked the man at the other end to come over as soon as convenient.

Five minutes after that Tom heard the clomping of heavy boots on the concrete floor of the hangar.

“Wa’al, hey there, youngin’,” Chow called out to him. “What kin I do ya for? Ya didn’t ask fer eats. So?”

Tom invited the older man to have a seat. He went through an abbreviated explanation of this dilemma. The cook listened, periodically removing his ten-gallon hat and fanning his red face. When Tom finished, it was with the question, “Well, what can you think of that I’ve missed?”

Chow nodded in contemplation. He asked to see a couple of the drawing Tom had previously shown him before sitting back in his chair.

“Tell ya what, Son. Ya got one o’ them ‘how do you fit a square peg into a round hole’ sort o’ things here. The problem as I see it, though, ain’t the shape o’ the peg so much as it’s the position o’ that hole.”

Tom wasn’t certain he understood, but let the man have a moment to continue.

“Ah, shucks, Tom. I kin see I didn’t get that right. What I think I’m a-tryin’ ta say is that if ya only got yerself ten feet o’ space and fifteen feet o’ stuff—and it’s all gotta be close to the bottom there—then what’s keepin’ ya from hangin’ the extra five feet o’ it under that platform? I mean, long as ya leave enough space fer yer repel-o-gravity thingie.”

Tom closed his eyes and tried to picture it. He opened them and grinned at the old cook. “Chow. You stew wrangler, you. I’m so tuned into putting things inside that I never considered that I could

have inside space lower than the floor. *Of course* I can put things outside. I'll need to angle things a bit and probably make this whole thing a little wider, but there's no reason at all I can't do exactly what you've so elegantly suggested."

The cook blushed. "Ah. You laid it all out, Tom. I jest sorta twisted things a bit and then asked the question."

"Well, you've earned yourself an extra week of vacation for this, Chow. Whenever you want it. I'll make sure it's all cleared."

The cook left practically in a daze. He was constantly awed by Tom and Damon Swift and their generosity and willingness to ask everyone, from janitors to top executives, for their help and opinions. And, they always gave credit where it was due.

Tom picked up a pad and some colored pencils as he heard Chow clomping back across the floor, now whistling a very happy tune.

He made several rough sketches of the sort of ship all of his components might go into. Just before quitting time he called Bashalli. She had attended, and graduated with honors, from the Shopton College of Art several months earlier. She had been instrumental in at least two projects where multiple designs had to be provided to potential clients. Her eye for detail and for capturing abstract ideas was as good as Tom had seen.

He arranged to pick her up from The Glass Cat in half an hour when her work shift was finished.

They went back to Enterprises with several containers of Chinese food they picked up on the way. As they sat at Tom's desk eating chow mein, beef with black bean sauce and egg rolls, Tom ran through both the problems as well as Chow's possible solution.

"Any ideas?" he asked.

She set her chopsticks down and looked back through his hurried sketches. She dropped two into a pile and pushed it away. "I think these may be functional for most of your needs, but if the cooling system is to be as powerful as you say, then I must point to your own Citadel and its monumental cooling towers. Neither of those drawings allow room for that. But this one—" she placed the third of his five sketches in front of him.

He looked at the one she picked and nodded, tentatively.

"That bottom half…" and she folded and placed the next one over the first, "… along with the bottom half of this one, just turned upside down." She pointed at the newly composited drawing.

In truth, it was nightmarish. Appearing more like a gothic

cathedral mated to a medieval castle than a space ship or any other type of flying vehicle, it was, as Tom realized, just about exactly what he had asked for.

"Could you take those and do something that won't get laughed at when I show it to dad and to Jake Aturian over at the Construction Company?"

She promised to do so and picked up his sketchpad and pencils and settled onto the small sofa in one corner of the room. "I'll have something for you in half an hour."

She did.

Though still a gothic monstrosity, it now looked as if it came from one time period. It also had developed a slight waist and a more bulky upper area that Bashalli explained were to provide for the Gravitex generators and the three outputs. "You did not tell me they need to be on the bottom. Do they?" she asked. When Tom said they did not, she added, "So, up here they remain out of the way of your propulsion plates and that sort of thing, and the four or perhaps even up to six of the legs hanging below and surrounding your propulsion area can house the parts that will heat up the storms."

Pointing at the multi-faceted spires on top, Tom asked, "Are those for the heat exchangers?"

Bashalli nodded and told him that they could just as well be poles, "the sort you might see in front of a barber's shop," but that she liked this look more when considered with the rest of the ship.

The following day Tom called Hank and Arv back to the office and showed them Bashalli's sketch. Both men were in awe.

"That's absolutely beautiful, skipper," Arv said, not taking his eyes off the drawing. "How soon do you want one?"

"Well, Arv, I've got to come up with the rest of the guts before—"

"Before you even try out a scale model?" Hank asked, innocently. "Before you prove that something shaped like this can fly up there, remain on station for a week or so and then descend on its own?"

Tom tilted his head to one side and thought about it. Turning to Arv he said, "How about a week from now and I'll build the small propulsion and Gravitex systems. If Hank will do the 3D rendering, that is."

"What size?" Arv asked.

"Probably half scale. Go for ten feet across and about nineteen

feet tall. I know that the original test model from the space kite was half that size, so I'll just scale it up a little."

Arv and Hank left with their assignments and having made promises to keep Tom informed of their progress.

He wasn't the least surprised to find a one-foot tall miniature of the new design on his desk the following morning. As he turned it over in his hands, Bud came in with two cups of coffee. Placing one on the desk, he looked at the object Tom was inspecting.

"Some new kind of nasty weapon, skipper? A Ninja throwing ball?"

"No. It's a miniature of the prototype for the ship that will eventually house whatever it is that I come up with to kill storms."

"You going to impale them? That's like something Vlad the Impaler might have used. Hmmm? We'll call it Vlad, the Hurricane Impaler!"

"Ha-ha. It won't be impaling anything." He explained the functions of all the parts. Bud was impressed.

"Okay. I take it back. I'll have to come up with some other crazy name for it. Can I have a week or so?"

"Take two."

By the time Hank and Arv finished the scale model, Tom already had the inner propulsion workings complete. They assembled everything that Thursday and set plans to take it down Fearing Island for testing on Saturday.

As it was just a foot too tall to fit into the *Sky Queen* or any of the available cargo jets, Tom had the *Super Queen*, the old Flying Lab's bigger and more configurable sister, wheeled out. The model was loaded into one of the cargo modules that was then lowered into the loading trench. Once the aircraft had been towed into position overhead, it was raised into the large, empty area waiting between the forward cabin and the central vertical lifters. To provide balance, the aft compartment was loaded with another cargo container that held a replacement Whirling Duck helicopter for the base. One of theirs had been blown over in a recent, unexpected storm and had suffered rotor damage.

Saturday was a beautiful day on the island and the unloading and setting up went smoothly. The launch was very lowkey with only a few employees standing around watching. On command, the model rose slowly and silently heading straight up.

Tom watched the instrument readouts as it passed ten thousand

feet, and then fifteen thousand. He spotted a small wavering of the needle indicating the energy output of the Solar Battery that was powering the controls and gyro-stabilization. It soon steadied and the model passed twenty-five thousand feet, accelerating as it climbed.

Nineteen minutes after it left the ground, the model ceased rising at its planned ninety thousand foot altitude.

Tom was about to congratulate Arv and Hank when a warning light began flashing.

"She's lost gyro-stabilization. I think I can hold her—"

With a groan of dismay, Tom turned to the two men.

"We've just lost all power to the controls. I don't know if she's going to stay up there, zoom out into space or *come crashing back down on us!"*

CHAPTER 18 /

TRANS-ATMOSPHERE

IT SOON became apparent that the wayward craft was going to come down, but not directly back to Fearing Island. And, though his instruments no longer sent any data, RADAR contact showed a story Tom believed he understood.

At least one of the Gravitex anchors, one locked onto the coast about fifty miles to the southwest, appeared to be holding. That unbalanced the craft so it had swung toward that point, evidently attempting to find equilibrium directly overhead. It did not last long. Before the craft could reach that point, it plummeted toward the water and disappeared from the tracking screens.

Heaving a great sigh, Tom set about contacting several RADAR tracking stations along the coast to see if they might triangulate the point so they could retrieve the downed craft quickly. He soon found out that most of these stations only searched in the regions and altitudes where commercial aircraft were expected to be traveling. Only one had a momentary blip that they believed might be Tom's craft.

When he plotted their bearing as well as the one from the control tower on Fearing, he was perplexed to find that they overlapped farther out to sea, not nearer the coastline as he suspected.

"Nothing to do but fly out there and see what we might find," he said to his companions.

They all trooped aboard the *Super Queen* and were winging in the indicated direction within ten minutes. So they would not miss something as small as the downed craft, Tom opted to fly at only one hundred miles per hour. The trip to the possible location required forty minutes. With Hank manning the SuperSight equipment to take a close-up look at anything they might see, Tom began a slow zig-zag search pattern to the missing craft.

As they entered their second hour of searching, Tom put in a call to Enterprises and asked to speak to Bud.

"Just got back from a speed test of the improved J-9 engines Dianne and her team put on that old Citation test jet. All I've got to say is Wow! Oh, and jetz! Those little wonders put on an extra fifty knots and raised the operating ceiling by about four thousand feet. What's going on with the test?"

In spite of the situation, Tom had to grin at his friend's enthusiasm. He could swear that Bud said all of that in a single breath.

"While you take a little breather, I'll tell you what's gone on." He filled Bud in on the disastrous test and the ongoing search. "Can you hop into the *Sky Queen* and get down here ASAP? She's outfitted with that cradle from the heat bomb tests, but you ought to be able to slide the *Skeeter* in there. We might need the ability to hover right on top of the water without the down-thrust of the lifters."

Bud agreed to get things underway and promised to be in the air within the hour.

He radioed back once he had passed over the coastline and was heading south. "Where do you want me, Tom?"

Tom gave him their current GPS coordinates. "We're still searching based on the two-point reference spot we got, but I've got a feeling that my first assumption might be a better shot. Try starting at a point five miles off the coast on a bearing of one-six-nine from my current position. That's where it looked like it might be dropping."

"Then, that's where I'll start. I'll let you know when I'm on site." With that, Bud cut the connection.

But, no sooner had that call ended when Tom's radio crackled back to life.

"Skipper? Enterprise control tower. We just picked up a Mayday call from a military jet somewhere down where you are. All that we got was the tail end. Let me play it back for you."

There was a series of clicks, followed by:

...day. Number one engine flamed out and number two overheating. Shutting off now. Too far out over ocean to make land. Will try to steer to safe splash point and eject. Taking data recorder with me. Somebody come get me, please!

"Got it, Enterprises. Any location info?"

"Only a bearing from here and it points down to you. I'll check with locals and military for triangulation point. Back in a few."

Tom took advantage of the wait to let Bud know what was going on. "Keep looking for our equipment once you get there, but be ready to break off and join search and rescue."

"Roger. Any idea what type of aircraft we might be searching for?"

"No idea right now. I'll see what I can find out. Out."

It took seven minutes, but the Enterprises call came back. "Skipper. The military is being very mum about info. They almost didn't want to acknowledge they had anything traversing the area. They gave in when your dad got on the line and suggested contacting the Secretary of Defense personally. This is a downed fighter prototype, designator unspecified but described as a dual-seat twin-turbine job. Triangulation info is just coming up on the computer... uh, let's see... last contact on radio shows location of eighteen miles off the Georgia coast absolutely due east of the nav beacon at Jessup." He rattled off a pair of coordinates that Tom marked on his screen.

"What about last RADAR fix?"

"It was small, sporadic and may not even be this craft. Stealth, evidently. If it *was* him, it probably registered as he was losing altitude pretty fast or even breaking up. It seems he was heading on a course of about zero-one-five magnetic. That final RADAR blip is about six miles farther along track than his radio call. That's all we've got."

Tom gave the man his thanks and then called to Bud. "Make a beeline for coordinates at latitude 31 53 44 by longitude 81 32 11, flyboy. That's the last point of reference for him. He was heading about fifteen degrees east of due north so fly along those lines."

"Roger. Where will you be?"

"If you stick to around eight thousand feet, we'll be up at twenty flying a criss-cross pattern moving from north to south. Between us, we'll find him!"

It took just twenty-three minutes before Bud called to Tom. "Spotted him! Just about on that reported track and five miles farther north. I'm heading down and will drop a larger life raft for him. The one he's on is pretty dinky."

"Great!" The excitement in Tom's voice was evident. "Then put out the *Skeeter* and pick him up."

The *Skeeter* helicopter was a mini-copter that Tom had first developed in conjunction with building the *Sky Queen*. Small, foldable and able to be launched from the rear hangar deck, it would provide ample space for the downed pilot and any of the data gear he may have managed to take from the crashing jet.

Tom swung the *Super Queen* around and headed for the same area. If there was any chance that the aircraft had remained on the

surface, it might be possible to hoist it into one of the two now-empty cargo holds.

He got within a mile of Bud's position when an object on the surface caught the eye of Hank who was still sitting at the SuperSight console. "Got something half a mile to the northeast, skipper. On the surface and definitely not a boat. Wait… hey! How about that? It's the thing we sent up. It appears to be floating upright. I'll come up and point it out to you."

Hank walked up to the cockpit, handed Tom a pair of powerful binoculars and then pointed to a spot down and to their left.

"Yep. That's it. Good eye, Hank." He picked up the microphone. "Bud? Tom. Hank just spotted our wayward kite so I'm heading down to pick it up. Unless you need me, that is."

"Nah. We just launched the *Skeeter* and should have the pilot onboard in five minutes. Depending on his condition, I'll either haul him over to Atlanta or maybe just up to Fearing. I'll let you know."

Tom concentrated on positioning the *Super Queen* over his missing craft. With one of the crewman manning the forward hoist, another man was lowered down to attach a cable to it. Then, the man and the machine made the slow lift back up into the open hold area. Half an hour after it started, the operation was finished.

Tom called over to Bud and discovered that the *Sky Queen* was beginning to head for Moody Air Force Base with their passenger. "I'm going to have a big story for you when we get back home," Bud teased Tom, but would say no more.

He still said nothing until he was sitting at the dinner table at the Swift home that evening.

"Okay, Bud. Give. What is this story you wanted to tell?"

Bud grinned. "First, our passenger was a fine military man by the name of Gary Tomlinson. A Navy Lieutenant and aviator extraordinaire. I know this because it is this same Gary Tomlinson who was my host pilot when I want off for that day of test flying the new Mach 3 fighter jet."

He paused to see what reaction this might have. He was rewarded when both Mr. Swift and Tom leaned forward with eager looks on their faces.

"In fact, it was the very same piece of aircraft that I had my fanny glued to back then that crashed. Do you remember me telling you before how he hinted that the Lexington turbines were prone to overheating?"

Tom and Damon nodded in unison.

Bud speared another bite of the steak he had been enjoying and chewed thoughtfully, until Mr. Swift cleared his throat.

"Well, anyway, it was those Lexington engines that gave out on him. He was performing a secret medium-speed run up and down the coast to see how much the latest ones could take. Looks like they can't take more than Central Florida where he took off from and up the coast to Georgia. Oh, and he said not to bother trying to see if we could help with the recovery. He had to activate the destruct package to keep anything from falling into the wrong hands."

"Dad," Tom said enthusiastically, turning to his father, "that may give us a way back into the bidding and build competition for the fighters!"

"That already crossed my mind, Son. Bud? This is very good news indeed. Thanks for digging for that. In case anything your lieutenant told you is confidential, I suggest that we not speak of this again." He looked at both young men; they nodded their agreement. "Fine. I'll see just how we need to play this, but my guess is that we'll get a call in the coming weeks."

The conversation turned to Tom's failed launch and test. "Any ideas what might have gone wrong?" Anne Swift asked her son.

"No. Not really, Momsie. We lost all contact and control just as it reached altitude. The interesting thing is that it didn't just tumble down and crash. It looks, from first glance, that it came down hard, but upright and under some level of power."

He spent Monday morning opening and examining the interior of the scale model. Almost at once he saw the problem. The Solar Battery he had installed was lying on its side and had pushed up against another component in a metal case. The result was a partly-melted power cell.

"It must have shorted out when it touched that case," he told Bud at lunch. "The thing is, I don't think I'll ever know if it came loose on the flight up and shorted, or is simply out of its strapping due to the hard landing."

With Hank and Arv assisting, Tom spent the remainder of the day tearing everything apart to try to locate the exact cause of the problems. Although badly scorched, the central processor board appeared to be partly functional. In the end they agreed that something had gone wrong with the nylon strapping material that held down the battery. The problem was, it all looked to be in clean, undamaged condition.

Stumped, Tom decided to run a few experiments. The first thing, though, was to check the materials list for his original space kite project. As he thought, there had been nothing in either the ship or in the coveralls he and Bud wore that contained any nylon. Even if this gave him no actual information, he felt certain that it pointed directly to the need for an experiment to expose nylon to the various parts of his propulsion system.

The three men moved the drive plate assembly into the test chamber off of Tom's lab where the inventor placed a T-shaped stand with six different bands of nylon and nylon blends hanging over the arms. He then set up six laser measurement devices to check the exact starting and ending points of the ends of the material.

"I don't believe that it is a heat issue," he told the others. "Nylon's a polymer and melts at a relatively low temperature, but there is no evidence that the strapping melted of even softened up much. Besides, there was nothing inside that could build up enough heat. Let's see if this test gives us any answers."

So saying, he flipped a switch and pressed the button to send a flow of artificially produced subtrinos into the chamber. As expected, a dynamic pressure plate above the drive system showed several thousand Newton's of upward pressure being exerted.

"We'll run it at least the same time it took our test model to get to altitude," he told them.

But, it didn't take that long. In less that ten minutes each of the six measurement devices signaled an expansion in the nylon materials. The greatest results showed in the pure nylon web material, identical to that of the original straps. It had stretched from an initial length of exactly three-feet by two additional inches.

"That," he said turning to face Hank and Arv, "is what I feared we'd see. That's enough growth to loosen the straps to the point where any little bump could have knocked the battery over. From that point, it just slid over and contacted that metal case. Kaflooey!"

"And, down it came," Arv suggested.

"Yes."

"Alright," Hank said. "I'll ask the question. Why?"

Tom let out a sigh though his nose. Holding both hands out, palms up, he replied, "My best guess right now is that something in the output of power is affecting the polymer strands. Nylon isn't a particularly long polymer chain to begin with. If it were, this might

have really stretched out." He flicked off the power and watched as the nylon samples all returned to their original lengths within a matter of a minute.

He told both men that the only thing to do was to replace the nylon straps with metal clamps and straps. "I'm not in the mood to try to figure out if there is a workaround for the length thing," he told them. "It really isn't that important except if we ever want to build and fly another vessel using this system."

By end of day the following day, the three had rebuilt the model and tested everything. It all looked good.

"Feel like another jaunt to Fearing tomorrow?"

Hank and Arv gladly agreed. When Tom asked Bud an hour later the young flyer jumped at the opportunity.

Everything was repeated just as it had been on Saturday. The one exception was that this test launch saw the model soaring skyward with all instruments reporting flawless operation. It reached the initial altitude of ninety thousand feet where Tom left it on its own for an hour. After a systems and position check, he fed a new coordinate into the onboard computer and sent the "execute" command.

Both Bud—using a portable telescope—and the Fearing Island tower reported that the small device had begun moving rapidly almost due south where it halted five minutes later.

Tom checked the GPS feed and smiled broadly when it showed pinpoint accuracy of the new position.

A battery of other tests that Tom ran during the next hour had the little device heading up an additional twenty-thousand feet, changing its location six more times, and the auto-returning to the original, or parking, position.

"Well," Tom said rubbing his hands together. "Time to head home."

Bud looked from Tom to the sky and back to Tom. "Uh, skipper? Are you forgetting something?" He looked straight up.

"Nope. I've got nothing else to do with that until I figure out the way to deliver the heat and energy down and into storms. For now, I'm going to let it sit up there to prove that it can be left alone. The guys here on Fearing will keep an eye on it. We'll come back in a couple weeks to bring it home."

With Bud still shaking his head in disbelief, they climbed back onboard the *Super Queen* and headed for Shopton.

As they neared the point where they would begin descending for their landing Bud asked Tom, “You keep calling that little model ‘the craft’ or ‘the vessel’ or even ‘the device.’ Isn’t it time to give it a real name? I mean, I understand you can’t call it ‘the spaceship’ ‘cause it isn’t going into space. But what is it?”

“Well, unless I head off on some tangent, the functionality of the finished, um, *thing*, will be to blast energy into a sharply-defined location and thermally blowing the storm apart. So, it should be called something like a Hyper-Thermal, Cyclonic Storm Disruption Satellite.”

“But, it’s not a satellite… is it?”

“Satellite can just mean a separate location, Bud. Or, anything that is located up there.” He pointed a finger skyward.

“Oh. Well, the Hyper Storm Disrupter Cyclone Satellite machine needs something short and sweet. How about Thermal Hurricane Disrupter?”

“Disrupter is too *Star Trek*. Besides, I want to completely eradicate the things as they build up, not just disrupt and lessen them. In fact, it isn’t just for hurricanes. I hope this eventually has applications for all types of cyclonic storms.”

“Then, you’ve just name it,” Bud said, smiling. “Cyclonic Eradicator!”

CHAPTER 19 /
UP AND DOWN & UP AND DOWN

THE NEXT morning Tom called back up the preliminary notes he had made when he first came up with the idea to deliver the thermal energy using some sort of ray or beam. He was reviewing everything when his father dropped by the underground lab.

"Morning, Son," he greeted Tom, handing the inventor a plate with a breakfast burrito and fruit cup, and setting the cup of coffee in his other hand on the desk. "I promised your mother that I'd see that you had breakfast. You ran out of the house so fast that even your sister didn't have time to comment." He smiled at Tom.

"Sorry. I had an idea last night as I was trying to get to sleep. I was actually going to come in then, but the Sandman got the better of me." He took a sip of coffee and unwrapped one end of the burrito. "Sausage?" he asked taking a bite.

"And cheese and pico de gallo and potatoes and extra cilantro as I've seen you order before."

Munching the bite, Tom said around a mouthful of food, "You're the greatest, Dad!"

"Yes… and as we use to say when I was growing up, 'say it, don't spray it.'"

Swallowing, Tom said, "Sorry. Actually, it's a good thing you came over. If you've got a few minutes I could use a sounding board."

"I'll give it my best shot." He pulled over a chair and sat.

"Weeks ago I realized that dropping those weather bombs isn't going to be the way to succeed. In fact, it might be counter-productive to even do a future test."

"But, haven't you had some success knocking a couple of the storms down a peg or two?"

"Down, but not out. I want to completely blast gathering storms apart so they can't get going!"

"Hmmmm." Mr. Swift slowly rubbed his chin in deep thought. "You'd be best served by investigating what *good* these storms do. For instance, I recall reading a report several years ago, maybe even ten, that described the water they bring to dry areas and how they

naturally prune dead and diseased trees, eradicate insects, that sort of thing. My guess is that once you dig deep enough, you may find that completely killing them might do some long-term level of harm."

Tom looked slightly stumped by this information but promised to look into it.

"Well, assuming that I still want to keep them from building to the point where they cause destruction and death, then the bombs aren't going to do it. I need to come up with something that sends down all the necessary thermal energy from above. And, I suppose it will need to be controllable to some extent."

"Ah, the test of your rather intriguing-looking space kite has a bigger purpose than just a couple fun outings at Fearing I see." He smiled at Tom.

"Right. Now that I've got the platform pretty much handled, I need to come up with the rabbit to pull out of that hat."

The older inventor asked, "Do you have a start on it?"

Tom showed him the notes and computations he had come up with. After posing a few questions, Damon asked Tom, "Can your odd satellite deliver the necessary energy you show here?"

Tom told him it could.

"Then, it seems to me that since you've dismissed laser as a possible delivery mechanism, that leaves coming up with some way to actively heat the water vapor using something like magnetic resonance or some other electro-method. Have you investigated molecular excitement?"

"Microwaves?" Tom asked. "I wouldn't think they're powerful enough."

Damon smiled. "At the frequencies I'm thinking of you should be able to deliver all the *excitement* your power station in the sky can pump out."

"But, even if we hit on the right frequency the beam will need to remain fairly tight, maybe just a few feet across, to deliver it. Even at that, a lot of the energy would leak off as the beam goes down. Heck. Passing through any upper-level clouds would dissipate it a bit. Then, there's the whole focal point thing, and then—"

"And then, and then, and then. Listen, Son. You've already pulled off a few miracles of beam bundling and focal points. As far as the later, think about your Megascope Space Prober. Heck, even your 3-dimensional Telejector has some form of beam focus so that the

pictures appear at a specific point on a defined plane. Right?"

Tom had to agree. Focus was the main point of the Megascope. By using a pair of beams and only allowing them to touch at the specified distance—even if that was millions of miles away—Tom had developed an electronic telescope unmatched by anything else available.

"Even if I can use those technologies, what about keeping that much energy together. Neither the Megascope nor the Telejector use high energy levels. In fact, that would be detrimental to their function. So, how?"

Damon stood up and walked over to a display case Tom kept in his office that held models of more than a dozen of his smaller inventions. He opened the door and pulled out one of them.

Setting it on Tom's desk, he pointed at it.

"You may remember how I absolutely forbade you to build a weapon, yet you went ahead and came up with this modern take on your namesake's electric rifle. That eGun in front of you has an amazing bit of technology you came up with that uses straightforward magnetic projection to encase the electricity charge. I'd say that's a good place to start."

Patting Tom on the shoulder, he left the office.

Tom well remembered when he had reverse engineered the one surviving example of the famous electric rifle, turning it from something capable of killing an elephant and making it a safe-to-humans defensive weapon. And the magnetic shield that held the electrical charge together—instead of allowing it to zig and zag like untamed lightning—was just what his father said. A great place to start.

The virtual magnetic case would require additional power. His eGun used about forty percent of the available power from its battery pack just to keep the two interlocking magnetic fields in place. It would likely be the same with the Eradicator. It might mean increasing the overall size, weight and electrical capacity but, as he told himself, it was all a matter of balancing things. More stuff to go into the Eradicator's shell meant a larger case and that meant the need to provide a larger area for a larger propulsion plate system that would hold everything aloft.

"At least the subtrinos are free and the plates require no external power," he told Sandy as they sat at the breakfast table the next day.

"So, it doesn't matter how big the thing gets?"

"Oh, there's a point where we run into problems. Plus, I'd really like to keep this as small as possible just so it stays kind of invisible. No use inviting anyone to take a pot shot at it if they think it's some sort of UFO." He purposely didn't mention any possible attack by a determined enemy.

Getting up and picking up both of their dishes, Sandy paused and gave her brother a little kiss on the top of his head. "You'll get it all figured out just like you figured out that laser and balloon trick."

He went in to work and dove into coming up with the sort of energy beams that would over-excite the most water molecules.

A day later he realized that a single type of energy was not going to be sufficient.

As he explained to Bud, "I can excite water molecules to the point where they turn into steam, but not quickly enough. I'm not sure if this problem can be overcome."

"Too bad you can't split the molecules apart and set the hydrogen on fire," Bud said offhandedly. "With the extra oxygen released, that would be a heck of an explosion."

Tom went slack-jawed. Slowly, he said, "Bud. Tell me that again, please."

Bud did and Tom jumped up and hugged his friend. "That's it! That's the missing piece, Bud. Of course. Use the power *inside* the molecules and not just the molecules themselves. Fantastic!"

Bud just nodded and smiled. He wasn't exactly certain what it was he said that was so new and different. Just an old high school science class trick that had come to his mind.

"I'm happy to have been of some service to you, professor. And now, our young and incredibly handsome flyer will be seen departing the premises before he is asked too many probing questions. And, there he goes—" and Bud walked out the door.

Tom spent all of Thursday in seclusion working on the twin beams that would electrically split a large number of water molecules in less than a second and then superheat them to the point of ignition. He knew they would need to be separate beams kept apart on the way down or they would expend their energies before arriving at the target spot.

That evening, Damon informed Tom that he had been called—and by that, Tom realized, 'summoned' to an immediate appearance—to Washington D.C. for the following day. "I know you want to keep working without interruption, Son, but I need to rely on you to

handle important phone calls."

Tom agreed.

He was only bothered by three calls the first hour and four the second, but they were beginning to impact his ability to work. Almost seventy minutes went by without anything and he was able to get to work on the control circuits that would deliver the twin beams encased in magnetic fields.

His work was interrupted once again by the telephone. "This is getting ridiculous," he said aloud before picking up the receiver. "Hello. Tom here," he said brusquely.

"Tom. This is John Thurston at the CIA. I wanted to let you know some good news. We've managed to recapture Tristan Carlow. He's in high security lock down right now."

"That is very interesting news, indeed, Mr. Thurston. Tell me. How did you ever do it?" Tom's tone had immediately changed from one of annoyance to one of near sarcasm.

"Well, I can't really go into any of the details," he said as Tom was thinking '*I'll just bet you can't*,' "but my people found him in Central America, took him into custody with very little fuss, and spirited him back to the U.S."

Tom decided to play a little more cat-and-mouse with the agent. "Good for your people, Agent Thurston. Was he alone? Was he just hiding out, or did your *people* catch him in the act, so to speak? *Was he still wet?*"

There was a pause on the line before the agent spoke in very careful tones. "You sound as if you already knew something about this, Tom. Might I ask, what?"

"Only that *my* people ran into Mr. Carlow, along with the daughter of The Black Cobra and a nasty gang of men down in the Caribbean. We captured their small submarine and destroyed it after they fled. Your move, I think."

Thurston let out a sigh. "Okay. Cards on the table. Carlow and sixteen or seventeen other people crash landed in the ocean near the coast of Honduras and were immediately rescued and taken into custody. But, there was no mention of a woman with them."

"That's because she was in a second plane that evidently made it to land. They were supposedly captured in Honduras. Now, while I appreciate the attempt at you taking credit for all this, the fact is that my people managed to disable that jet enough to make it have to crash and it was my people who got the word out so that the other

jet could be forced to land. I have to tell you, Agent Thurston, that I am less and less impressed by you and your organization with the passing days. Goodbye!"

With that, Tom broke the connection.

Fifteen minutes later he was just finishing up a preliminary layout for a new circuit board when the phone rang.

"What!" he demanded.

"Gee, Tom. It's Harlan. Sorry to bother you."

In a more subdued tone, Tom said, "Sorry, Harl. I've been trying to do work today but the phone keeps ringing and ringing. If dad weren't in Washington, I could have my line shut off. Okay, enough about my troubles. Is there something I can do for you?"

"You've made a very big player quite cross, Tom."

"Thurston?" Tom guessed.

"Yeah. After talking to you, he decided to vent at me. Demanded to know how we knew all about Carlow and Li Ching's daughter."

"So, what did you tell him?"

"Just the truth. About how you were captured by Li and her men, taunted by Carlow, left to die but with one parting slap across the face when Carlow left you the means to cut your ropes but had already trashed the submarine. By the time I finished, he was a very quiet little CIA agent. On the verge of being contrite. Even apologized to me and asked me to pass the same on to you."

Tom laughed for the first time in several days. "That just about takes the cake, Harlan. I don't suppose he said anything about what they're going to do with Carlow."

"Nothing, although I would believe that having been involved in terrorist-like activities off shore, he may find himself in a place like Guantanamo Bay or another prison."

When he returned to his circuit board, Tom realized he had mis-positioned two of the components. These were designed to track and adjust the modulation of the two magnetic encasements for the high-energy beams. In this incorrect configuration they would cause the closest, or inner areas of the magnetic shields to have opposite rather than similar fields.

He knew that would mean that they would stick together.

His hands dropped to his sides as the realization hit him that this was exactly what he needed them to do. Why not share a single

separating field. It would mean twenty-five percent less power output to build and maintain the shields.

Tom smiled.

"Sometimes dumb mistakes can turn into real winners," he told Arv, who had dropped by to see if Tom had any changes to the scale model's casing.

"And, you believe that the twin beams, just a few millimeters apart, can travel sixty or seventy thousand feet and then just sort of, well, dissolve releasing all that energy?"

Tom's smile told him the answer was "Yes."

"In fact, Arv, for the split second it takes to deliver the energy into the storm, I may not even have to work to fine tune the release point. I can keep the outer shields at a slightly higher strength, and then tune the inner dividing shield so that it dissipates at the altitude I want it. It's already going to be taxed just keeping things apart as it is, but by strategically weakening it to begin with, it will just break down at the point we wish and let the energy beams collide."

Six days later, Tom felt he understood everything that would be involved in creating the components for the twin beams and magnetic casing. He made a careful set of notes of every item on his lists and then computed weights.

Calling Arv and Hank, he explained that he needed to come over to help them put dummy weights into the scale model for the next test.

"Uh, skipper?" Hank said. "You never gave the word to have the model brought down. Far as I know, it's still hovering up there over Fearing."

Tom had to laugh. "Gosh. I've been so busy with all the design and development that I completely forgot. I'll come over to Hank's workroom and we can try to come up with the appropriate shapes and weights and a way to mount them inside the Eradicator model. If you're free we can take all that out to Fearing tomorrow around lunch time."

When the trio arrived at the island in one of Tom's SJ-11 commuter jets, the entire back was packed with empty containers, each marked with a location code and a weight. They spent an hour filing and weighing all of them with sand from a nearby dune before bringing the Eradicator back to the ground.

Tom made a quick check and was pleased to find that, although

incredibly cold inside from having been at high altitude for weeks, everything was in great shape.

They loaded and strapped down the weights. Tom took a final look around the cramped inside of the scale model and then closed the hatch.

"Let's get it back up there," he told his companions. In minutes, it lifted off and headed skyward, slower this time because of the almost-doubled weight inside. As soon as it reported itself at altitude, Tom again put it through a series of maneuvers. Even with the increased weight inside, the lower gravity at about seventeen miles up had very little additional effect.

"Here's where it gets interesting," he told them, explaining that there was only a small bit of fine tuning that could be accomplished with the beams. "At best I figure I can set things to go off at a point between fifty- and seventy-thousand feet below the Eradicator, which means at actual altitudes between twenty-thousand feet up to nearly forty-thousand feet. For storms that are hugging lower to the ocean we'll need to have the Eradicator drop down."

He sent the commands to have the Eradicator bob up and down like an elevator. Ten times it changed altitude, dropping as low as sixty thousand feet and rising to over one hundred twenty thousand.

When Tom's smile told that everything had been a success, Hank, Arv and the twenty or so Fearing men and women who had gathered to watch let out a cheer.

Tom brought the little model back to the ground where volunteers agreed to remove the weight containers and empty the sand back on the dune while Tom and his men got the model ready for future transport.

"Don't worry about that, skipper," one of the Fearing women told him. "Unless you need it back at Enterprises, we'll get it packed up and over to a secure warehouse within the hour."

After thanking everyone, Tom, Hank and Arv drove one of the jeeps over to the airfield and climbed back into The Toad and flew home.

Tom arrived back in the shared office at about five. His father was sitting at his desk speaking in a low, worried tone to someone on the phone.

He soon hung up and turned to his son.

"First, how did the tests go?"

Tom told him about the success. "What was that call about. It

sounded serious."

"Let me get a cup of coffee before I tell you about that." He crossed the room and picked up the carafe on the side table. Shaking it slightly from side-to-side, he determined it was mostly empty. He opened the office door and asked Trent to get more. Closing the door, he took a seat in one of the big leather chairs around the low conference table and asked Tom to join him.

"You remember the troubles I've had with Senator Murphy? And, you backfilled for her brother's company down in Florida." Tom said nothing. "Well, that was a call from Captain Fry down at the NOAA base. They have captured a saboteur, someone who snuck out onto the island last night along with several cases of TNT! *It was the senator's brother*."

CHAPTER 20 /

LET'S GO FLY A KITE!

TOM WAS STUNNED by the news. His mind raced trying to come to grips with what he had just been told. Finally, he managed to ask, "What did he do?"

"Fortunately, the damage is minimal. He was discovered trying to plant most of it at the main dock. While they were restraining him, one of his other placements, obviously on some sort of timer, blew up."

"Where?"

"Their main radio tower. The one we never replaced. Knocked it down, but I've agreed to get a team down there to erect the new one first thing tomorrow."

Tom felt drained. He had spent so much time trying to safeguard the base from attack by sea that it never occurred to him to secure the base from a land approach. He told his father about his feelings.

"There is very little you could have done short of installing something like our own security system here. Even that wouldn't be acceptable; the base is not a military installation so citizens have every right to come and go. No, what the Coast Guard is going to need to do is to either post guards or to ask us to bid on a surveillance system for the island perimeter."

They sat in silence for several minutes, until Trent lightly knocked on the office door and came in bearing the carafe as well as a plate with assorted pastries. "I thought you might need some sugar to wash down the caffeine," he said, setting both items in front of them.

"Is anything going to happen to the senator? I mean, she's already threatened you and made it clear that she and her brother have been talking about what he believes Enterprises might have done to him."

With a little chuckle, Damon replied, "It actually gets a bit worse than that I'm afraid. As I mentioned, he has basically been banned for life from any construction work dealing with nuclear power facilities. Well, I was on the panel that made the determination of his company's illegal substitutions, negligence and his unwillingness to follow prescribed safety procedures. He let it be

known way back then that he would 'get even with' the members of that committee."

"Then why take it out on the base in Florida?"

Damon shrugged. "Probably our being called in was the proverbial straw. Or, our getting paid."

Following a few more minutes of conversation, Tom excused himself and headed for the large lab down the hall from the office. This lab was outfitted with much more design, build and test equipment than his underground lab. He would need the long test chamber that ran along one entire side wall for his next experiments.

He called up the diagrams for the circuitry that would emit the powerful twin energy beams. The first would excite the water molecules to the point where they would begin to turn to steam and the second beam that oscillated wildly up and down a range of frequencies that would super excite the molecules and cause almost instant breakdown into the component hydrogen and oxygen atoms.

The enormous heat involved in this breakdown would be sufficient to ignite the hydrogen.

Within two days he completed the three parts of his test rig: what Bud had dubbed "the steam beam," along with the breakdown beam and the magnetic encasements. This test setup would run at a very low setting but should give him the data he needed to check if the theory proved out.

Just to be extra safe he requested that the entire Administration building be evacuated for the one-minute test. Most employees headed for an unscheduled coffee break in the canteen but his father insisted on joining Tom in the lab for the final preparations.

"I see that you've been smart and set up cameras and a remote activation for all this. Since you have taken all this precaution I have to assume you believe that a lot of energy is going to be created."

"I do. Certainly not like a nuclear weapon, but my calculations show that one ounce of water in vaporized form should give me as much explosive energy as a stick of dynamite, and that's about a forty percent increase in the energy from my weather bombs."

They walked outside together and into a small van that held the monitoring and video equipment. Tom switched on the video. He had placed five high-speed cameras at various angles to view the results including one right inside the chamber near the point of intended ignition.

All five monitors came up with their full-color pictures.

He typed a rapid succession of commands into the computer and then turned his face up to watch. An on-screen countdown showed:

5… 4… 3… 2… 1…

The two-foot wide glass ball that sat at the far end of the chamber filled with white vapor. “Water vapor,” he confirmed. A second later a green light flashed on his console, and he depressed a red button. “Here goes—”

With a bright flash and a muffled boom that they felt even in the van, the screens showed them what Tom wanted to prove. The twin beams had turned the vapor to steam, broken the molecules apart and ignited them in an explosive manner and all in less than a single second.

“That was just one hundred watts. About the equivalent of three megawatts at full scale and from the intended altitude.”

“And, you’re going to be putting out how much power?” Damon asked.

“Probably about three-hundred and fifty megawatts.”

They went up and checked the test chamber. Everything inside, including Tom’s beam generators, was a complete wreck. The chamber was outfitted with pressure relief valves that had let the excess pressure bleed off and escape outside through a series of filters.

“I’ll know more once I check the test results and watch the high-speed video, but I think this,” he swept his had toward the devastation inside the chamber, “speaks for itself.”

The test results did show that the explosive power of the combined hydrogen and the extra oxygen was high, considerably greater than even Tom hoped for.

He called a meeting of everyone who would be involved in building the full-sized Eradicator. After watching a slow-motion video from one of the cameras, they enthusiastically listened as he outlined and then detailed the test and results along with the technologies behind the powerful beams. There were a few questions and some additional information related, but by the end of the two hours, everybody in attendance was ready to race off and make it all a reality.

Bashalli’s design proved to be premoniscient. Her faceted upper spires on the Eradicator provided more area for, and a better level of cooling for the internal components while allowing Tom to silver-

coat the inner facets to direct the sun, no matter at what angle, into the solar collector that kept the Solar Battery array at full charge. In fact, the only changes to the outer appearance needed were to widen the base by about a foot and to add a fifth emitter 'leg' to the bottom.

In a matter of two weeks it all came together.

Jake Aturian at the Construction Company turned one of his smaller production lines over to Hank for the molding and construction of all the outer casing pieces.

Tom was particularly happy that the Electronics department worked overtime to get all the components, and some spares, built and tested in record time.

He and Damon were sitting in their shared office discussing the rapid progress when a call came in for them both.

"Hello, Admiral Hopkins," Damon greeted the man in charge of most of the Atlantic Fleet. "To what do we owe the honor?"

"Hello, Damon and I assume Tom as well."

"Hello, Admiral," Tom said.

The Navy man cleared his throat. "I come bearing my hat in my hand, about to ask a great favor of you. As you no doubt an understand, I have been in the loop on everything you have been doing to try to solve this hurricane problem." They acknowledged that they knew this. "Fine. Fine. Here is the begging part. I have been receiving an increasing amount of pressure from the top rung of my ladder to involve our Commander in Chief in the launch of your satellite."

"Uh, Admiral?" Tom asked hesitantly. "Do you mean the President?"

"The very man, Tom. You see, he has privately been pushing back at some incredible demands by Caribbean nations for ever-increasing amounts of cash to repair their countries and even to compensate folks for weather-related damage. Compensate! Like we have something to do with the weather hitting their islands for the past how ever many thousands of years!"

He sounded very indignant.

"Let me see if I understand this," Damon told him. "The President would like to be there for the launch as both a supporter of our efforts and to turn this into a media coup assuming it turns out to be the success we believe it will be?

"That is, as they say, it."

"So, if it isn't a success, sir," Tom added, "do we suddenly forget that he was there?"

The Admiral snorted. "Hardly. But you're right, Damon. This is partly a show of support and part politics, but the biggest part of the request is that he would like to do this from the deck of one of our aircraft carriers. The *George Washington*. What do you think?"

"Can we put you on hold for two minutes, Admiral?"

"Sure. I'll hum along with the music."

After pressing the button, Damon asked Tom, "Well?"

Tom smiled. "Dad. It works perfectly. I hadn't brought it up to you yet, but a launch at sea is actually better than going back to that island where Bud and I were captured. Or, any island for that matter. I wanted to do it on the *Sea Charger*, but she is in the North Pacific on a project to plot the massive line of floating garbage that runs practically from Japan to Canada."

"Okay, then. We won't interrupt that. Let's make the Admiral's day." Damon pressed the button and the call was reconnected.

"Admiral? Tom and I have talked this over briefly. While we would prefer to do this as quietly as possible—just in case, you understand—assuming that this is not going to be broadcast as a live event, we will be pleased to use the carrier."

"Live? Oh, good golly no. Perish that thought. We'll have a full camera crew there to document things but it will be a Navy crew. They'll shoot what you say they can and get the President in as many shots as seems reasonable, but nothing, and I mean absolutely nothing goes out to the media until you say things have been a success."

"There is one other thing, sir," Tom added stepping closer to the phone. "Our Cyclonic Eradicator uses a technology that required it to electo-magnetically anchor itself to something in order to fly. Out at sea and until we get it up to about ten-thousand feet that's going to mean the deck of the carrier."

"Okay. I'm with you so far. Big expanse of metal. Fine."

"Well, here is the catch. Absolutely nothing can be on the deck when this takes off. No jets, no equipment, no stray nuts and bolts. Nothing."

"Why is that?"

"Because the anchors will sweep all around the deck looking for

the best balance of points. Anything they touch will be given a good yank. That's anything up to about ten tons or so. Even at that weight, things might get moved and dragged around. And, lighter stuff could fly all the way up and hit the Eradicator during the first several hundred feet."

"Will the President be safe?"

"Absolutely. In fact, we'll try to set the search and grab field to be small enough to not reach the ship's command island, but to be safe we must insist on a totally clear deck."

"The men and women of the *Washington* will have that deck so clean you could eat off it!" the Navy man declared. "Oh, while I've got you on the phone I wanted to thank you for the fine repaving job you evidently did at Homestead Air Base. The pilots of Air Force One want that smooth surface. Congratulations. Just one thing. Why haven't you offered to do a *Navy* air base?"

Tom and Damon chuckled. Damon replied, "Admiral. You give us the measurements and the name of the base or bases you want, and within two days we'll have a schedule and price for you." He told him the basic per foot cost, which made the Admiral gasp.

"Multiplied by what. A thousand. Ten thousand. Surely that can't be the actual price."

They both assured him it was.

"Well, I'll be!"

Preparations were made and the launch scheduled for two weeks later. The NOAA estimated that a severe tropical storm should be building at about that same time. It would be a great test for the Eradicator.

The *George Washington* anchored off the Florida coast three days before the test. Two-thirds of her jets flew off earlier that morning and headed for temporary parking at Homestead. The rest were taken below to the hangar deck and strapped down.

With Bud and the controls of the *Super Queen*, Tom lowered the full-size Cyclonic Eradicator to the deck of the *Washington*. He was thankful that the cargo modules for the giant jet were large enough to accommodate the device.

It settled down on a large rubberized cushion he had dropped a minute before and that had been spread out by the flight deck crew. By the time they flew back to Homestead and then returned in The Toad that Mr. Swift piloted down—with Sandy and Bashalli—temporary cables had been rigged and the Eradicator was firmly

held down.

Even with no tail hook, The Toad had been able to stop with plenty of space to spare on the almost-quarter-mile deck.

They were provided berthing compartments and had dinner that evening with the Captain and his senior officers.

The next morning was a flurry of activity as final preparations were made both for the trip to the launch site, but—and more importantly—for the arrival that afternoon of the President and his entourage.

When they arrived on the ship it was via one of the recognizable Marine helicopters that always accompanied him. Tom offered The Toad to bring some of the others in his party. Three trips later by both of the aircraft and the fifty-person team were also onboard.

Both Tom and Damon missed seeing many of the arrivals as they were dealing with finalizing the control and launch equipment for the test. They also saw few of the President's entourage that evening or the following day as they dined with junior officers. One Secret Service man was assigned to stay with them during work hours, but that was about it.

On the morning of the test launch, the *Washington* arrived on station at five a.m. Too deep to anchor, she was kept in the same location by the skillful piloting of the ship's Executive Officer.

When the signal was given several hours later that the launch was about thirty minutes away, Tom, Bud, Damon, Hank, Arv and two additional Enterprises employees walked out onto the flight deck moments ahead of the President and a small team of fourteen.

As Damon scanned the latest arrivals he jaw practically dropped as he spotted a woman standing next to the President.

Senator Murphy!

Anger overcame decorum and he stalked forward. "Hello, Mr. President. Welcome and why the hell is this woman here?" His question was more of a demand.

Shaking Damon's hand, the most powerful man in the free world stepped forward and whispered a few words in his ear.

"The senator has asked to be allowed to come here to apologize to you directly and publicly. I would deem it a favor to me if you would at least hear her out."

He stepped back and looked at Damon.

After a minute of thought and reflection Damon nodded a terse

agreement. Seeing this, the senator—eyes downcast and obviously embarrassed—stepped forward. She offered her right hand which Damon took and gave a small shake.

"Mr. Swift. I have come here after requesting the President allow me to offer you my apology for any and all of my past behavior regarding both any political disagreements we may have as well as everything having to do with my brother. I have been blinded by anger for years, and now it turns out that much of that was through my mistaking the poisonous hatred my brother has built up as being truths. I can only say that I am sorry to you, but I am also letting you know that I realize my behavior is not in the best interest of this nation. My term of office is up in eleven months. I will not run for re-election."

Damon Swift looked at an emotionally beaten woman standing before him. Never one to hold grudges, his face softened and he reached back out to take her hand, giving it a longer and meaningful shake.

"I am not represented by you, Madam, but so long as your apology is sincere and your attitudes have honestly changed, I would say that your constituents might be consulted regarding your decision."

Tom was a little bewildered by this turn of events, but he had several more things to do before the launch. As he was closing up the main hatch of the Eradicator, a small cough came from behind. Turning around he found himself facing the President and the Captain of the *Washington*.

"I hope things are all set, Tom," the President told him.

"They are, sir. They are indeed. We'll be ready for launch in less than ten minutes… or whenever you are ready, sir."

With a wry smile, the President told him, "This is your show, Tom. Just tell us when to get the heck out of the way."

"I will do that as politely as I can, sir. Captain," he said facing the ship's commanding officer, "can I ask that the ship be turned and her speed adjusted to give me as close to zero wind across the deck as possible?"

"I'll make it so right now. Give us three minutes from the time I get to the Bridge. Mr. President? Will you accompany me?"

Tom set the hatch safety latch and followed them part way across the deck. He looked at the small crowd and called out, "I need to get everyone inside. We launch in under five minutes!"

By the time he arrived in the Bridge wing room overlooking the deck where the launch controls had been set up, the ship had turned and the flags he could see to the rear of the island were hanging straight down.

An announcement was made on the ship's announcing system to stay clear of the flight deck. Two sailors who thought they could not be seen on a small safety catwalk over the starboard side of the deck *were* spotted and another announcement made to get them inside.

Tom received the go-ahead signal from the Bridge and began the short countdown.

"Five… four… three… two… one…"

He pressed the launch button and the Cyclonic Eradicator gently rose from the deck. Two seconds later it was even with the Bridge and the effects of the Gravitex were obvious. The mat that had been under it was flapping upward. Fortunately, it was held to the deck by a cable attached to one corner.

Thirty seconds went by before Tom let the spectators know, "It's just passed one thousand feet and it's accelerating." He gave them further updates until it passed thirty thousand feet and he could see that the Gravitex beams had locked onto land masses. "Anyone who wants to do so, it is now safe to go back outside."

The Eradicator reached its parking altitude and sat, waiting for an assignment. Tom had realized that the Eradicator—programmed so it always needed to be directed to a target by a human and never allowed to be autonomous—might be called upon at any time, so he also sat, waiting.

An hour later the coordinates of the eye of the gathering storm came through. He let the Captain know that he was about to set things in motion.

"The President will be there in three minutes. Can you wait?"

Tom said he could. When the President, Captain and Tom's father arrived he showed them how he was setting the controls. "The Eradicator will now devise the best way to reach that point while maintaining anchorage points on various islands out here." He pointed at the picture of a circular storm on one of his monitors. "That picture is coming from our space Outpost up in geosynchronous orbit. We will be able to see the immediate and long-tern effects as they happen."

Twenty-two minutes later the signal came from the Eradicator that it was in position. Tom turned to face his small audience. "Mr.

President? Would you do the honor of pressing the activate button?"

"You sure you want me to do this?" he asked the young inventor as the Navy cameraman and sound engineer shuffled into a more favorable position.

"I'd consider it an honor, sir."

"I'll make you a deal. Let's press it together so we both go down in those history books people always talk about." He winked at Tom.

"Alright, sir." They each took half of the large button. "In three, two, one, now!" They pressed.

All eyes went immediately to the monitor. A series of almost imperceptible beams shot out of a tiny something hanging between the Outpost and the storm. Then, and to the amazement of all except Tom, a series of what looked like large explosions peppered five locations around the storm. And, as they watched a second set of beams lanced out and set of five additional explosions appeared at points between the first five.

The effect was easily seen. The storm was billowing out and dissipating away from the center, and that portion of the storm inside the ring of explosions was being jammed together into the eye and was falling apart.

Tom felt the large hand of the Commander in Chief as it was set on his shoulder and lightly squeezed. In an awed whisper, the man told him, "Well done, Tom Swift!"

It was decided that at least two hours should be allowed to ensure that the storm had been knocked apart for good. During that time Mr. Swift spent much of it on the phone back to Enterprises.

He cornered Tom shortly before the President was due to record a speech about the success of the Eradicator.

"Good news, Tom," he said with a big smile. The Joint Chiefs of Staff met in an emergency meeting yesterday and voted to award the Mach-3 fighter turbine contract to us. We're looking at an initial order of three hundred pairs and a possible future order of another hundred pairs or more for NATO."

Tom shook his father's hand just as the ship's captain tapped on the microphone at the podium and announced, "Ladies and gentlemen… the President of The United States!"

He made a short speech describing the increasing storm problems and the amazing results of the Cyclonic Eradicator, giving full credit to Tom. He concluded with, "…and along with

safeguarding our own vulnerable shores, this amazing device will help us keep the people of the Caribbean islands, Central America and the American South right here at home safer than they have ever been. Well done, Tom Swift and Swift Enterprises!"

Following his speech, the President approached Tom and Bashalli. Tom introduced him to Bashalli. "You have a most wonderful father, Tom," he said, shaking the inventor's hand and then Bashalli's. "He was quite willing to take full culpability should this have been anything other than the resounding success it was."

Tom smiled. "Well, Mr. President, dad is like that. He does that for the entire company. I guess like any good ship's captain, the blame stops at his level."

"And, I suspect, you are going to be as wonderful a captain for Swift Enterprises as he is in the coming years. I truly look forward to seeing what new marvels come from your mind. And you, Miss Prandit, are a lucky as well as beautiful young woman. Keep him safe for all of us."

He excused himself and walked back to where Damon and Senator Murphy were again talking.

Tom could feel Bashalli quivering and turned to see that her whole body was shaking. "Thomas! *That* was the President of The United States!" she stage whispered to him. "He called me 'beautiful!'"

Calmly, Tom replied, "Yes. I know. You are. He and dad have known each other since graduate school."

She stared at him in disbelief at how casually he took the encounter. "Just like that? 'Oh, yes, didn't I mention that the President and my father are friends'?" she said trying to mimic Tom's voice. "Who's next on the surprise list. The King of England?"

Tom took a firmer grip on her still trembling hand and asked, "Would you like to meet him? I could give Buckingham Palace a call if you like…"

<•>—< End of Book >—<•>