TOM SWIFT AND HIS NUCLEAR HYPERPLANE

THE NEW TOM SWIFT JR ADVENTURES

BY VICTOR APPLETON II

TOM SWIFT AND HIS NUCLEAR HYPERPLANE
TOM SWIFT AND HIS FLYING LAB
TOM SWIFT AND HIS JETMARINE
TOM SWIFT AND HIS ROCKET SHIP
TOM SWIFT AND HIS GIANT ROBOT
TOM SWIFT AND HIS ATOMIC EARTH BLASTER
TOM SWIFT AND HIS OUTPOST IN SPACE
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TOM SWIFT ON THE PHANTOM SATELLITE
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TOM SWIFT AND HIS DEEP-SEA HYDRODOME
TOM SWIFT IN THE RACE TO THE MOON

A moment later the sleek black hyperplane left the ground and soared into the air! (Page 159)

THE NEW TOM SWIFT JR. ADVENTURES

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AND HIS NUCLEAR HYPERPLANE

BY VICTOR APPLETON II

ILLUSTRATED BY JONATHAN COOPER

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PROLOGUE

A GHOST FROM THE PAST

A BOLT of lightning flashed across the dark sky, briefly distracting Tom Swift Jr. from the blueprints he had been reading. The nineteen-year-old scientist looked out the laboratory window and quietly watched the thunderstorm rage outside. The Citadel was located in New Mexico and was bone-dry for most of the year, but Tom had visited the lab on one of its rare rainy days. *Looks like quite a storm out there*, the young inventor thought to himself. *But at least there's peace inside. I could use a little of that after what I've been through*.

It had been a long day for Tom, and he was glad to at have a moment of respite. The famous inventor was curled up in an overstuffed easy chair, browsing through the contents of an old yellow folder. Every now and then he would pause on a page and smile. The documents he had in his hands were bringing back memories, and it didn't take him long to get lost once more in his thoughts.

The past few months had been particularly stressful for him. Ever since he returned from his first interstellar voyage he had been trying to put together an expedition to Neptune. It was there that he had been forced to abandon the *Challenger* after it was all-

but-destroyed in a fierce battle with the Space Legion, and his thoughts had been there ever since. Tom had created many amazing inventions in his career, but the *Challenger* had a special place in his heart. It was the *Challenger* that took him to the moon when when he was racing against odds to beat the Brungarians. It was the *Challenger* that had taken him halfway to Venus to rescue his father. The mighty spaceship had even taken him hundreds of light-years into interstellar space in a successful attempt to save a dying alien race. But now the ship of his dreams was slowly orbiting the great gas giant, waiting for its creator to come and rescue it.

He would have been there and back by now but the rescue attempt had proven more difficult to organize than he had first thought. Since there was no viable way to tow the enormous ship back to Earth, he decided to mount a mission to repair it in space – or at least patch it to the point where he could fly it back home. This translated into a lot of sleepless nights as he worked to gather the necessary parts and manpower. The mission was complicated by the fact that a group of aliens on Mars wanted to go with him to establish a colony on Triton, and that meant an enormous amount of coordination had to take place. His space friends were eager to help, but Tom had never been involved in an interplanetary joint venture before and was rapidly learning that management could be immensely frustrating. On top of everything else the young inventor had run into serious difficulties in developing his latest marvel, the claytronic stones.

The combined stress eventually proved too much for Tom and he decided to flee his home in Shopton, New York and seek a little solitude in his private laboratory at the Citadel. The facility had been built by Swift Enterprises years ago as a research laboratory for nuclear fission, but fusion technology was quickly making fission obsolete. While it was still a viable business, Tom knew that the plant's days were numbered. As lightning flashed across the New Mexico sky Tom gazed out the plate-glass window, browsed through the old folder, and became lost in a sea of memories.

After several hours of bliss the young man was rudely interrupted with a person materialized in the middle of his laboratory. Startled, Tom quickly set the folder down and leaped to his feet, and then smiled when he recognized the visitor.

"Bud!" he exclaimed as he walked toward the individual. Bud Barclay had been his best friend and loyal companion through many adventures. The two had battled vicious enemies at the bottom of the sea, in the depths of space, and in the jungles of South America. As much as Tom was enjoying his solitude he valued the presence of his friend.

Tom shook his hand and offered him a seat. "What on earth are you doing here, flyboy? I thought you were on Fearing Island putting the last touches on the rescue mission. Aren't we supposed to leave next week?"

Bud nodded. "Well, I was, but then I had something I needed to ask you and nobody knew where you were. I've spent hours trying to track you down! Do you realize that I was about to file a missing persons report?"

Tom laughed as the two friends sat down. "I haven't been gone *that* long. But you're right – I suppose I didn't tell anyone where I was going."

Bud grinned. "All you have to do is disappear for a few minutes and the whole world falls apart! But I don't blame you, skipper. I've been trying to get you to take a vacation for months. It's about time you started taking my advice!"

Tom stretched out in the chair and relaxed. "And so I've done exactly that! It's been nice and peaceful here this evening, with no one to pester me but the wind and the rain. In fact, I bet you'd still be looking for me if I hadn't installed Transmittatons everywhere. If you ask me that device makes it entirely too easy to zip from place to place. A man can hardly get a moment's peace anymore!"

"Matter transmission is the best thing you've ever done, Tom. Do you know how long it would have taken me to fly from Shopton to the Citadel? But thanks to your genius I can just press a button and – whammo! - here I am. Hiding out at the Citadel

was a nice touch, by the way. We're hardly ever here. I even checked out Nestria and the Outpost in Space before I thought of your old nuclear research laboratory."

Tom smiled. "You really have been everywhere! Man. But we have been here before, you know. Back when I was working on my Giant Robot we were here all the time. But I suppose that was quite a few inventions ago."

Bud nodded. "I remember that! Those were good times – I still can't believe you got that ungainly contraption to play tennis. Although you know, maybe we'd spend more time here if it wasn't named the Citadel. Do you realize what a terribly unglamorous name that is?"

Tom laughed. "You and your penchant for renaming things! Do I have any inventions left that you haven't suggested renaming? I don't know what's gotten into you."

Bud smiled. "Hey, what's a sidekick for other than offering brilliant and witty suggestions? But, seriously, Tom. Why not call it Atom City or something? You could have people lining up to come out here! We could charge admission or something after the plant gets mothballed."

Tom glanced at the folder on the table and a soft look appeared on his face. "If anything, Bud, we should have named it after Irene Goddard. After all, if it hadn't been for her Dad would never have survived to build the reactor that's out there today. The Citadel wasn't our first nuclear project on this particular piece of real estate, you know."

Bud saw the folder on the table and picked it up. "Project Arcturus! Wow – now there's a blast from the past. I can't believe the government let you keep a copy of this." Tom's friend looked at him and smiled. "So *that's* why you're here. You've been thinking about the hyperplane project, haven't you?"

Tom clasped his hands together and nodded. "You really can't blame me, you know. It was my very first invention after I graduated from school. I'd have to say that it was my biggest success and my most dismal failure. It was the start of my career as an inventor, and it came closer to destroying Swift Enterprises

than anything else I've ever done. But I have to say I owe it all to Irene."

"And your trusty sidekick," Bud quipped. "But say, I don't think I ever heard the whole story. I only got involved at the very end, when you decided to invade Brungaria all by yourself."

Tom nodded. "I remember that. The whole incident was so classified that I don't think even my sister has heard what really happened. But since you were involved, how would you like to hear the whole story?"

Bud settled down into the chair with glee. "Sounds like a blast, skipper! I'm ready for a long tale of science and adventure."

Tom smiled. "It all started on the day my father perfected Tomasite..."

CHAPTER I

THE MIRACLE PLASTIC

AN EARLY morning fog gently drifted over the highway as Tom Swift Sr. guided his silver sports car down a winding country road. The fog reduced effectiveness of his headlights, but he could easily see that the little-used road was completely deserted. Had he been driving at a normal hour he could have enjoyed the beauty that can only be found in the rolling hills of upper New York State. At the moment, however, darkness obscured everything but the road directly in front of him.

Tom Sr. glanced at his watch and saw that it was 5:18 AM. He yawned, and then turned on the radio. *It's much too early for a Swift to be awake*, he thought tiredly. *I'm getting too old for this kind of thing.*

The middle-aged scientist was on his way to Swift Enterprises, and had decided to take a rural shortcut instead of the usual highway. In the old days this part of the state was sparsely populated, but Swift Enterprises was rapidly turning the rural community into a modern metropolis. The transformation had started a generation ago when his father, Barton Swift, had fallen in love with inventing. His passionate interest in science had proven so successful that the small business he started eventually

grew into a multinational corporation that had become synonymous with state-of-the-art technology. When Tom became an adult his father turned the family business over to him, and he had guided the company through two world wars and pioneered many of its most amazing inventions.

His company had been built within walking distance of the Swift homestead, but this morning he had been forced to drive across town to pick up some blueprints from the Swift Construction Company. The sister company to Swift Enterprises was run by his old friend Ned Newton and was responsible for mass-producing the many breakthroughs that Swift Enterprises produced.

As he made his way through the hills that surrounded Lake Carlopa he let his mind wander to his latest research project. Tom Sr. loved driving along the backroads that surrounded his home in Shopton, New York, as it gave him time to leave behind the hectic pace of the plant and think. *Although it's not like anyone's going to be there this early*, he thought wryly. *We Swifts are famous for working late into the night, not getting up before the sun sees fit to shine! But I suppose this time it can't be helped.*

It took him about twenty minutes of driving before he could see the bright lights of Swift Enterprises on the horizon. The four-mile-square complex was packed with every kind of scientific laboratory and was home to some of the world's most pioneering projects.

Tom Sr. pulled his car up to the main gate and rolled down his window. George Manfield, the night-shift guard, looked at him and nodded in recognition. “Good morning, Mr. Swift. You're hear mighty early today.”

“Much too early, George,” Tom replied, yawning. “I don't know how you manage to work all night.”

“I've been doing it for twenty years, sir. You get used to it after a while. I hate to bother you, but mind if I see your badge?”

“Sure – no problem,” the inventor said. He patted the front of his shirt absently and then realized that his security badge was not pinned to his shirt. Tom frowned. “Hold on just a second – I'm

sure it's here somewhere."

The guard nodded patiently. "Whatever you say, Mr. Swift. You're the boss. My shift doesn't end for another hour."

Tom Sr. grabbed the briefcase from the seat beside him, popped it open, and began rifling through it. His heart sank when he saw that its contents were in wild disarray. Papers with important hand-written formulas were strewn about at random, mixed in with mail from his home and memos from other departments. When he saw that he had written a grocery list on the back of a bill of lading he sighed deeply. *I've got to get more organized*, he thought grimly. *If I ever give my grocer a request for fissionable materials I'm likely to make the morning paper! Ned would never let me hear the end of it.*

After a few minutes of digging Tom at last located his badge and handed it to the guard.

"I'm glad you found that," George said, as he flipped the switch to open the gate. "I can't let you in without that badge. It's policy, you know. Can't run things the way we used to, apparently."

"I know what you mean," Tom Sr. said, breathing a sigh of relief. "Having to turn around and go back home to get the badge would have been awful."

"Eh, it wouldn't have been as bad as that. Your assistant Irene is here, you know."

Tom looked surprised. "She's not my – that is – she's already here? When did she get in?"

The guard shrugged. "Same time as usual. You know Irene! She's a nice girl, she is. Always one to lend a hand, but a bit feisty. If you ever forgot your badge and she found out you would be in for it, famous scientist or not. Especially after what you put her through last week."

Tom winced. "That was an accident, George. Zinc dust can be flammable, you know, and I did pay for the damage to her car. But – um, thanks."

George nodded and Tom drove through the gate. As he had expected the company grounds were largely deserted, with the

exception of the observatory. The fog that had plagued his drive to the plant was only a minor nuisance on the grounds, and he was able to get to the building that housed his private laboratory without incident.

I have got to find a better way to handle security here at the plant, Tom Sr. thought to himself, as he gathered up the contents of his briefcase and got out of the car. *These badges are terrible – they're easily lost, and easily forged. Maybe my son can think of something. After all, if he can design an atomic power plant then* surely *he can come up with a thief-proof security fence. How hard could it possibly be?*

Tom Swift Sr. had two children, a sixteen-year-old son named Tom Swift Jr. and a fifteen-year-old daughter named Sandra. His son Tom had shown a remarkable talent for invention and his father was certain that he would follow in the Swift family footsteps. Tom had recently displayed an interest in nuclear energy and his father was excited to see what his son would accomplish in that field.

After making a mental note to talk to his son about designing an electronic security system Tom walked into the deserted building and used his key to enter his laboratory. When he stepped inside he heard a cheery voice call out to him. “Good morning, Mr. Swift! Help yourself to some breakfast – I've left some food on the table for you. Oh, and there's some coffee too.”

“Thanks, Irene,” Tom Sr. said gratefully. He set his briefcase down by the door, hung his coat in the closet, and then glanced around. Over in one corner of the lab was a small battered table and a set of blackened chairs, where he often ate when he was too busy to make it to the company cafeteria. Sitting on the table was a plate of freshly-made donuts and a pot of steaming coffee, which was resting on a hot plate. Tom had not taken the time to eat before leaving home and was glad that Irene had thought to provide breakfast.

Irene Goddard was hard at work in the main part of the laboratory. At the moment the seventeen-year-old girl was bent over a spectrophotometer, carefully reading off numbers and

jotting them down on a clipboard. Irene was wearing a clean white laboratory coat, and had piercing green eyes and short red hair that was tied in the back with a black ribbon. At five-foot-two she was shorter than average, but she had a keen intellect and an infectious sense of humor. The teenage girl had already graduated from one of the country's most prestigious universities with a degree in nuclear physics and was one of Swift Enterprises' most promising employees. Tom had known her since she was a small child because he was good friends with her grandfather Robert Goddard, the famous rocket scientist. When Robert's son Michael moved his family to Shopton the Swifts became close friends with them, and their daughter Irene had grown up with his son.

Tom poured some coffee into a cup and grabbed a donut. "How did you know I didn't eat before I got here?" he asked.

Irene looked up from the scientific instrument and laughed. "You and Tom are just alike – you never, ever think about food. I still don't know why you aren't suffering from malnutrition or something. Have you ever thought about hiring a cook?"

"We already have one," Tom Sr. said, as he munched on the donut. "Who do you think runs the cafeteria that feeds the hundreds of people that work here?"

"Yeah, but he doesn't actually bring the food to you. That's what you two need – some personal attention. Someone to interrupt your solitude and remind you that you, too, require nourishment to survive."

"These are remarkably good donuts," Tom said thoughtfully, as he took another one from the plate. "Come to think of it, where did you find donuts this time of morning? I didn't think the cafeteria opened until seven."

"It doesn't," Irene said, as she placed a material sample into a magnetic resonance machine. "I had my mom make those this morning before I came in."

Tom's eyes grew large. "Oh, dear girl, *please* tell me you didn't wake up your poor mother at five in the morning to fix breakfast for me."

Irene's eyes twinkled. “Ok, I won't – it was four, actually. But c'mon, she was already up. It wasn't a big deal or anything. We Goddards are early risers, you know! Runs in the family.”

Tom sighed and then finished his breakfast. “I don't know what I'm going to do with you, Irene. But at least this is the last time I'll have to come in this early for a while. At least, it will be if everything goes well.”

“It will,” Irene said. “I can feel it! Today is going to be the day. You wait and see if it's not. I have a way of being right about these things.”

Tom smiled. “It's been ten years, Irene. I'm ready for this project to be over. It will be nice to think of something other than polymerization. So tell me, what have you accomplished this morning?”

Irene grabbed the clipboard she had been using and the two settled down to work. Over the next several hours the two scientists continued to refine several gallons of chemicals, putting them through a battery of tests and removing any lingering impurities. When they were at last satisfied with the consistency of a shimmering blue liquid they poured it into a special container, placed the container into a large industrial-grade oven, and then began the curing process.

“There's got to be an easier way to do this,” Irene remarked after the oven settings had been double-checked. “Making the liquid acetates is not that hard, and reacting it to make it form plastic isn't that hard either. But the quality control process is a real killer. That one step has led to so many failures.”

“True, but that's the way it has to be for now,” Tom replied. “It only takes a very small impurity to destroy the chains and make the plastic useless. Once we can prove this process works I'm sure we can design a way to mass-produce Tomasite. But for now it pays to do it the hard way. As a wise man once said, quality is severe drudgery.”

A voice spoke up from the laboratory door. “So you *are* going to name the miracle plastic Tomasite!” Tom Swift Jr. said excitedly. “I had no idea you decided to take Mom's advice and

name the plastic after its famous inventor. When did this happen?"

Irene turned around and laughed. "So the sleepy inventor has finally made it to work! I was wondering when the skipper would grace us with his presence. How long have you been standing there?"

"Not too long," he replied, smiling. "You two looked busy, so I thought I'd wait until you started the curing process to announce my presence."

"Thanks," his dad replied. "It has been a busy morning. But about the name – well, all I can say is that your mother is very persuasive. She has a way with these things, son! I learned a long time ago that it's best to take her advice."

Tom nodded. "I'm sure mother will be pleased! It is a great honor. But how long have you two been here? Apparently I've missed all the fun."

Irene glanced at her watch. "We've been here about six hours, I guess. Or at least I have. Your dad got here a little later than I did."

Mr. Swift looked surprised. "You mean it's almost noon? I've completely lost track of time! Ned's going to be arriving soon for the demonstration and I don't have anything prepared." The middle-aged inventor removed his lab coat, tossed it onto the back of a chair, grabbed his briefcase, and ran out of the room. "I'll be back later," he called out. "Keep an eye on the Tomasite!"

"You got it," Irene replied.

After his father left Tom grabbed a stool, sat it in front of the oven, and stared through the window thoughtfully. Irene shook her head. "You know that Tomasite takes a full hour and twenty minutes to cure. Staring at it isn't going to make it go any faster! Besides, it's blazing hot that close to the oven. You're going to get a sunburn or something."

"Oh, I know," Tom said absently. "I'm just thinking."

Irene got another stool and sat down beside him. She was silent for a few minutes, and then spoke up. "You're worried, aren't you, skipper?" she asked quietly.

Tom nodded, but said nothing.

“Do you think your dad is going to fail?” she asked.

The young inventor looked at her. “Do you?” he asked.

Irene shook her head. “Your dad never fails, Tom. It might take him a while but he always finds the solution. Don't you remember what he told us? 'Every question has an answer, and it's our job to find it.' That's what your dad does, and he's better at it than anyone else on the planet.”

“Dad did fail once, years ago,” Tom pointed out. “With the diamond makers. His attempts to produce artificial diamonds completely failed. They could do it and he couldn't.”

Irene shook her head. “That's not the same thing at all. The diamond makers weren't using technology to produce diamonds. They were using a freak of nature – a special mountain surrounded by a perpetual lightning storm. If your dad had a mountain like that he could have done it just as easily. Besides, when he got home he did figure out how to create diamonds, remember? The problem was he couldn't generate enough temperature and pressure to actually produce them. With all the advances that have been made in the past thirty years I bet he could do it now.”

“But he hasn't,” Tom replied.

“Of course not! Your dad's not insane, you know. It's not cost-effective. It's a lot cheaper to mine diamonds out of kimberlite pipes.”

“I guess,” Tom said. He looked back into the oven and nodded toward it. “But what about that, Ace? Is *that* going to work?”

“Of course it is,” the red-headed girl said fiercely. “Today is the day, skipper. It's going to work this time. I *know* it.”

Tom smiled. “So you really believe that it's possible to produce a plastic that is indestructible, lightweight, and impervious to radiation? Really?”

Irene looked him in the eye. “Yes, Tom. I do. If your dad says it can be done then it can be done. End of story.”

Tom laughed. “That's what I like about you, Ace. I happen to agree, by the way – I'm sure dad will make it work. I just hope

today's demonstration goes well. Do you remember what happened last time?"

Irene blushed. "That building has been mostly rebuilt, I'll have you know, and there were only minor injuries. Besides, we found out that it only happened because of a slight flaw in the quality control process that caused the molecular monomers to become explosively unstable in the presence of gamma radiation. We've spent hours this morning checking the sample, and it will *not* happen again. *This* time it is going to work."

Reassured, Tom relaxed and began to smile. "I'm sure you're right. At any rate, we'll find out in a couple hours. The demonstration is right after lunch. Which reminds me – that Tomasite is going to be curing for at least another seventy minutes. How'd you like to play a quick game of chess?" His eyes twinkled. "I should have enough time to beat you before it comes out of the oven."

Irene smiled. "Hey now, genius boy, I seem to recall winning the last time we played. But what about that reactor you've been designing? I don't think I've seen your latest blueprints. Didn't you bring them with you?"

Tom nodded. "Yeah, I did, but I'm kind of stuck until Dad gets the Tomasite perfected. The miniaturized reactor depends upon using Tomasite for shielding, and without actual Tomasite to experiment with I'm left with pages of guesswork. Things would be a lot easier if I had some real numbers to work with."

"I know," Irene replied sympathetically. "I had a feeling the delays were starting to get to you. But you'll get there, Tom. Sometimes it just takes longer than you'd think. Besides – "

"I'm only sixteen," Tom finished. "I know. I've got my whole life ahead of me! Which is why now is the *perfect* time to be enjoying the company of a distinguished fellow scientist in a ruthless battle of wits."

"Are you sure you wouldn't rather be off somewhere splitting atoms?" Irene asked coyly, as she walked across the room to get the chess set.

"Positive. After all, if you're right, I'll have actual Tomasite

this afternoon and can resume my work then with far greater accuracy. Why spend an hour crunching numbers that I'll just have to re-crunch?"

Irene removed the crystal chess set from the filing cabinet, walked back across the lab, and set it in front of Tom. She sighed. "You're not very romantic, Tom. You know that, right? That was your opening to say something warm and friendly. Something other than a deep concern about the accuracy of your arithmetic." She grinned. "Although I agree that math is clearly of the utmost importance."

Tom laughed. "At least I come by it honestly! My dad has never been mistaken for Don Juan either. But don't give up on me yet, Ace. With your careful guidance I'm sure I'll get the hang of it eventually! So – do you want to be white or black?"

CHAPTER II

TRIAL BY FIRE

THAT AFTERNOON two teenagers hurriedly walked toward one of Swift Enterprises' spacious experimental testing centers. It was a beautiful day in early Fall and a wide blue sky stretched to the horizon. The trees that lined the sidewalks were already showing tinges of yellow and red, and the warm summer air was beginning to cool. However, the beauty of that day was lost on Tom and Irene. They were discussing the Tomasite stress tests that were to be conducted in a few minutes, and worries of a catastrophic failure were dominating their minds. Their earlier show of confidence was beginning to fade as the actual test approached.

"Now are you sure we haven't forgotten anything?" Tom asked.

The young scientist bit her lip. "It really ought to work, skipper. I mean, I've done the math. The basic idea is sound – I'm sure of it. And we have spent all morning checking the Tomasite for impurities. If something was wrong we would have noticed."

"I'm sure you're right," Tom replied. "I just wish Dad hadn't invited a report to be there today. Do you know what will happen if it fails? I mean, the last time he did a radiation test it led to a cascade failure in the Tomasite and the resulting explosion blew

up most of the testing center. The only reason that didn't make the papers is because the press never found out about it. But today – ”

“I know!” Irene said nervously. “Believe me, I know. I've done everything I can but there are just so many things that could go wrong! Tomasite is a hideously complicated material and the smallest impurities can ruin it. But I think we've got it this time. Your dad does believe in it, you know. He thinks we're ready, and I trust his judgment.”

“I know, but why not test it first and *then* bring in a reporter, after you're sure it's not going to destroy the building?”

“It's not your dad's fault. He promised the paper six months ago that he would demonstrate the miracle plastic he'd been working on all these years, and he set today as the demonstration date. At the time he thought all the production problems were behind him. He had no idea it would take him this long to solve the radiation shielding issue.”

“Would it kill him to postpone the demonstration a day or two?” Tom asked irritably. “What's one day, Irene? One single day! Surely the paper would understand.”

“Your dad is a man of his word. If he tells someone that he's going to do something then he does it. He told the reporter that he was going to demonstrate Tomasite today and so that's exactly what he's going to do. If it works it works, and if it fails it fails. He's not going to hide, Tom.”

“I know, but – ”

“Just stop it,” Irene said firmly. “That's quite enough. We're going to go through with this and we're going to give it our best shot. If all you can do is moan about it then I suggest you sit this one out.”

“Sorry,” Tom said, abashed. “You're right. I'll behave. We'll make it through this.”

“Yes we will,” Irene replied.

The two at last reached the testing center and entered the building. Inside the foyer they found that Mr. Swift., Ned Newton, and the reporter from the local newspaper had already arrived. Ned Newton was the lifelong friend and companion of

Tom's father. For years Ned had been responsible for the financial side of Swift Enterprises and now operated the Swift Construction Company. Ned always liked to be around whenever his friend demonstrated a new scientific marvel.

"There you are!" Mr. Swift said, beaming. "Peele, I'd like you to meet my son, Tom Swift Jr.. Tom, this is Vince Peele from the *Shopton Evening Bulletin*."

"It's a pleasure," Peele said, shaking the young inventor's hand firmly. "Your father is a great man, son, a great man. Maybe one day you'll grow up to be like him."

"Um, thanks," Tom replied uncertainly.

"And this is Irene Goddard," Mr. Swift continued. "She has proved invaluable in my work on Tomasite. I couldn't have done it without her!"

The red-headed girl blushed. "Not at all, sir. My assistance was very minor. It was an honor to have helped."

Peele reached over and shook her hand. "It's a pleasure, it really is. I've heard great things about you! If this plastic is everything I've been told then it's going to change everything, yes it will. You're going to be famous! I'll put your name in every paper across the country."

"Right this way," Mr. Swift said, ushering them down a long corridor. "This is one of our most modern testing centers. We can subject our material to a wide variety of conditions and simulate the actual stresses it might encounter in the real world."

As Tom's father explained the purpose of the various testing laboratories, Tom walked over to Irene. "*You're* going to be famous?" he whispered.

"He's a reporter," the teenage girl whispered back. "Don't take it personally. Young women in science just makes for good copy, I guess. Remember, Tom, he's looking to sell newspapers, and flashy headlines have a way of doing that."

"But doesn't he realize what I've been working on? I mean, there's a reason why I haven't been helping Dad on the Tomasite project. My ideas for the application of nuclear power will change everything."

“Lots of people have ideas,” Irene replied. “If you want reporters like Peele to take you seriously then you've got to take it beyond an idea and actually build it. Give it time, skipper. Your day will come.”

Tom's father led them to a door at the end of the hallway that was labeled TENSILE STRENGTH TESTING. He then removed a keychain from his pocket, unlocked the door, and let the group into the room. Inside they found a large piece of machinery that took up the bulk of the laboratory.

Mr. Swift then walked over to the machine and removed a small piece of material that was about three inches long and one inch in diameter. The rod was made of a green translucent substance. “This is a sample of Tomasite,” he said as he handed the sample to the reporter.

Peele took it from him and looked at it with great interest. “So *this* is what you've been working on for the past ten years! It's such a thrill to finally see it in person. I know we've already discussed this in the foyer, but can I get a quote for our readers on why this material is so important? If you don't mind, how will this impact the field of science?”

“Certainly,” Mr. Swift said. He took the sample from Peele and handed it to Irene, who secured it in the tensile testing machine. “What you see here, Vince, is the future of Swift Enterprises. I believe this plastic will revolutionize everything that we do. I'm especially interested in its applications in the field of nuclear energy.”

“Because of its remarkable properties?” Peele asked, as he jotted down shorthand in his notebook.

“Exactly! An indestructible, lightweight plastic that is impervious to all forms of radiation would be a tremendous boon to the field. Atomic energy would become much safer and more efficient. It could open up entirely new ways of doing things!”

Tom spoke up. “The atomic applications are really unlimited! I believe that this material can lead to a whole line of nuclear-powered transportation. An atomic car or plane, for example, could operate for months or even years without needing to be

refueled." His eyes glowed with enthusiasm. "It could end our reliance on fossil fuels and truly open up the nuclear age!"

Peele laughed. "An atomic-powered car! That'll be the day, son. So, anyway, what's the first test of the day?"

"The first property I want to demonstrate is this material's remarkable strength," Mr. Swift replied. "There are many different aspects to material strength, but today I'm going to focus on tensile strength."

When the reporter looked confused Irene spoke up. "It's just a measure of a material's ability to handle stress. It so happens that a material's tensile strength doesn't depend on the size of the sample, and since we don't have a lot of Tomasite right now it's a good fit for us."

"Of course," Peele said, nodding his head and taking notes. "We're on the cutting edge of science here! Tomasite is probably the rarest substance in the universe. In fact, I bet you just made this batch a few hours ago, didn't you? It's hot off the presses!"

"Actually – " Irene said.

"Shhh," Ned interrupted, cutting her off. "Discretion is a virtue."

"So how does this work?" Peele asked. "Are we going to just stand around and watch?"

"Yes, but from the safety of an adjoining room," Mr. Swift said. He nodded toward the right, where they saw a large plexiglass wall that was beside a narrow door. Through the window they could see a small control room. "The point of the test is to pull on the material until it breaks, and I'd like to be behind a protective shield when it finally gives way."

"Right – safety first!" Peele said cheerfully. The group walked through the door and entered the shielding area, where they sat down at a small table that faced the tensile machine. From the control room they had a clear view of the machine and the Tomasite sample.

"These levers control the operation of the machine," Mr. Swift explained. "This button begins the test, and this gauge allows us to see how much stress is being put on the material.

Today we're going to measure the force in psi, or pounds per square inch. Vince, would you care to begin the test?"

"It would be an honor," Peele replied. He gently pressed the button. As the machine began pulling on the sample the needle on the psi gauge began to move. They could feel the machine throbbing as it worked to apply stress to the material.

"This worked last time, didn't it?" Tom whispered to Irene.

She nodded. "It's the radiation test that gets us. But I'm feeling more confident now."

"I wish I could say that," Tom replied. Irene shot him a warning look, and Tom remained silent.

As the group watched, the force pulling on the Tomasite rod grew from 10,000 psi to 20,000 and then to 30,000. When it reached 36,000 psi Mr. Swift announced that they had reached the tensile strength of structural steel. Peele looked impressed as the Tomasite showed no signs of snapping.

The stress continued to increase, and soon reached 100,000 psi. When the indicator crossed 120,000 psi Mr. Swift spoke up again, saying that they had now reached the tensile strength of titanium. Still, the Tomasite showed no signs of yielding.

As the minutes ticked by the force continued to build. Peele whistled when the psi level exceeded one million. "Unbelievable," he said quietly, jotting down some notes. "Your miracle plastic makes steel look like tissue paper!"

Mr. Swift smiled. "We're just getting started. Give the machine a few more minutes and I'll show you what *real* strength looks like."

Minute by minute the force continued to build. The group watched silently as the stress level exceeded two million psi, then three, and then four. Peele's eyes kept growing wider. "How high is it going to go?"

"Nine point one three five," Irene replied matter-of-factly. "We've done this before, you know. Basically, Tomasite is about 250 times stronger than steel. It's all made possible by a very clever and complicated molecular arrangement."

"What's really remarkable is that even that staggering number

is far from the theoretical limit of what we can accomplish with that atomic structure," Mr. Swift pointed out. "We're really just scratching the surface."

Sure enough, when the gauge read 9,135,000 psi the Tomasite snapped violently, startling the group with a sudden deafening noise. The middle-aged inventor shut down the machine, smiling.

"A very impressive display!" Ned Newton said. "I can certainly see a market for something like that. And you tell me you know how to manufacture it in large quantities?"

He smiled. "That will come next, Ned. We can talk about that after the demonstration. There are still two more tests that we need to run!"

Peele nodded, jotting down notes. "Most remarkable! Most remarkable indeed. And what is next in your bag of tricks?"

Mr. Swift led the group back out to the hallway and down to a door that was labeled SHOOTING RANGE. As Tom opened the door and let the group inside he explained the purpose of this test.

"One of the advantages to Tomasite is that a very thin and lightweight coating can provide a tremendous amount of strength. While it is possible to build entire structures from the material, it's also possible to use it as a coating to reinforce existing objects. This test is intended to demonstrate that property."

Inside the room they saw a long shooting lane that extended about a hundred and fifty feet. A painted line on the ground marked the start of the lane, and spent cartridges littered the ground around it. To the left was a large gun rack that sported a wide variety of weapons.

"You have a nice collection of firearms here," Peele remarked as he walked over to the rack. "You used to be a big-game hunter, didn't you?"

Mr. Swift nodded. "I am no longer able to hunt as often as I would like, but back in my youth I went on many big game hunts in Africa and South America. I bagged quite a few elephants, as I recall."

"I never cared for hunting," Tom commented.

Irene laughed. "I don't think you even know how to use a gun.

Weapons just aren't your thing."

"That's your loss, son," Peele said. "I've heard stories about your dad's experiences in South America with the giants – to say nothing of the time when he rescued two missionaries that were held captive by the red pygmies! He was one of the best hunters of all time. A true legend."

"I had a lot of help," Mr. Swift remarked. "I couldn't have done it alone. But to get back to the test at hand – as you can see, about a hundred feet down range is a paper target that is hanging from a clothesline near the ceiling. The clothesline stretches from the firing line to the end of the range. Behind the target is a quarter-inch-thick plate of Tomasite, and behind the Tomasite is a sheet of glass."

"Oh, I get it!" the reporter exclaimed. "You're planning to shoot the target, hit the Tomasite, and then show that the glass is unscratched. Very nice! So who is going to demonstrate this for us?"

"I've got dibs on that!" Irene said, grinning. She walked over to the wall and grabbed a Thompson submachine gun, then went to a nearby cabinet, unlocked it, and took ammunition from it to load the weapon.

Peele's eyes grew wide. "You're pretty serious about this! I was expecting a shotgun or something. Are you telling me that Tomasite can stand up to fire from a fully automatic weapon?"

"We're about to find out!" Irene said grimly. "This gun a real classic, sir. The M1 can fire 600 rounds per minute – and not just any rounds, but .45 caliber. If Tomasite isn't indestructible then this ought to blow it to shreds."

She then removed several sets of earplugs and protective glasses from the cabinet and handed them out to the group. After making sure that everyone was ready she carried the loaded weapon over to the firing line, took careful aim, and pulled the trigger.

An explosion of noise filled the room as a stream of bullets tore the paper target to shreds. The barrage of bullets caused the Tomasite sample to dance around, but it did not shatter. After a

few moments Irene eased her finger off of the trigger.

After the echoing gunshots died down Mr. Swift pulled on the line that held the target and gently wheeled the target back toward the firing line. Meanwhile, Irene made sure that the gun's safety was on and that it contained no live ammunition. When she was satisfied that the gun was empty she put it back on the gun rack and relocked the ammunition cabinet.

When the target finally reached the firing line Peele reached up, removed it from the clothesline, and held it up to the light. “Amazing,” he breathed. The thin piece of Tomasite was not even scratched and the glass behind it was in perfect shape, even though the paper target that had been taped to the Tomasite surface was almost completely obliterated.

“You've really outdone yourself this time!” Ned remarked. “I wouldn't have believed it if I hadn't seen it with my own eyes, and I still find it hard to believe. That plastic of yours has got to violate at least six different laws of physics.”

Irene laughed. “You'd be surprised what a little Swift magic can do!”

“Shall we proceed to the next test?” Mr. Swift asked.

“There's more?” Peele asked. “You've already sold me. What I've seen in the past half hour puts Tomasite up there as one of the greatest wonders of the modern age.”

“We still have the radiation test left, and that is the most important test of all. If Tomasite can act as a safe radiation shield then my task will be complete.”

As the group walked out of the shooting range Ned walked over to Irene. “This is going to work, right?” he whispered.

“Of course!” Irene said firmly. “This will be just like all of the other tests that you've seen him do.”

Ned paled. “I sure hope not! I remember when he was testing his electric rifle, and – ”

“Are you coming with us?” Mr. Swift asked.

“Sorry,” Ned replied. He hurried over to his friend.

Tom and Irene lingered behind. “Now's your chance to run,” Tom said playfully. “It's now or never!”

Irene smiled. “And miss your dad's greatest triumph? I don't think so! We're going to make history today. You wait and see!”

“That's true – one way or the other,” Tom said dryly.

The red-headed girl stuck her tongue out at him and marched down the hallway. Tom laughed and ran after her.

As the two entered the radiation testing laboratory they saw a small machine mounted on a pedestal. The curious gun-like device was the only object in the empty concrete room, and it was pointed toward a small opening in the far wall. Through the opening they could see a Geiger counter, which was connected to some wires.

“This device is a radiation emitter,” Mr. Swift explained. “When I active the emitter it will send a beam of intense radiation through that opening and to the Geiger counter on the other side of the wall. The Geiger counter will measure the radiation level and forward that information to us in the control room. During the test I am going to lower a one-inch-thick plate of Tomasite over the opening. The material should prevent the radiation from ever reaching the Geiger counter, proving that it is an effective radiation shield.”

Peele nodded. “Sounds good. A real experiment in aperture science! But where are we going to watch the test? I don't know about you, but I don't want to be anywhere near that emitter when it's turned on.”

“I second the motion,” Ned added. “My doctor has put me on a strict no-radiation diet.”

Mr. Swift smiled. “The control room is right next door, gentlemen. We will monitor the test from there.”

After Irene made sure that everything was in place the group walked into the control room. Tom smiled when he saw that the control room had one small door, no windows, and was protected by thick concrete walls.

“Looks like you're not taking any chances,” Tom whispered to Irene.

Irene shrugged. “Luck favors the prepared. Besides, Ned is tired of paying to rebuild this lab.”

“You better believe it!” Ned said in a low voice, after overhearing Tom's whisper. “You've already exceeded your rebuilding budget for the year, young lady. The Swifts can't level any more structures until next April.”

Tom nodded while attempting to suppress a grin. “Thanks! That's good to know.”

When everyone was in position Mr. Swift walked up to the wall and threw a large, heavy switch. A red overhead light went on, indicating that the emitter was beaming dangerous radiation at the target in the other room. The group saw that a gauge on the wall was reporting intense levels of radiation.

Mr. Swift spoke up. “As you can see, there is an exact match between the radiation being emitted and the radiation being detected by the Geiger counter. This indicates that the system is working flawlessly. Now it is time for the real test. Vince, would you like to lower the Tomasite panel into place?”

Irene reached over and grabbed Tom hand. Her knuckles turned white. “This is it!” she whispered nervously. Tom nodded but said nothing.

Peele reached over and pressed the button labeled TOMASITE SHIELD. A moment later the level of detected radiation dropped to zero, even though the emitter's output had not fallen. The Tomasite was blocking the radiation!

“Yes!” Irene shouted, startling the group. “It works! I *knew* it! I just knew it would.”

Everyone laughed, and Peele jotted down some notes in his notebook. “Indeed it does, young lady! You and Tom Swift have a lot to be proud of. You have truly produced one of the great marvels of this age!”

“Congratulations,” Ned said, clapping his old friend on the back. “I can hardly wait to get this product to market! Next year could easily be our best year ever.”

Mr. Swift shut down the test and shook the reporter's hand. “Thank you so much for coming today. Is there anything else I can do?”

Peele nodded. “Now that you mention it there is one more

thing! Would you mind posing for a few pictures? A story like this is going to be on the front page of every paper in the country! The great Tom Swift has done it again. Coming soon: the nuclear age!"

CHAPTER III

BEYOND THE HORIZON

"I'VE ALWAYS liked your office, Tom," Ned remarked to his friend. "There's just something about it that appeals to me."

Mr. Swift smiled as he walked over to his desk and sat down. Over the years many visitors and dignitaries had graced his office and nearly all of them shared the same opinion. What caught there attention wasn't the beautiful mahogany walls, or the thick red carpet, or the tasteful modern furniture. The real attention-getters were the many models of famous Swift inventions that decorated the room.

"I see you've got all the classics here," Ned continued. "Your giant magnet, the great searchlight, giant cannon, and the airplanes – yes, the airplanes! You always had a thing for building heavier-than-air machines, didn't you?" Ned picked up a small model from a bookshelf and looked at it fondly. "I remember this one! This is your sky racer, isn't it?"

Tom nodded fondly. "The *Hummingbird*. I used that to save my father's life. It was one of my early ones."

Ned put the model down and looked at the pictures that hung on the wall. "These really bring back memories. There's you and your father, back in the old days. And there's Mr. Damon! Man, I

miss him. Do you remember the time we all went together to search for the City of Gold? We don't do things like that anymore."

Tom smiled. "I'm getting a bit old to be trekking through jungles, Ned. I'm not quite as young and foolish as I used to be."

"Nonsense! Mr. Damon was an old man when he started accompanying us on our expeditions. We're just getting soft and set in our ways." Ned settled down into a chair and relaxed. "You know, I need to start paying you personal visits more often. I've really enjoyed today. It's felt like old times, seeing you in action."

"I just live across town," Tom said, his eyes twinkling. "You don't need to use my son's hypersonic airplane to pay me a visit! Even my old electric runabout could have made it across town in less than thirty minutes."

Ned smiled. "You're quite right. I suppose it's all too easy to get caught up in managing the company and forget the important things in life. But speaking of Junior's latest project, do you really think he can build a hypersonic jet? I mean, I know he's your son, but he is pretty young."

Tom leaned back in his chair and looked thoughtfully into the distance. "That's a good question. I believe his basic idea is sound. However, the jet it going to take some serious effort to pull off, and it is unlike anything he has ever done before. It won't be easy for him."

"Is it really wise to let him try to build a nuclear-powered aircraft? An awful lot can go wrong, you know. It's not like he's tinkering with a motorcycle. Atomic power isn't for beginners."

"True, but he won't be acting alone – he has a whole company to help him out. Besides, I'll be keeping an eye on him. He has a genuine passion for this and I don't want to quench it."

Ned started to reply but was interrupted by a knock on the door, followed by a muffled voice. "Dad?"

"Come on in," he called out. The door opened and his son walked into the room, followed by Irene.

"Thanks for coming," Mr. Swift said warmly. "Please, take a seat. Ned and I called this meeting to talk about the future of the

Tomasite project. We're going to be taking the company in an exciting new direction and I wanted the two of you to be the first to know about our plans."

Tom and Irene took seats, and Mr. Swift got up from behind his desk and began pacing around the room. "As you know, the Tomasite tests we performed today were an unqualified success! There is still a lot of work to be done but I think we've demonstrated that the material works. Our next step is going to be working on mass production. Being able to produce it in the laboratory is fine, but we're going to need a different set of techniques to manufacture it in commercial quantities."

"I've already started thinking about that," Irene said excitedly. "There's so much we can do! I don't think it will be that hard to do if we – "

Ned help up a hand. "I'm sure you're right, Irene. However, I'm afraid that my constitution just isn't strong enough to handle the technical details of the process. Once you have it figured out you can send me the blueprints and I'll let my engineers make sense of it."

"Fair enough," Irene replied. "I think I can find it within my heart to take pity on an old man."

Mr. Swift smiled. "Irene, your help on the Tomasite project has been invaluable and I took pains to emphasize that to the reporter that was here today. I wanted to make sure that you received all the credit you deserved. However, there are plenty of talented engineers here that can work out a manufacturing process. I want to put your amazing abilities to use in a slightly different area."

"Ok," Irene said slowly. "What, exactly, did you have in mind?"

"I want you to work with my son on his hyperplane project. After all, your area of expertise is nuclear physics. I think the two of you will make an amazing team."

Tom sat up in his chair. "So you're going to let us go ahead with the project?"

His father nodded. "Of course! In fact, I'm going to do

everything in my power to help you. I believe that nuclear energy holds the key to this nation's future. With that in mind we're going to build a research center out west that is completely focused on experimental nuclear energy. After you have completed the reactor design we will build your test units there and, eventually, the hyperplane."

Tom looked at Ned with surprise. "And you're ok with this? I mean, isn't it going to be a bit expensive?"

"Your father's always been the one that drives the company," Ned replied. "My role is to make sure the bills get paid so he can keep on inventing. If he wants to take the company down the nuclear road then I'll be there to support him."

Mr. Swift continued. "We're going to be doing more at the Swift Nuclear Research Institute than just working on the hyperplane, of course. My next project is going to be designing a commercial nuclear power plant that is based on Tomasite technology. I think it could serve an important role in meeting our country's growing demand for energy."

Irene grinned. "So the two of you are going to be working on opposite ends of the spectrum! The father will work on powering an entire state, and the son will work on powering airplanes."

"I think my son's job will be harder than mine," Mr. Swift remarked. "Designing a nuclear reactor is one thing, but engineering one that is small enough to fit on a plane is a different challenge entirely."

"It will be a big task," Tom said thoughtfully.

"Don't be afraid to ask for help," Ned cautioned. "You have a lot of resources here. Use them."

"So where is this new facility going to be built?" Irene asked.

"I've found some remote property in New Mexico that should work," Mr. Swift replied. "It's fifteen miles from the nearest ranch. We wanted to find a location remote enough to rule out any possibility of harming the public, and I think this site will do the trick. Ned still has a lot of paperwork to do before the government will let us set up shop but we hope to begin construction within the next few weeks. If all goes well we should

be able to open the first part of the facility in the spring of next year."

"The first part?" Irene asked.

He nodded. "Phase I is focused on building laboratories for nuclear research and development and creating space for my Tomasite-based reactor. In Phase II we're going to add facilities that will allow us to manufacture radioactive elements, which we hope to sell to medical and scientific organizations around the country. But that probably won't happen this year or next year. We've got a lot to do between now and then."

Irene glanced at her watch. "Is there anything else you wanted to tell us?"

Mr. Swift shook his head. "That was the main news we had to share with you. We'll probably spend a couple hours hashing out some of the details, of course. You're more than welcome to stay for that if you'd like."

"Thanks, but we've got to be going," Irene said. She grabbed Tom and headed for the door.

"We have other plans?" Tom whispered.

"Yes, we do," Irene replied firmly.

"Oh," Tom replied. He turned to look at his dad. "Um, I guess I'll see you later, Dad. Great job on the Tomasite, by the way."

"Thanks, son," his father replied warmly. "Don't stay out too late!"

Once they were outside the office Tom turned to Irene. "What was that all about?"

Irene explained as they walked out of the building and toward the parking lot. "Look, Tom, they're going to spend hours talking about permits and financing and taxes and all sorts of things that neither of us care about. Let them handle that – it's their job. You and I are going out tonight. While they are talking about *their* future we are going to talk about *ours*."

Tom paled, and Irene made a quick negative motion with her hand. "No, no, I'm not talking about romance, silly. We need to talk about the hyperplane project. And maybe do a little celebrating. Today really was a big day, you know."

Tom let out a huge sigh of relief. “Right. Ok, that makes sense. Where do you want to go?”

“I've already got the place picked out. Ever been to the Blue Catfish? It's a little restaurant on Lake Carlopa. They have the most amazing clams! And shrimp – oh, their shrimp are like something from another planet.”

Tom shook his head. “Nope, I don't think I have. Lead the way, Ace!”

* * * * *

An hour later Tom and Irene were seated at an outdoor table beside the placid Lake Carlopa. The sun was just beginning to set, sending brilliant splashes of red and yellow across the western sky. The lake was smooth and calm and a handful of boaters were enjoying the early evening.

“You were right about this place,” Tom remarked contentedly. “I had no idea that crab-stuffed shrimp existed. That was an incredible meal.”

“Thanks,” Irene said. “My father took me here once. I just love the view.”

“By the way, how is your dad?” Tom asked. “I don't get to see much of Michael anymore.”

“He's still working on the rocketry project,” Irene replied casually. “He seems to think that the world will be launching rockets into space within the next five years. The moon's getting a lot closer these days. It won't be too long before someone sets foot on it.”

Tom grinned. “And you think I'm going to be that first person.”

“I think you could if you wanted to,” Irene said simply. “You've got remarkable talent, skipper. I don't think that the sky is the limit for you.”

“I don't know,” Tom said slowly. “That reporter didn't seem to agree. He thought the idea of an atomic-powered airplane was total idiocy.”

Irene sighed. “You've been thinking about that blasted reporter all day, haven't you? Why do you let things like that get to you? It's not like his opinion matters. Who cares what he thinks?”

“But he's right! Look. My father really is one of the greatest inventors of all time. He's world-famous and he deserves it. He casts a huge shadow – in fact, you could almost say he is responsible for bringing the world into the modern era. I just don't see how I could ever measure up to him.”

“And how do you know until you try?”

Tom sighed and looked out over the lake. “I understand your point, I really do, but I just don't know. He's got a lot of faith in me and I don't see how I can keep from disappointing him. He's a legend and I'm just not.”

Irene began to feel frustrated. “Look. You are *sixteen years old*. So far in those sixteen years you have had *no major inventions*. Wait until you're old and gray and *then* decide if you measured up to your dad or not. What you need to do is forget Peele and think about your dreams. The real question is, what do you want to do with your life?”

“You know, I don't actually have to do anything,” Tom pointed out. “My family is incredibly wealthy. I could just sit on a beach somewhere and enjoy the sun.”

Irene laughed. “You hate beaches, Tom. You're just not the kind of guy that can sit around and do nothing for years on end.”

“It beats letting everyone down,” Tom replied.

Irene stood up. “Let's go for a walk, skipper. I think it would do you some good. It's time to clear the cobwebs out of that mighty brain of yours.”

Tom paid for the meal and the two of them left the restaurant and began walking down a path that led around the lake. For a while the two held hands and walked in silence, enjoying the beauty of the outdoors.

“It's going to be dark soon,” Tom said at last.

“That means the stars will be coming out,” Irene replied. “I love the stars! Sometimes I feel like they're calling to me.”

Tom smiled. “I guess it runs in the family! I'm a bit surprised you didn't study rocketry or orbital mechanics.”

Irene shook her head. “I believe that nuclear energy is the future. Sure, chemical rockets may get us into space initially, but if we want to get serious about space exploration then we're going to have to find something better. Liquid-fueled rockets just aren't affordable and they're never going to be.”

“So what do you think is the answer?” Tom asked.

“The real question is, what do *you* think is the answer? After you've perfected the atomic airplane, the atomic submarine, and the atomic car, what are you going to do next?” Irene looked at Tom and arched her eyebrows. “You can't tell me that space doesn't call to you as well.”

Tom looked up into the darkening sky and saw the moon low on the horizon. “Space travel would be amazing, Ace. I've always wondered what it would feel like to be on the lunar surface and look up and see the Earth in the sky, a small blue marble floating in the total darkness of space. Can you imagine? Or to see the gas giants, or the rings of Saturn, or to take a ride on a comet as it approaches the Sun – ”

“You'll have to bring me some pictures back,” Irene teased.

“And what if we put a colony on the moon? Of course, it might be best to build a space station first – it's easier to fix problems in Earth orbit than on the moon – but the moon would be next. And then there is Mars, and the other planets, and beyond them, the stars...”

“Do you think there's life out there?”

Tom shrugged. “There certainly could be. Dad claimed to have seen a Martian city through his giant telescope years ago. It was never seen again, but it could exist.”

“So you *do* want to explore the final frontier,” Irene said.

“And don't forget the oceans! The deep sea is as mysterious as deep space, and practically as hard to reach. Who knows what we might find on the ocean floor?”

“Atlantis!” Irene said, laughing. “Or maybe the fabled city of gold.”

Tom shook his head, smiling. “Giant squid are much more likely, Ace. But you never know. There's so much that hasn't been discovered.”

“Have you ever thought about building cities down there?” Irene asked.

“It might be possible with Tomasite,” Tom said thoughtfully. “I bet that plastic has enough strength to keep the water at bay, at least in the shallow parts of the ocean.”

“I bet you could do it without the Tomasite.”

Tom looked puzzled. “What would keep the water out?”

“Magic!” Irene said mischievously. “You'll think of something. After all, it runs in your family.” The girl paused and looked at him thoughtfully. “Promise me something,” she said at last.

“What?” Tom asked curiously.

“Promise me than when you get to the moon you'll send Peele a postcard, letting him know that the son of the famous Tom Swift may not be as great a fool as he thought.”

Tom laughed. “I don't think there are mailboxes on the moon, Ace. Luna is not yet a regular route of the United States Postal Service.”

Irene smiled. “It's the thought that counts, Tom. So, are you ready to get started on that airplane? We've got actual Tomasite to work with now! The real work can finally begin – no more endless guessing and fudged figures.”

Tom hesitated, and Irene looked him in the eye. “Don't back down on me now, skipper! You have been given a very rare gift. Don't waste it.”

Tom looked at her innocently. “Are you referring to an incredibly talented best friend who's always there when you need her?”

Irene was taken aback, and then smiled. “So you *can* be taught! I knew you had a romantic side in there somewhere. That's very sweet. But what I meant was, some people can only dream about the things they'd like to do with their life. You, though, are different. You've been given both the talent and the

resources to achieve whatever you care to try. Don't let someone talk you out of that."

"But what if I fail?" Tom asked seriously.

"Then try again until you succeed. Will you do it?"

"Tonight?" Tom asked.

"No, silly," Irene laughed. "Tomorrow morning will be fine. We'll meet in your lab around, say – "

"Eleven?"

Irene shook her head. "Let's try six. It'll be good for you!"

"Six!" Tom exclaimed playfully. "Can't we compromise and agree on ten thirty?"

"I know where you live," Irene said mischievously. "I'll be there bright and early to pick you up – or drag you out of bed, as the case may be."

"Sounds good," Tom said. He smiled. "After all, we must not disappoint the future!"

CHAPTER IV

PROJECT ARCTURUS

OVER THE NEXT few weeks Tom Swift Jr. made rapid progress on his hyperplane design. One afternoon, however, he hit a snag. Irene noticed something was wrong the moment she stepped into Tom's laboratory and saw the young inventor staring into space, doing nothing at all.

"Did you have a productive afternoon?" Irene asked, as she grabbed a stool and sat down in front of him.

"Hmmm," Tom replied vaguely.

"I stopped by the physics lab after lunch," the girl continued, while attempting to suppress a smile. "You'll be glad to know that I was finally able to track down the switchboard operator and get her feedback on our reactor design! Her nephew's three-year-old child thinks we're headed in the right direction."

"Good," Tom mumbled.

"It's really terrific news," Irene said enthusiastically. "Oh, and I also wanted to tell you that I have fish for sale."

"What?" Tom said, startled. His eyes focused on Irene. "*Fish*?"

The red-headed girl laughed. "Ok, *now* I've got your attention. I was beginning to wonder there, skipper. Where have you been?"

“Wait just a minute! You got *whose* feedback on our reactor? A *toddler's*? Did I hear you right?”

“No, skipper, you didn't. In fact,” she teased, “you didn't hear me at all. You were lost in a world all your own. What's going on?”

“I've been thinking,” Tom said slowly. “The heat transfer issue has me stuck. The math isn't working, Ace, and I don't know what to do about it.”

Irene nodded. “Right. So let's start at the beginning. Explain to me the thought process behind Project Arcturus.”

Tom looked at her, puzzled. “You've been with me all along! You know the story as well as I do. Why would you want to hear it again?”

The teenage girl shook her head. “You've got it backwards. What I want you to do is retrace your steps aloud. Verbally explaining the big picture will help you think through it. You need to start over if you want to avoid endlessly thinking in circles.”

“If you say so,” Tom said. “Hmmm. Ok. What I want to do is build an aircraft that can achieve a hypersonic velocity. My target is Mach 15. The project is named after the star Arcturus, which is an orange-red giant about 37 light-years from Earth. I believe the hyperplane is the next step toward the conquest of space.”

“Great!” Irene said. “Keep going. Don't stop talking until you've run out of breath.”

Tom laughed. “Got it. Well, to move a plane at hypersonic speeds you need an awful lot of power, so the idea was to build an airplane that runs on nuclear energy. The atom can provide more than enough power to get the job done. In fact, it could theoretically keep the plane flying for months or even years.”

“But there are two problems, right?” Irene prodded.

“Right. Although, actually, they're kind of tied together. In a traditional nuclear power plant fission is used to provide heat. That heat is used to turn water into steam, which drives a turbine, which produces electricity. That design works great for commercial power plants but it won't work at all in an airplane. We don't want to produce a thousand megawatts of electricity.

What we want is thrust."

"And how are you planning on obtaining that thrust?" Irene asked.

Tom frowned. "That's the problem! In a traditional ramjet design the vehicle's incredible speed forces compressed air through a tube. A spark from combustion heats the air, and the heated air is passed through a nozzle in order to accelerate it to supersonic speeds. This translates into thrust. A scramjet works on a similar principle except the combustion is handled supersonically."

"But you're using nuclear power, not combustion," Irene pointed out.

Tom nodded. "Exactly! Hence the problem. We can generate all the heat we could ever want but I just can't find a way to use it effectively. Turning heat into thrust is not as easy as I'd hoped. I just haven't hit on a method to transfer the heat efficiently enough to achieve anything close to hypersonic speeds."

"Right! That's problem number one. What's problem number two?"

"It's really more of an engineering challenge than a problem," Tom conceded. "A ramjet will only work if the plane is already moving at a high speed. This obviously means you can't use it to get off the ground in the first place. The plane is almost going to need two thrust systems – one to accelerate to a speed where the ramjet can kick in, and then the ramjet itself."

"Only it's technically not a ramjet since no combustion is involved," Irene pointed out. "You'll need to think of a different name."

Tom grinned. "I suppose that naming a nonexistent device is the least of my problems. Did anyone in the lab have any suggestions?"

Irene was thoughtful for a moment. "Dr. Campbell seems to think that your basic idea is sound. When I talked to him about the heat transfer issue he suggested using electric arcs to heat the air. Oh, and Dr. Sample said something about adapting the hyperplane for use in orbit. He seems to think you could carry

aloft a supply of hydrogen and use it for thrusting in space."

"That could work," Tom mused. "I'll have to give those ideas some thought. Maybe some kind of energy discharge could rapidly heat the air. And it would be great if we could one day use the hyperplane to reach the edge of space itself."

"So what's the plan of action?" Irene asked.

"Well, the main problem is definitely the heat transfer issue. I'll build a couple models and try them out. I guess there are a couple different things we could try."

Irene nodded. "In the meantime I'll continue my design work on the jet's fuselage. It's a bit tricky to engineer a body that is stable at both subsonic and hypersonic speeds. This isn't really something that can be tested in a wind tunnel! Fortunately Arv Hanson has been incredibly helpful."

"Who?" Tom asked.

"Arv Hanson – our chief model maker."

Tom frowned. "I thought that was Hank Sterling."

Irene shook her head. "No, no. Arv makes models. Hank makes patterns. They're two different things."

"Are you sure?" Tom asked. "Is there really a difference between a model and a pattern?"

"Think about it! If you want a model of your hyperplane you go to Arv, and he makes it for you. Arv is the guy who made all those working models that are in your dad's office. Hank, on the other hand, takes your dad's inventions and makes them into patterns that can be reproduced. They do *totally* different things."

"Maybe I do remember Arv," Tom said. "Is he a heavy-set guy about six foot tall, with blond hair and a mustache?"

"You're thinking of Hank," Irene replied. "Arv is the one with the square jaw."

"I thought Hank had the square jaw," Tom replied. "I was sure of it. Arv is the thin one with the twin five-year-old girls."

"Maybe you're right," Irene said. A horrified look spread over her face. "You don't suppose I spent the afternoon talking to Hank and thinking he was Arv, do you?"

"Could be!" Tom said cheerfully. "I bet they get that a lot,

though. They're twins from Bavaria, you know."

"They are not!" Irene said indignantly. "Arv is ten years older than Hank. How could they *possibly* be twins?"

"Time travel!" Tom said mysteriously. "Or aliens. It could be the aliens."

Irene reached over and shoved him off his stool. Tom lost his balance and crashed onto the couch behind him. Irene helped him get up and then shook her finger at him. "That's what you get for being ridiculous! Next time I'm going to toss you out the window."

Tom glanced outside. "We're on the ground floor, Ace. I think I'd survive."

Irene snapped her fingers. "Say, Tom, I almost forgot. A few days ago your dad asked me to tell you to drop by his office. He said he wanted to talk to you about something."

Tom's eyes widened. "He told you this *a few days ago?* And you just now remembered?"

"I wouldn't fret it too much," Irene said cheerfully. "I'm sure if it was super critical he would have called you, or something."

Tom removed his white lab coat and hung it in the closet. As he started to walk out the door Irene grabbed him. "Hey, brains, don't you think you should maybe call him first to see if he's in? You know as well as I do how little time he spends there."

"Good idea! Thanks." He turned around and reached for the phone that was hanging on the wall, and lifted up the receiver. "Yes – I'd like to be connected to my dad's office, please," Tom said to the lady at the switchboard.

"One moment!" Emily replied cheerfully. A minute later she spoke up again. "I'm sorry, Mr. Swift, but there's no answer."

"Thanks," he said, and then slowly put down the receiver. A frown crossed his face. "That's weird."

"That he's not in his office?" Irene asked. "I'd say that's to be expected."

"No, what bugs me is that nobody answered. Shouldn't at least his secretary be in?"

"You mean Miss Trent?" Irene said.

“Right! Julie is a model of efficiency. I can't imagine her leaving the office unstaffed during business hours no matter what is going on. I'm going to go investigate.”

“Sounds like fun! I'll go with you.”

Tom and Irene locked the laboratory and walked toward the parking lot. For safety reasons the business offices were located on the extreme opposite end of the grounds, as far away from the Swifts' laboratories as possible. Years of experience had taught the office personnel that it was best to be somewhere else whenever something new and untried was about to be tested.

The two young scientists got into Tom's silver convertible and drove the short distance to the office building. Once inside Tom used his private access key to take the elevator to the ninth floor, which was reserved for the executive suites.

“It's very quiet up here,” Irene remarked, as they stepped out of the elevator and into the plushly-decorated hallway. The hallway stretched to the left and right of the elevator and was lined with wooden doors. The walls were decorated with pictures of famous Swift inventions, separated by awards or the occasional mirror. The office of Tom's father was the last one on the right.

“You know, it *is* four in the afternoon on a Friday,” Tom remarked, as they started walking down the hall. “Maybe all the executives went home early. There aren't that many people with offices up here, and those that do are rarely here anyway.”

Suddenly Irene grabbed Tom. She pointed to a large mirror that hung in the hallway. “Do you see what I see?” she hissed.

Tom turned his attention to the mirror. In the reflection he could see a portion of his father's outer office, where Miss Trent sat. The door to his father's private office was closed, but Miss Trent was slumped over her desk!

Tom froze. “We need to alert security,” he whispered.

“Quiet!” Irene replied. “I think someone's coming.”

Tom paused for a moment and listened. He could hear a creaking noise, as if someone was going through some cabinets.

“In here,” Tom said, grabbing Irene and pulling her into an adjacent office. After they were inside he quietly shut the door

behind him. “From here we can call – ”

As Tom turned around he suddenly realized that he had made a big mistake. A man with a crowbar was behind the desk, rifling through one of its drawers. Loose papers were strewn everywhere. By the condition of the desk Tom could tell that the man had used the crowbar to completely tear it apart. The intruder, however, had heard Tom enter the office. As soon as he saw Tom his eyes narrowed and he tightened his grip on the crowbar.

Irene froze. Tom instantly leaped into action, jumping over the desk and tackling the intruder head-on. The man saw him coming and attempted to step back, but he tripped over a chair and fell backwards. Tom hit him just as the man was falling, and the intruder hit the ground hard. The crowbar went flying.

By this point Irene had recovered. She grabbed the crowbar and raced over to help Tom. The intruder was still struggling, but the fall had dazed him and Tom was able to subdue him. He took off his belt and tied the man's hands behind him while Irene picked up the phone on the desk and called for help.

As Tom finished securing the prisoner Irene put the phone down in disgust. “It's dead,” she said.

“The line's been cut,” Tom said, nodding toward the phone jack in the wall. “I'm going to have to go to another office to call Harlan. Can you handle the prisoner, or would you rather find a phone while I watch him?”

Irene gripped the crowbar tightly. Her eyes narrowed. “Go make your call, Tom. I'll handle this.”

Tom carefully stepped out into the hallway. He glanced up in the mirror and saw that Miss Trent was still slumped over her desk. He spied a phone next to her. *I've got to make sure she's ok*, he thought to himself. *The intruder must have gone through my father's office first and then started working his way down the hall. He may have almost been done when we surprised him.*

The young man quietly made his way to his father's office and stepped inside. The office was divided into two parts. The glass-walled outer office was where Miss Trent sat and where visitors

waited for their appointments. Behind the secretary was the door to his father's private office. It was closed.

Tom walked over to her desk. Like the desk in the other room, it was in wild disarray. *That crowbar made short work of this piece of furniture*, he thought to himself. As he picked up the phone he took the secretary's pulse. *She's alive, but unconscious*, he thought to himself. He sniffed the air and caught a faint odor of chloroform. *So that's how he did it!*

The lady at the switchboard connected Tom to Harlan Ames, and he quickly and quietly explained that there had been a break-in.

"We'll be there in just a moment," Harlan said. By his voice Tom could tell that he was deeply concerned. "I can't imagine how he got through security, but I'll find out. Are you positive that there are no other intruders?"

Tom was about to reply when he heard a noise behind him. He turned around just in time to see the door to his father's office open. A stranger was standing in the doorway, holding an electric rifle. It was pointed straight at Tom's head!

CHAPTER V

AGENTS OF EVIL

TOM SWIFT JR. heard Harlan Ames shouting through the receiver he was holding, but Tom did not move. He kept his eyes fixed on the man standing in front of him, who was coolly holding one of his father's antique electric rifles. The middle-aged intruder was wearing a very expensive black suit and tie, and had nicely-trimmed black hair and hazel-colored eyes. *He looks exactly like someone who sits on a board of directors*, Tom thought. *I bet no one here even gave him a second look.*

"May I?" the man said, gesturing for the phone. Tom noticed that he spoke with a slight Eastern European accent. The young scientist nodded and handed over the phone.

"With whom have I the pleasure of speaking?" the man said calmly, while keeping Tom under watch.

"This is Harlan Ames, head of security here at Swift Enterprises," Harlan replied angrily. "What exactly do you think you're doing?"

"At the moment I am holding the young Tom Swift Jr. hostage," he replied evenly. "I suggest you hold off any sudden moves until I'm quite finished with my work. I would dearly hate to have anything unfortunate befall this promising young man."

Before Harlan could respond the man hung up the phone and then gestured for Tom to enter his father's office.

Tom stepped inside and the intruder closed the door behind him. *This is just not a good day to own office furniture*, Tom thought wryly. His father's desk, like the others he had seen, had been completely torn apart and the intruder had apparently started rifling through the filing cabinets when he heard Tom outside. The young inventor spied an expensive custom briefcase sitting on the desk, stuffed with his father's papers.

"Nice suit!" Tom said aloud. "Was that hand-made?"

The man walked around Tom and faced him. He studied him for a moment and then smiled. "You have excellent taste, young man," he said at last. "This was made by one of the finest tailors in all of Brungaria. It costs was – well, it's sufficient to say that it cost me dearly. But it was truly a worthwhile investment."

"Brungaria," Tom echoed. "I think I've heard of that country! Is that the land of the free and the home of the brave? Oh, wait. That would be *this* country. *Brungaria* is the home of oppressed masses that are yearning to breathe free. Sorry about that."

"Oh, you needn't act so naive, young Swift. I'm sure you immediately guessed my country of origin! After all, your family has had extensive dealings with my people before. You have left quite a mark on my homeland."

"Actually, I don't think we have," Tom said thoughtfully. "At least, not that I know of."

The agent smiled. "Then there is much your father has not told you! I have known him for almost twenty years – or known of him, I should say. But allow me to introduce myself." He reached inside his suit pocket and pulled out a white index card, which he handed to Tom.

"Xanthus Quintin," Tom read aloud.

"Exactly," the agent replied. "And you are Tom Swift Jr., son of the famous and highly-respected Tom Swift. It is truly a pleasure to meet you at last! I was wondering if I would get a chance to talk with you while I was in your charming little town."

"You have a lot of nerve coming here! Anyone could have

walked in on you at any moment. How did you ever think you wouldn't be discovered?"

"Ah, but that is not true!" Xanthus replied. "I have done my homework. Everyone who has access to this floor is in New Mexico right now, touring the property that will one day become your nuclear research institute. That is, everyone except for you. I knew there was a small chance that you might drop by, but if you did then so much the better!"

Tom gasped. "The meeting! You mean that was *this* weekend? Oh man! I promised Dad I'd be there, too. He's going to be so upset."

"Apparently your share your father's lack of organizational skills," the spy replied. "Perhaps Miss Trent can lend you her secretarial services. Once she recovers, of course."

The Brungarian agent walked over to his black leather briefcase and clipped it shut. "I think I have everything I need. I do apologize for disrupting this fine office, but I am sure your father can afford the repairs. He is, after all, one of the wealthiest men in the world! His inventions have been quite profitable."

Is this guy insane? Tom wondered to himself. *Why is he taking so much time to get out of here? But Harlan knows he is here! Maybe if I can keep him talking long enough...*

"Of course, your father can be quite selfish," Xanthus continued. He tapped the briefcase and smiled. "There are secrets in here that the world would love to have. At times it may be necessary to, shall we say, liberate some knowledge. For our poor oppressed masses, of course."

"I think that's usually called *stealing*," Tom corrected.

Xanthus shrugged. "Your father is not above doing what is necessary to accomplish his goals. I am simply – following in his footsteps, you might say. Justice is balance! What he did to me I shall do to him."

"Besides," Tom continued, "this is a commercial organization. Anything we produce gets sold on the open market."

The agent smiled. "I very much doubt your government would be willing to allow your father to sell us your nuclear

hyperplane! Yes," he continued, noticing Tom's startled reaction, "we are well aware of your exciting new project. But even so, it is not true that your father commercializes everything! This electric rifle, for instance, he has kept to himself." He looked at it fondly. "Few people in the world have ever seen one, and only a small handful have used one. His greatest invention has been kept locked in his office for all these decades. It is truly an honor to finally hold one."

Tom smiled. "It's not as much an honor as you'd think. That is just a model, after all. I mean, you did notice that all the inventions in here were *models*, didn't you?"

Xanthus paled and looked at the rifle he was holding in shock. At that moment Tom tackled him. When the agent saw the teenager leap toward him he dropped his briefcase and pulled the trigger. A brilliant flash of blue light flew out of the barrel of the gun. The bolt went harmlessly through Tom and struck the far office wall, disintegrating it in a blinding flash.

I knew it! Tom thought triumphantly, as he collided with the spy and sent the gun flying through the air. *He had no idea you have to set the target distance before firing the bolt.*

The electric bolt from the rifle had blown apart the wall that separated that office from the one adjoining it. The room was filed with smoke, but Tom could still see Irene through the newly-created hole, staring at him in shock. As Tom fought to subdue the spy the agent caught sight of the girl, who had abandoned her prisoner and was running toward them brandishing a crowbar. With a last desperate effort Xanthus broke free of Tom, leaped across the room and grabbed the rifle, and fired. To Tom's horror the bolt struck Irene squarely in the chest, knocking her backwards and onto the ground. She did not get up.

"Irene!" Tom screamed. Momentarily distracted, he did not see the agent take the gun and slam it against the back of Tom's head. Instantly everything went black.

* * * * *

“What happened?” Tom asked groggily. As he opened his eyes and tried to sit up he saw that he was still lying on the floor of his father's battered office. Doc Simpson was kneeling beside him, looking at him with great concern. Behind him was Harlan Ames.

“You got hit pretty hard, son,” the doctor replied. Doc Simpson had been the chief medical officer at Swift Enterprises since Tom was a young child. “You've been unconscious for about twenty minutes. I think it's just a concussion, but I'll have to x-ray you to make sure. We need to get you to the infirmary immediately.”

“Wait a minute,” Tom replied. Fear clutched his heart. “What about Irene? Is she – ”

“I'm fine,” a voice called out. Tom turned his head and saw Irene sitting in a chair. “Well, mostly fine. The bolt ruined my brand-new sweater, blast it. Do you think I can claim that as a business expense?”

An immense feeling of relief flooded over Tom. He smiled. “Don't worry about it, Ace. I'll buy you a new one. But what happened?”

Harlan Ames reached over and picked the gun off the floor. “This weapon hasn't been used since before you were born. In fact, I'm surprised there was enough of a charge left to fire at all. As best we can tell most of its power was spent in the first discharge, and when he fired again there was only enough juice left to knock Irene out for a few moments. Someone was looking after you, son.”

“This time,” Tom said soberly. “Things could have gone very differently.”

Harlan nodded. “When I tell your dad about this I'm going to suggest we replace this particular invention with a nonfunctional model. You took a big risk when you jumped him. Please don't do something like that again.”

Tom touched his head and winced. “Man, my head hurts. I sure hope this doesn't become a regular occurrence.”

“Then let's get you down to the infirmary,” Doc said firmly.

“Your head is going to continue to hurt until I can treat it.”

Tom nodded as the doctor helped him to his feet. His eye caught sight of a black leather briefcase lying open on the desk. “You mean he left it here?” Tom said in surprise.

“He sure did!” Harlan replied. “We were actually out there in the hallway when we heard the rifle go off, so we started running. The intruder took one look at us and ran through the hole he had just blasted in the wall. He beat us to the stairs and then disappeared.”

“You mean he got away?” Irene asked.

“He had inside help. We had men stationed on the roof and they got ambushed. The scoundrel got clean away, but the man you captured didn't! He's on his way to the jail now, and may yield some valuable information. Tom, do you feel like telling us what happened? Irene told us what she could, but I understand you were alone with the intruder for several minutes before he fired the gun.”

“Can it wait?” the doctor asked.

“It'll just take a second,” Tom replied. He gave Harlan a quick run-down on what the enemy agent had told him.

“I can't say I'm surprised,” Harlan said at last. “Nuclear secrets are hot commodities, and I'm sure that the Brungarians would love to get their hands on what you and your dad have been working on. Now that they've shown us their hand, though, we can beef up security. We won't let this happen again.”

“Brungaria,” Irene said sourly. “The sworn enemy of everything that is good and decent in this world. I should have known.”

Tom shook his head. “Maybe, but the whole thing doesn't make sense to me. Xanthus went out of his way to identify himself. That's not how spies operate, Ace. He *wanted* us to know why he was here. In fact, I think that mattered more to him than the information in that briefcase. There's more to this than it seems.”

“Do you need a stretcher?” Doc Simpson asked, interrupting.

“No, I think I can walk,” Tom replied. “But one minute. Irene,

you did a great job handling the prisoner. Thanks for looking after him for me."

"Thanks," Irene said, smiling. She hefted the crowbar. "It's easy to watch someone who's unconscious."

A look of horror crossed Tom's face. "You didn't!"

"Of course not!" Irene replied. "You know I'm harmless. The problem is the prisoner figured that out too, so I chloroformed him. He had some in his jacket when I searched him – which, incidentally, is something *you* should have done when you tied him up."

"He must have used it on Miss Trent," Tom said thoughtfully. "And you're right, I should have searched him. Sorry about that. Oh, say, how is Miss Trent?"

"She's fine," Irene said. "She went home ten minutes ago. Knowing her, though, I'm sure she'll be back in the office on Monday!"

As Tom was led out of the office by Doc Simpson he took one last look around. "She's got her work cut out for her, Ace. How long do you think it will take her to get Dad's office repaired?"

"I give her an hour," Irene replied. "I bet it'll be fixed before your Dad even gets back from New Mexico."

* * * * *

A week later Tom Swift Jr. was sitting in his sleek silver convertible outside the Goddard residence. He glanced at his watched, frowned, and began tapping the steering wheel impatiently. *C'mon, Irene, we're going to be late!* he thought. *It's already ten 'till six. Where are you?*

The weather had been unusually warm that November, so Tom had his car's top down and was enjoying what would probably be the last warm day of the year. The sun was beginning to set and the streetlights that lined the sidewalk were just beginning to come on. Tom sat idly in the driver's seat and looked around the neighborhood. He noticed that a few children were playing softball in the field across the street.

To pass the time, the young inventor grabbed a small notepad and a pencil out of the glove compartment box and began jotting down a few ideas. He was soon lost in thought.

Ten minutes later he heard a door open, and looked up to see Irene getting in the car. Irene was dressed in a long black evening gown and was holding a stylish black purse. “Thanks for waiting,” she said sweetly, as she took her seat and fastened her seatbelt.

Tom shook his head, put the notebook and pencil back in the glove compartment box, and started the car. “We were *supposed* to be there at six,” he grumbled. “Do you realize that the restaurant is clear on the other side of town?”

“They won't start without the birthday boy,” Irene replied cheerfully. “Don't worry! We'll get there.”

“You do look nice,” Tom admitted. He pulled the car away from the house and began driving down the road.

“Why thank you, young man!” Irene replied. “I was hoping you'd notice. So what were you working on? Mind if I look?”

“Be my guest,” Tom replied. The red-headed girl opened the glove compartment box and began leafing through the notebook. “I was just putting together some ideas for my dad. I finally found out what he wanted to talk to me about.”

Irene studied the drawings. “I take it he wants an alarm system?”

Tom nodded. “Yup! Dad asked me to build something that is truly burglar-proof, so I've been giving it some thought. I'm thinking that something that's radar-based should work nicely.”

“You're going to use *radar* to keep the Brungarians away? How is that going to work?”

“It's actually quite simple,” Tom replied, as he merged the car onto the main highway. “The system will be tuned to pick up on all human beings inside the Enterprise compound. Authorized personnel, however, won't be detected because they'll be wearing an amulet that will keep them off the scope. Unauthorized intruders won't have an amulet and will immediately raise an alarm. The best part is that no matter how the intruder got inside

he'll still show up the moment he sets foot inside the plant!"

"Very nice!" Irene commented. She put the notebook back in the glove compartment box. "But what happens if you have a traitor inside the plant that hands out amulets to fiendish enemy agents? Or what if they steal an amulet from an innocent, unsuspecting employee?"

"We'd have to control the amulets pretty carefully," Tom admitted. "And I suppose there could be a problem if someone lost them. But at least it's better than what we've got now."

"True. When do you think you'll have a working version?"

Tom shrugged. "Right now I'm just sketching ideas, Ace. It'll take some time to find a frequency that will pick up on humans and screen out everything else, to say nothing of building the magical amulet. I doubt I'll actually have a test unit until after the hyperplane gets off the ground."

"I'm sure the Brungarian spies will appreciate that!" Irene remarked. "After all, why not wait until *after* the sensitive nuclear project is done to beef up security?"

"My point exactly!" Tom joked. "After all, what could go wrong?"

* * * * *

Thirty minutes later Tom pulled his car into the parking lot of *Gulliver's*. He drove up to the door of the restaurant then stopped the car, got out, and walked around the car to open the door for Irene. After handing the key to the valet the two teenagers stepped inside.

"Ah, Mr. Swift, your party has been waiting for you!" the hostess said the moment the couple entered the door. "Right this way, please."

Gulliver's was packed that night, as it usually was on Friday evenings. The western-themed establishment had been started a few years prior by Whiz Walton, a famous columnist from New York City. Few people had ever met the famous Gulliver but those who had never forgot the experience, for he was a truly

awe-inspiring individual. The most startling thing about him was not his massive height or strength, or the hard-won scars that reflected a lifetime spent in the remotest parts of the world. His most unusual characteristics were incredible courage, unwavering loyalty, and an utter hatred of all that is insincere. Tom had wanted to meet him for years but the reclusive individual spent most of his time out west, taking care of problems that only he could handle.

The hostess led them to a room in the back of the restaurant. “It looks like everyone else is already here,” Tom remarked. The room was packed with people. Present were Tom's parents, Tom and Mary; Irene's parents, Shasta and Mike; and Ned Newton, his wife Helen, and their daughter Phyllis. Tom's father was sitting at the head of the table.

“We were wondering when you'd get here!” Tom's sister Sandra teased. “We were about to go ahead without you.”

Tom smiled as he took his seat beside his father and across from his mother. Irene sat down next to him. “It's wonderful to see all of you,” Tom commented. “We really should get together more often.”

“I know,” Irene's father replied. Mike Goddard took a sip of his sweet tea and then placed his glass back on the table. “We used to get together all the time! I don't know what's happened.”

“You've gotten busy, dear,” Mike's wife Shasta replied. “I do believe we've spent most of the summer in New Mexico. The desert is nice, you know, but it's just not quite like the mountains we have here.”

“I'm so glad you're both home,” Irene said warmly. “The house gets awfully lonely sometimes without you.”

“So how's the research going?” Mike asked Mr. Swift.

“Excellent!” Tom's father replied. “I think I've found a way to modify Tomasite to convert heat and radiation directly to electricity. I'm still in the early research stages, but if I can improve the efficiency it will open up an entirely new type of reactor design.”

“You didn't tell me about that!” Tom whispered to Irene.

“That's amazing.”

She shrugged. “I didn't know about it either. It must be something your Dad came up with on his own.”

“I hope he can get it to work. Can you imagine? Why, with miniaturization you could fit an entire atomic reactor inside a single capsule!”

“I'm afraid I'm a long way from that,” Mr. Swift commented. “But it's an intriguing idea! My prototype 'capsule' is going to be several stories tall.”

“So how does it feel to finally be 17?” Phyllis asked. Phyl was a close friend of Sandra, Tom's sister.

“I feel like I'm getting old!” Tom said, grinning. “Why, before you know it I'll have morphed into a responsible adult that gets out of bed at a decent hour.”

“How *terrible*!” Irene replied. “And to think I'm going to be an ancient, decrepit 18-year-old just two months from now. But I have a hard time believing that you have a quiet, sedentary life ahead of you. That just doesn't happen to your family.”

Tom laughed. “You maybe right, Ace. So, tell me. What are you getting for dinner?”

“Do they have three-inch-thick steaks?” she asked.

CHAPTER VI

NITRO, NEW MEXICO

IT WAS A COLD, overcast morning two weeks before Christmas. Winter had finally come to Shopton, and several inches of snow covered the Swift Enterprise grounds. Tom Swift Jr. was seated on a bench outside his laboratory, staring off into the distance and doing nothing in particular. A chilly wind ruffled Tom's short blond hair, but he did not notice. As usual, his mind was far away.

His train of thought was interrupted when a short red-haired girl stood in front of him and playfully waved a hand in front of his face. “Earth to Swift, Earth to Swift. Come in, Swift! Do we have contact?”

Tom looked at Irene and smiled. “Hey there, Ace. What's up?”

“I'm sorry I'm late,” she said. “The meeting with Hank took much longer than I thought.”

“Oh, that's right – you were going over the plans for the new Tomasite plant, weren't you?”

Irene nodded as she sat down on the bench beside Tom. “Ned wanted to have one last meeting before he put things in motion, but it's looking pretty good. The manufacturing problems have been licked, the plans for the factory have been drawn up, and construction is supposed to begin next week.”

“Where's the plant being built?”

“In California. Our main concern right now is that the plant won't be able to produce enough Tomasite to meet the demand. Ned told us that he already has a huge backlog of orders! The press coverage we've been getting couldn't be more positive.”

Tom smiled. “I'm glad to hear it. Dad has been working on that project for a long time. There were some rough moments, but he never gave up. Seeing it become a reality has got to be enormously gratifying. I'm really proud of him.”

“So now that we've cleared up what *I've* been doing for the past three hours, the next question is what have *you* been doing? Please tell me you haven't been sitting here since 7 this morning.”

“I'm afraid so,” Tom said wryly. “I'm just bored. The wait is killing me.”

“But surely there's all kinds of things you could be working on! Do you really mean to tell me that the great Tom Swift is out of ideas?”

“I'm nowhere near 'great' just yet,” Tom said, laughing. “And yes, sometimes I do get inventor's block. It happens.”

“The horror!” Irene exclaimed. “I'll have to notify Peele at the *Shopton Evening Bulletin*. This is front-page material!”

Tom leaned back against the bench and stretched. “I know, I know. But look. I've done all the design work that I can on the hyperplane. There's just nothing else to do until I can build the reactor and start testing it! And that can't happen until the new facility is built, and *that* won't be open until at least March.”

“But what about the alarm system you were working on? Wouldn't this be the perfect chance to start work on it? This gives you the perfect chance to get it done *before* the evil Brungarians come back.”

Tom shrugged. “Probably. But my heart's just not in it. I mean, for the past few weeks the hyperplane has completely dominated my life. I've thought about it, dreamed about it, and worked on it day and night. And now, after all that work, there's nothing I can do but sit around and wait for four months. Four months, Irene! I'm going to go crazy. How can I possibly survive

a four-month wait?"

Irene thought for a moment. "I don't suppose your dad would let you start building the reactor here, would he?"

Tom shook his head. "Nope! I already asked. It seems that the mayor doesn't want us performing experimental nuclear work so close to town. Dad said I'm just going to have to find something else to do with my time."

"Then we're going to have to find a new project for you," Irene said firmly. She was silent for a few minutes, and then she got to her feet. "I think you need a challenge! Wait here – I'll be right back."

Tom watched the red-headed girl walk down the sidewalk and into the building that housed his laboratory. About five minutes later she emerged with a look of triumph, clutching something in her hand. The girl walked up to Tom and stretched out her arm. "This is just what the doctor ordered! These ought to clear the cobwebs out of that mighty brain of yours."

Tom looked down at her hand and frowned. Irene was holding three drafting pencils – a red one, a green one, and a blue one. "I need *pencils*?" he asked.

"No, silly!" she said, as Tom took them from her. "Yes, it is true that right now these are ordinary, humble drafting pencils. But I sense a bright future ahead of them! Do you know why?"

Tom shook his head.

"Because *you* are going to transform these ordinary household items into something magical and mysterious! In mere moments, ladies and gentlemen, these pencils will become ultramodern Swift pencils!"

Tom scratched his head. "Right. Hmmm. Well, I mean, they're pencils, Ace. What can you possibly do to a pencil?"

"Think of something!" Irene ordered. She stood up and stretched. "I hate to go, skipper, but Phyl and I have some Christmas shopping to attend to. I'll be back sometime this afternoon to see how you're progressing on your latest invention. Sound good?"

Tom shrugged. "Sure. Why not?"

* * * * *

Late that afternoon Irene burst into Tom's laboratory. “How's it going?” she asked eagerly.

Tom was seated on a stool by his workbench, bent over a sheaf of papers. When he heard her voice he turned around, startled. “You're back already?”

Irene shook her head as she hung up her coat by the door and walked over to join Tom at the workbench. “What do you mean, already? It's been six hours! So what have you done with my pencils?”

As the girl picked them up off the workbench Tom looked at her and sighed. “I'm afraid you're not going to be impressed,” he said at last.

Irene studied them, puzzled. She grabbed a spare sheet of paper and made a quick sketch, and then looked back at Tom. “I see that it still writes.”

“Yup.”

“Well, that's good, I suppose. But what else does it do?”

Tom shook his head. “Um, nothing yet. But I can explain! See, first I measured the pencil to get an idea of its volume, and then I borrowed a sample of Dad's modified Tomasite to see how well very small quantities of it converts heat into electricity. From what I can tell it is completely impossible to put a miniaturized nuclear reactor inside a pencil.”

Irene gasped and dropped the pencil onto the workbench. “I would hope so, Tom! Why on *earth* would you ever want to do such a thing?”

Tom shrugged. “I was hoping the pencil could be converted into a portable power source, but it won't work.”

“Swift Enterprises does make really tiny batteries, you know,“ Irene said. “Your dad's lithium potassium hydrate battery works extremely well. If you want to put a gizmo inside the pencil then couldn't you just use one of them?”

Tom nodded. “Probably, as long as the gizmo didn't need very

much power. You couldn't use that battery to operate a soldering iron, for instance. But then I got to looking at these designs for the new research institute and, well, I'm afraid I got distracted. I really wish I hadn't missed the grand tour that Dad gave to the company executives. I definitely blew that one."

"Now there's a thought! Why not make a trip down there and take a look around? There's no reason why you can't go by yourself, you know. It might get your mind out of this slump."

Tom snapped his fingers. "That's a great idea! The labs are nowhere near done but temporary residential quarters have been set up. I could just stay with the construction crew for a few days and start thinking about how we can use the facility. That would be terrific."

"Great!" Irene said, getting off the stool. "You'll have to tell me all about it when you get back. Be sure to take lots of pictures, skipper."

Tom looked at her, surprised. "What do you mean, 'tell you all about it'? Aren't you coming with me?"

The red-headed girl shook her head. She walked over to the door and grabbed her coat. "Christmas is only two weeks away, Tom, and I've got all kinds of things to do between now and then. I'm nowhere near ready! Plus, there are all kinds of parties between now and then that I just can't miss. I honestly don't think I'll be able to leave town until after the holidays."

"But Ace," Tom said, and then stopped. "Look. I mean, you're right. This is a hectic time of year, and you've got your family to think about. I know you've missed your parents all summer and want to spend some time with them while they're home. I'm sure I'd do the same thing if I were you. But I really would like for you to come with me."

"Why?" Irene asked as she put on her coat. "I mean, come on, Tom! You're going to visit a construction site, not battle an evil villain in the jungles of Central America. You won't even be doing any inventing. It's not like anything exciting is going to happen."

"Because," Tom said. He hesitated. "We've always done everything together, ever since we were kids. You practically

grew up in my house. And this project – well, it's the hardest thing I've ever done. It could be the biggest thing I'll ever invent, and you've been with me through all of it. And when I go down to New Mexico to plan out the next steps, well, I just want to do that with you." He looked at her softly. "I know I'm being silly, and I know it's just a construction site, but I just thought you'd always be there by my side."

Irene stopped. She hung her coat back up, then walked back across the lab and sat down across from Tom. She looked at him and smiled, and then took his hand in hers. "If my going to New Mexico means that much to you then I'll go," she said warmly. "And Tom, if you want me to always be there for you then just ask. I love you, you know. I've loved you for a long time."

Tom looked at Irene as if he had never seen her before. He could feel his face turning red, but he was unable to speak. "I know," he said at last.

Irene smiled. "I'm sure you weren't planning on having that discussion today, Tom, and that's ok. But think about it. The future's an unwritten page. It can be whatever you want it to be. Just give it some thought."

Tom's heart pounded as he struggled to find something to say. *She has such amazing green eyes*, he thought. *How did I not notice that years ago?*

"Tom?" Irene asked.

Tom snapped out of his reverie. "Um, yes?" he replied.

"So when are we leaving?"

Tom thought for a moment. "As soon as possible, I think. I definitely want to be back before Christmas Eve."

"What about late tomorrow morning? That should give us just enough time to pack, plan the trip, and talk your dad into loaning us one of his new jets."

"That should work fine," he replied. "I can be ready by then."

"And how long were you thinking of being gone?"

"Not too long. How about a week? I can't imagine we'd need more time than that. And if we get done early we can always come home sooner."

“Great!” she said. She glanced at her watch. “I hate to do this but I really do have to leave. I promised Mom I'd be home in time to help her prepare dinner tonight, and I was just stopping by to see how my pencils were coming along before heading home. I'll see you tomorrow though, ok?”

“I understand. I'll call you with the flight arrangements,” Tom called out, as Irene went to the door a second time and put on her coat.

“Or you can just tell me in the morning,” Irene said.

Tom walked over to the lab door and opened it for her. “Oh. Ok. Right.”

Irene smiled mischievously and then kissed him. “I'll see you tomorrow, skipper!” she called out behind her as she left the building.

I think I was wrong about the hyperplane project, Tom thought to himself as he watched the red-headed teenager walk to her car. *Actually, that conversation was the hardest thing I've ever done. You really blew it, Tom old boy, but at least she understood. Why is it so hard to talk to her?* Then Tom smiled happily as he walked back into his laboratory. *But she is amazing! I am so lucky to have a girl like her. What would I ever do without her?*

* * * * *

Late the next morning Tom found himself helping Irene load her luggage onto a small private jet on one of Swift Enterprises' airfields. The aircraft was a small, experimental plane of a relatively new design, built to travel cross-country at just under the speed of sound. It could hold up to six people, but only Tom and Irene would be on board.

“What have you put into these bags?” Tom groaned, as he grabbed the sixth large suitcase and stuffed it into the baggage compartment.

“I'm not about to take any chances,” Irene replied. “Personally, I find it hard to believe that a construction site is going to have all the comforts of home. I'd rather bring more than

I need than risk leaving something important behind."

"You mean you actually left something behind?" Tom teased. He loaded the last of her bags onto the jet. After checking one last time to make sure that all of their luggage was accounted for the two teenagers boarded the plane. As Tom settled into the cockpit Irene shot him a warning look. "Oh no you don't, skipper! I'm going to be the pilot today."

"We both have licenses," Tom pointed out. "I can handle it. In fact, I bet I've got far more flying time than you do."

"But I called it first! Besides, I've already filed our flight plan and talked to the control tower. You can be the pilot on the way back, if you want, but I've got dibs on the trip there."

"Fine with me!" Tom said, settling back into his chair. "Take us up, Captain Goddard."

Fifteen minutes later the plane was high in the air over upper New York State, heading toward New Mexico. "It's about 2400 miles from Shopton to Nitro," Irene commented.

"At least this is a jet. It'll take us what, five hours to get there?"

Irene nodded. "We should arrive around noon local time."

"You know, Nitro is a strange name for a town," Tom commented.

"I asked your dad about it," Irene replied. "He told me the government built a nitroglycerin plant there during World War II. There's a good chance it's still there."

"I guess my Dad's nuclear research facility will be par for the course, then!" Tom said, grinning.

Irene shrugged. "They're letting him build it there, so that's something! Not to change the subject, but I'm really grateful your dad loaned us this particular plane. I absolutely love flying these things! This particular model is so responsive and easy to fly. I wish we could have taken something that was supersonic, but he didn't have anything available."

"You've flown supersonic before?" Tom asked, surprised.

Irene grinned. "Your dad has always had a love for speedy aircraft, you know. He's got some of the most amazing flying

machines that have ever been built. And he's such a nice guy! All you have to do is ask him for the keys. Personally, I can't wait to try flying the hyperplane. That is going to be *amazing*."

Tom shook his head. "There is no way dad would let either of us serve as a test pilot for Project Arcturus. It's going to be a long time before either of us are allowed anywhere near the cockpit."

"Sure, but it won't be an experimental aircraft forever. I'll get to fly it one day, skipper. And when I do – wow! That'll be a day I'll never forget."

Time passed. For a while Tom amused himself by reading technical journals, but at last he threw them aside and stared out the cockpit window. After several minutes he spoke up. "Do you remember the first time I ever flew you somewhere?"

Irene smiled. "Of course! I was what – eleven? So you must have been ten. You had just finished your training and were so proud of yourself! You offered to fly us all out to California for the Fourth of July."

Tom nodded. "I still can't believe Dad let me do that. There were quite a few people on that old plane – you, me, my parents, and Mr. Damon. I think it was the last trip he made before he died."

"He was quite a character," Irene commented. "Larger than life, really, and always ready for another adventure. I don't think he batted an eye at the thought of being flown across the country by a kid. Your mom, though – she was a bit nervous."

Tom smiled. "On one of their early dates Dad took her up in a plane and ended up crashing it. I bet that sort of thing sticks with you! But Mr. Damon was such an enthusiastic man. He was always blessing something."

"Like when we finally landed in San Francisco," Irene agreed. "Remember what he said? 'Bless my propellers, but that was some smart flying there, young man!' I was so sad when he died."

"He lived a good, long life," Tom commented. "His heart finally gave out, but I'll never forget him. Do you think we'll ever have adventures like he did?"

Irene smiled. "You're a Swift, you know. Adventure is in your

blood! I don't think you're building a plane that can travel at Mach 15 so you can spend the rest of your life at home watching TV."

Tom laughed. "You've got a good point there, Ace."

* * * * *

Five hours later the jet finally reached the sunny skies of Nitro, New Mexico. Irene contacted the control tower and made the final approach. The airport was a very small, rural station with only one runway, a small hangar, and an even smaller ground support team. Tom counted six planes on the ground, none of which were jets. *I bet at least half of those planes are from Swift Enterprises*, he thought.

"Why aren't we landing at our own airstrip?" Tom asked aloud, as he watched a small plane on the ground roll to a stop. "I'm sure the new facility Dad is building has got one."

Irene nodded. "It does, but they're not ready to receive traffic yet. For now everything is being routed through this regional airport. When we fly back down here in April, though, we'll be able to go straight to the institute."

"Institute," Tom said thoughtfully. "I like that! It's so much easier to say than 'nuclear research facility'. That gets cumbersome real fast."

"Then Institute it is!" Irene said brightly. A moment later the girl landed the plane, taxied it to its designed parking place, and brought it to a full stop.

"Very nicely done," Tom said approvingly as the girl cut power to the engines. "And right on time too! I am getting really hungry."

The two got out of the plane and stretched. "Man, but it's warm here," Tom commented. The grounds of the airport consisted of brown, parched dirt that stretched for miles in each direction. In the distance he could see a few low hills. A few rugged desert plants clung to life in the parched soil, but they were few and far between.

Irene laughed. “You weren't expecting to find snow in New Mexico, were you? I mean, c'mon. Surely you brought summer clothing with you.”

“I really don't know,” Tom replied vaguely. “Mom packed for me. I really have no idea what I brought.”

Irene shook her head. “Men are so helpless. How would you ever survive without us?”

Tom glanced around the airport, looking for some sign of life. “This place looks pretty deserted. Is someone going to come and help us unload our bags?”

Irene nodded. “I asked the control tower to send a vehicle to come get us. It'll take us to town, where we can get a taxi and go out to the Institute.”

“You mean no one is coming from Institute to get us?”

“It's two weeks before Christmas,” Irene pointed out. “There's nobody out there but a skeleton construction crew, and I didn't want to bother them. I figured we could handle it ourselves.”

“Makes sense. But what are we going to do for lunch?”

Irene saw something behind Tom. Her eyes widened. “My guess is we're going to be running for our lives!”

“What?” Tom said. He turned around and gasped. A large, angry mob was approaching their plane!

Irene turned to run but Tom grabbed her. “Wait!”

“Are you crazy?” she asked, tugging at his arm.

“I want to know why they're here. I can't imagine it has anything to do with us. After all, Dad was the only person who even knew we were coming down here today! Let's calm down and talk with them. Maybe we can diffuse this situation.”

“You've lost your mind!” Irene shouted.

By that point the mob had gotten within earshot and Tom could hear what they were saying. The group was composed of at least a hundred people, some of which were carrying signs. Tom could see anger and fear on their faces.

“You're going to destroy us all!” one man shouted.

“Get out of here!” the crowd chanted.

“We'll all be irradiated!” a third man said.

“Wait!” Tom shouted. He walked toward the group hesitantly. “What's wrong?”

“You've come here to kill us all!” one woman said. “Your flying nuclear abominations will level our cities!”

“They'll ruin our livestock!” another man said.

“You're a menace to society!” another voice called out.

A large rock soared through the air and narrowly missed Tom. As the mob got dangerously close Tom grabbed Irene's hand and started running for his life. He could hear the mob's angry shouts growing louder behind him.

“I told you!” Irene screamed.

Behind them there was a sudden explosion! The force of the blast knocked the two teenagers to the ground. As Tom looked behind him he saw that their plane had gone up in flames!

CHAPTER VII

THE MAN FROM TEXAS

“MY LUGGAGE!” Irene screamed. She stared at their plane in horror as it became a raging inferno. Thick black smoke bellowed from the aircraft and began rising high in the desert sky.

“Run faster!” Tom shouted. The explosion had startled the crowd, and when they saw the plane burst into flames they began to scatter. Tom quickly looked around for a way of escape and spotted a small vehicle up ahead.

“That way!” he hissed, grabbing Irene and pulling her away from the plane. The two began running with all their might toward the jeep Tom had spotted, desperately hoping to reach it before the mob regained their senses and came after them. The jeep was parked beside a small propeller-driven aircraft that had landed just before Tom's jet. The pilot had already disembarked and was busy carrying the passenger's copious amount of luggage to the rear of the vehicle.

What really caught Tom's eye was the plane's passenger. A rather large, sun-bronzed man was walking right behind the pilot. The balding individual wore an incredibly bright red-and-yellow outfit that was covered in sequins. It was one of the gaudiest pieces of clothing Tom had ever seen, and yet the man was

wearing it with all the pride of someone who had just purchased a thousand-dollar suit.

When the two men saw what was going on they ran toward their jeep as fast as their legs could carry them. The plane's passenger beat the pilot and jumped into the driver's seat, forcing the pilot into the seat beside him. Just as they were about to leave Tom and Irene reached the vehicle and leaped into the back seat.

“Let's get out of here!” Tom shouted.

The brightly-dressed man nodded his head and floored it. With tires squealing he whipped the jeep around and plowed into the desert, away from both the mob and the airport itself. When he had a moment to catch his breath he spoke up. “Brand my pitchforks, but that's some mob behind us! What in tarnation is goin' on?”

“I wish I knew,” Tom said sadly. He turned his head and watched as the final pieces of his jet burned to the ground. “We'd just gotten off the plane when they showed up.”

“I can't believe they destroyed my luggage!” Irene said angrily. “Who do those rats think they are?”

The driver shouted over the roar of the jeep as he drove it at high speeds across the uneven ground. “I reckon we oughta run now and ask questions later. Pleasure to meet y'all! Name's Charles Winkler, though my friends call me Chow.”

“And I'm Captain Thorndyke,” the other passenger said. “We'd just flown in from Texas.”

“It's a pleasure to meet you,” Tom replied. “My name is Tom Swift, and this is my friend Irene Goddard.”

“Ya don't say,” Chow replied. He swerved to miss a ditch, and plowed over a bump at a speed that rattled Tom's teeth. “Hey, you ain't kin to the famous Tom Swift, are ya? I've heard he's real bright.”

Tom bit his lip, and Irene tried to suppress a smile. “Yes, Tom Swift is his father. We just flew in from Swift Enterprises, and while we were expecting a warm welcome Nitro gave us a bit more of a reception than what we're used to. Believe me, I would *so* love to return the favor.”

By now the jeep had left the airport far behind them and had found its way onto a major highway. Tom glanced at the speedometer and saw that they were going in excess of 90 miles an hour.

“Is it legal to drive that fast?” Tom asked.

Chow shrugged. “I don't know 'bout you, son, but when fellers start tossin' grenades and such at me I figure it's time to get gettin'. Speed limits ain't intended for war zones.”

“That was just a grenade?” Tom asked. “Are you sure?”

Irene sighed and slumped down into her seat. “It doesn't really matter, Tom. We can find out what it was after the mob leaves. I'm sure your dad will have the authorities come out and investigate, and they'll tell us what happened. But our luggage is gone forever.”

“It sounds like y'all need a hand,” Chow said. “I don't hafta be at the ranch until tomorrow. What say I drive you into town and we rustle up some supplies?”

“That may not be a good idea right now,” Tom warned. “I'd like to know why the townspeople tried to kill us before we start strolling down main street. For all I know they might try it again! They seemed to think we were one of the harbingers of the apocalypse.”

Captain Thorndyke spoke up. “I find it hard to believe that the average man on the street would have access to grenades. I don't mean to pry, but you don't have any enemies, do you?”

Tom smiled wryly. “The Swifts have always had enemies, Captain, large and small. It comes with the territory.”

“We need to call your dad and let him know what happened,” Irene said. “Maybe we can do that at the safety of the Institute. It's pretty well-guarded.”

“If you don't mind, where were you headed?” the captain asked.

“Swift Enterprises is building a research facility about fifteen miles outside of town,” Tom said. “That was our intended destination.”

“Then let's do this,” the captain replied. “What if Chow drives

us to the research facility and drops us off? He can stay and make lunch for you while I drive into town, pick up some supplies, and see what's going on. Do you think you'll be able to contact your father from there?"

"We should be able to," Irene said.

"I *am* getting kind of hungry," Tom replied.

"Then yer in fer a real treat!" Chow said. "Cookin' jes happens to be my spec-i-al-ity, and I've got everything I need right here with me to rustle up somethin' tasty. Kin you steer me toward this place o' yers?"

"Absolutely," Tom said, smiling. "And thanks so much for your help."

* * * * *

An hour later Tom, Irene, and Chow had made it safely to the Institute. The captain had just dropped them off and taken the jeep back into town, promising to be back with clothing and other supplies later that afternoon.

"This here's some place you got, Tom!" Chow said. "Ain't never seen nothin' like it."

Tom smiled. As far as the eye could see there was nothing but crumbling rocks in a vast, empty desert. In the distance were some pink cliffs, but there were absolutely no signs of civilization anywhere. The compound was walled off from the rest of the desert by a large, barbed-wire fence, and guards constantly paroled the perimeter. Inside the grounds were scaffolds, construction materials, large earth-moving machines, and the metal skeletons of enormous buildings. Even two weeks before Christmas the construction site was still bustling with activity.

"We're building our newest research laboratory here," Tom explained to Chow. "This is where we're going to split atoms."

"Whatever you say, boss," Chow said, as he began unpacking his cooking utensils. "I'll handle the cookin' and I'll let you handle the atom-smashin'."

"Where are you going to cook?" Irene asked.

“Right here, o'course,” Chow replied. “Where'd you think?”

Irene looked around. “But we're not near a kitchen, Chow. I don't even know if there's a functional kitchen anywhere on the premises.”

“That ain't no problem, miss. I'm a range cook. All I need's a fire and me pans. There ain't much in the way of kitchens out in the open prairies of Texas either.”

“I guess not,” Irene replied, grinning. “Is there anything I can do to help?”

“Thanks, but I can handle it, ma'am,” the cook replied. Then he got a thoughtful look in his eye. “Although let me know if ya see any rattlers in the area. I cook a real mean rattlesnake soup.”

Irene gasped, and Tom burst out laughing. “Sure thing, Chow.”

“He's *serious*,” Irene whispered. “Are you nuts?”

“C'mon, Ace. Where's your spirit of adventure?”

“I left it at home in the glove compartment box of my car,” Irene said tartly. “There is *no way* I am going to eat a rattlesnake. Period.”

Tom shook his head mockingly. “What a pity.” He then spoke up so Chow could hear him. “Say, Chow, the residential quarters are over there. Irene and I are going to head in that direction to see if we can call Dad and give him a quick update. We'll be back shortly.”

“Don't y'all worry none!” Chow called out, as the two began jogging toward the distant building. “I've got it all under control. When y'all get back I'll have the best vegetable soup ready you've ever tasted!”

Thirty minutes later Tom and Irene started walking back to Chow. The residential facility did not have any telephone lines, but it did have a radio and Tom was able to get in touch with George Dilling, the chief radio operator at Swift Enterprises. He quickly tracked down Tom's father and the two had a brief conversation.

“Dad took that pretty well, considering,” Tom remarked.

“He's just glad we're alive,” Irene said. “No one thought that

coming down here might be dangerous."

Tom nodded. "I do think he's right about one thing, though. It's just too risky to fly into the Nitro airport anymore. Until we know what's going on we shouldn't take any more chances."

"I agree, but that won't really help us much. I mean, I know your dad's putting every available man on the job, but there's no way he can build a world-class airport out in the middle of the desert in just a couple of days."

"Not necessarily," Tom said slowly. "You really don't need all that much to get a plane into the air. I think he can put together a rudimentary airstrip pretty fast. I just feel bad about losing that jet. That was a really nice plane."

"By the way," Irene commented, "I didn't realize George still worked at the plant. For some reason I thought he'd been transferred to that island."

"Oh, you mean Fearing? No, not yet. Dad wanted to finish the Institute before starting construction on the new rocket base. We're still a few years away from building spacecraft."

"But that day will come," Irene said. Her eyes sparkled. "Space travel! Can you imagine? Who knows what we'll find out there!"

Tom grinned. "As long as we don't encounter any rattlesnake soup you should be fine."

Irene glared at him.

Chow had lunch ready shortly after they got back. After assuring both of them that it did not contain any unusual meats the two dived in.

"This is delicious!" Irene said. "But where did you get the food to fix it?"

"It's always best to be prepared, ma'am," Chow remarked. "I've seen an awful lot happen in my day, 'specially when you're dealing with the desert. Texas ain't always a forgivin' place."

When lunch had been cleaned up the three of them spent some time touring the grounds. Chow told them stories of his days as a chuck-wagon cook in the wide-open spaces of Texas, and as the day wore on they slowly relaxed and returned to their

usual selves.

That evening Thorndyke returned in the jeep. “I got all the supplies you mentioned,” he said, as the group unloaded the jeep and carried the supplies into the Institute's dormitories.

“Thanks,” Irene said warmly. She elbowed Tom gently. “Tom here will be more than happy to repay you.”

“Oh, right,” Tom said. He got out his wallet and reimbursed the captain for the items he had purchased.

As Irene went through the bags to see what Thorndyke had purchased Tom spoke up. “Did you find out what was going on?”

“I'm afraid so,” the captain said grimly. He handed Tom a newspaper. The young inventor glanced at the headline and gasped.

“NUCLEAR FALLOUT IMMINENT!” he read aloud. “This afternoon Tom Swift Jr., the sixteen-year-old son of Tom Swift, is scheduled to begin testing his own nuclear-powered aircraft. Scientists warn that the experimental reactor could easily become critical and explode, showing our fair city with nuclear fallout.” Tom gritted his teeth in anger. “That's completely wrong!”

“I know,” Irene said. “You're actually seventeen. They missed your birthday.”

Tom ignored Irene and continued to read the rest of the article silently. When he was done he gave the paper to her. “This is terrible! No wonder we were met by an angry mob.”

“Is there any truth in the article at all?” Thorndyke asked.

“Not really,” Tom said. “I mean, it's true that I'm looking at ways to apply nuclear power to aircraft, although how they knew that I don't know. That's one of our most top-secret projects. But we are months away from even beginning the *construction* of a test aircraft, much less actually flying it. The only reason we came out today was to look at the construction site, and that was supposed to be a secret too.”

“Apparently y'all got a leak,” Chow commented. “Looks like yer secrets are front-page news down in this-here town.”

“So it would seem,” Tom replied sourly. “But look, captain. I don't know who this 'expert' is, but the idea of the reactor

exploding like a nuclear bomb is completely ridiculous. I won't go into all the details, but even in a worst-case scenario the type of fuel used in a commercial nuclear reactor isn't nearly enriched enough to explode. The worst that could happen is it could melt down and release radioactive material, which is a very far cry from turning Nitro into a crater. But even *that* should be impossible thanks to our Tomasite shielding."

"I didn't catch hide nor hair of that, Tom," Chow said apologetically. "Ya gotta make it real simple for me."

"I can handle that," Irene said, as she finished reading the article and handed the paper back to the captain. "The article is a pack of lies that got my entire summer wardrobe burned to ashes. I intend to find whoever wrote it and hang him from the nearest tree."

"We're in a desert," Tom pointed out. "There aren't any trees around for miles."

"I'll think of something!" Irene said threateningly. "I see plenty of rope around here, and where there's a will there's a way."

"Now *that* I kin understand," Chow said. "But how're ya gonna find out the wily coyote responsible fer this?"

"We're not," Tom said firmly. "I'll call Dad and let him know what we found out, and he will let the legal arm of Swift Enterprises handle it."

"Speak for yourself," Irene retorted. "This doesn't call for lawyers, Tom. It calls for a direct and overwhelming response."

Tom sighed. "Look, Ace, I know you're upset. But we both know that Xanthus is behind this. I'm sure we haven't heard the last of him, and I'm also sure that there's nothing you or I can do about it. This is something Dad needs to take care of. I'd really rather just get back to work."

"Who's this Xanthus feller?" Chow asked.

"An old friend of the family, apparently," Tom said off-handedly.

"Tom," Irene said, "I know I'm upset. But someone tried to kill us today. If I were you I wouldn't let 'other people' handle it.

In my book, attempted murder is significant enough to warrant a little personal attention. If Xanthus isn't stopped he will keep coming back, and each time he does the stakes will get higher and the destruction will become greater. Today he told us that he's playing for keeps."

"I know," Tom said, sighing. "But look, Ace, Dad has dealt with things like this many, many, times before. He can handle it! It's what he does. And he's got a whole army of people to help him."

"Maybe so. But remember this, skipper: death is forever. Once you're dead you're dead, and there's no coming back. Do you really want to entrust your very life to someone else?"

CHAPTER VIII

CROSSROADS

EARLY THE NEXT morning Irene walked briskly toward the men's dormitory. To her surprise Tom Swift Jr. was already awake and outside, seated on a pile of bricks. When he saw her he closed the small notebook he always carried with him and slipped it into his shirt pocket.

"Good morning!" Tom said cheerfully. "Did you have a good night's sleep?"

"Hardly!" Irene retorted. "The women's dormitory leaves a lot to be desired, Tom. It is definitely *not* a five-star resort. In fact, I think giving it even one star is too kind. I've seen campgrounds that were more luxurious."

Tom laughed. "I'm sure you're right. But give it time, Ace! All that will change a couple months from now when the residential units have been completed. The scientists who work here will be able to live at the Institute in comfortable, ultramodern apartments. I believe they'll even have access to tennis courts and a swimming pool."

"Of course, they might *have* to live here, given the local population's opinion of this place," Irene said sourly. "We're not exactly a popular outfit."

“Just give them time to warm up to us! When they see that nothing bad is happening and that we're a huge boost to the local economy they will change their tune. The evil villains of the world can only cry wolf for so long before people get wise.”

“So you think a dastardly villain was responsible for what happened yesterday?” Irene asked.

Tom nodded and stood up. He handed Irene a bright-orange hard-hat and put one on himself. “I had another talk with Dad last night after you went to bed. By that time he'd been able to get some of his people into Nitro and start his own investigation. It looks like our plane was hit by a rocket-propelled grenade, which was fired from the shelter of a local hangar. Someone got a glimpse of the perpetrator and they're looking for him now, although I doubt they'll find him.”

“So they actually weren't trying to kill us after all,” Irene remarked thoughtfully. “If they'd wanted to do that they could have just shot us down while we were still in the air. We were an easy target! By the way, any word on where that newspaper article came from?”

“Dad talked to the editor, but he won't divulge his sources,” Tom replied. “And he won't print a retraction. Dad thinks that we have a spy at Enterprises that fed the article to the editor, who was all-too-willing to report it. The villain then used it to incite a mob, and used the mob as cover to destroy our plane.”

“But why bother?” Irene asked. “I don't see what anyone would gain from this. I mean, sure, we got some bad press, but that's hardly going to destroy the company or stop the Institute from being built. And the loss of one jet isn't going to cause us irreparable financial harm.”

“Beats me!” Tom joked. “Maybe he just doesn't like that model of aircraft.”

Tom and Irene left the dormitories and began walking down the dusty road. All along the street were tall cranes, enormous earthmovers, and piles of raw materials. Construction workers swarmed everywhere, mostly ignoring the two teenagers. *It looks like they're focusing more on the airfield today*, Tom thought to

himself. *With that many people on the job they'll make short work of it!*

Chow had risen much earlier than Tom and promised to have breakfast ready for them before he headed off to the ranch. In the distance they could see a thin trail of smoke rising into the sky, indicating that the Texan cook had made good on his word.

Tom spoke up. “I still think Xanthus is behind this, but right now it's too soon to tell. If it *is* him, maybe he just wanted us to know that he's still out there and can take us out whenever he wants. This could be his way of saying that he has the upper hand.”

“Very comforting,” Irene said dryly. “So what are you going to do about it?”

Tom shrugged. “I don't really know. My only plan right now is to finish the alarm system we were talking about earlier. I bet I could get it working by the time the Institute opens. This would be the perfect place to test it!”

“Wonderful!” Irene said sarcastically. “I'm sure your alarm system would have kept that trigger-happy Brungarian spy from destroying my luggage. That will *definitely* solve the problem.”

“My, but aren't we cheerful this morning!” Tom remarked, grinning.

“I got maybe two hours of sleep last night, tops,” Irene retorted. “Do you really expect that to put me in a good mood?”

“Sounds like you had a rough night!” Tom said apologetically.

“And you didn't? Are you deaf, Tom? Do you not realize that the construction work here never stops? How on earth can *anybody* get any sleep with all that constant noise? They were dynamiting at *three in the morning*, Tom. Three in the morning!” Irene gritted her teeth. “The next time you want to visit a construction site, buddy, you can find someone else to go with you. This is no place for a lady.”

Tom laughed. “Tell you what, Ace. Before we do something like this again I'll invent a machine that cancels out all noise. That way you can put it by your bed and sleep in peace.”

“You do that,” Irene replied.

By that time they had reached the small campfire that Chow had started. The middle-aged cook had somehow found a grill and was hard at work, cheerfully frying up sausages. “Well brand my dinner bell, but if it ain't the two daredevils! Y'all are jes' in time fer breakfast.”

“Mmmm, it smells wonderful,” Irene said. “What do we have?”

“Oh, not much – only 'bout everything a hungry feller could want,” Chow bragged. Tom quickly realized that the cook was right. On the picnic table in front of them were sausages, bacon, biscuits, gravy, eggs, and an array of fruit. There was enough food to feed far more than just the three of them.

“Wow!” Tom exclaimed. “You've really gone all-out. Where did you ever get all this food?”

“The supplies came from yer local mess hall,” Chow explained. “The cook there 'taint of no account, but I figured I could jes' help myself and show 'em how cooking is really done, Texas-style. Don't be shy, now – help yerself!”

Tom and Irene took a seat and began enjoying breakfast. “This is really good!” Irene remarked.

“But where are the rattlesnakes?” Tom asked, as he helped himself to some more bacon.

“C'mon, son,” Chow said. “You don't have rattlesnake stew fer breakfast! 'Tain't right.”

“What a relief,” Irene sighed. She kicked Tom under the table.

Tom grinned. “Really, though, Chow, this is marvelous. You should come work for us! The Institute is supposed to open on April 1st. We'd be delighted to have you.”

“That's awful kind of you,” Chow replied. “Still, I promised the Manleys over at the X Bar X ranch that I'd work there a spell, and I reckon I will. But look me up when y'all get back in town.”

“We'll do that,” Tom promised.

After breakfast, Captain Thorndyke came and picked up Chow. Tom and Irene bid him farewell, and then the two teenagers began a leisurely tour of the construction yard. They had seen part of the compound the previous day but had avoided

going into the sensitive areas while they had guests. Now that Chow and Captain Thorndyke were gone they headed toward the section of the Institute that would house the experimental nuclear reactor.

"So what are all these buildings around us?" Irene asked, as she watched a large crane move a giant steel beam into place.

"Let me check," Tom replied. He pulled a map out of his pocket and consulted it. "The guard tower is behind us, so those buildings must be the warehouses. That's where our experimental aircraft are going to be built!"

"The hyperplane?" Irene asked.

"Exactly! And eventually other atomic-powered craft as well. When the buildings are finished they'll be equipped with everything we need to fabricate our own aircraft right here at the plant. It'll be state-of-the-art."

"Nice! Where's the runway?"

"It'll be north of here," Tom explained. "I don't think it's been built yet. I imagine Dad wanted to build the plant's main airstrip first."

Irene looked over Tom's shoulder and studied the map. "Looks like it'll be pretty long."

"One of the longest in the world!" Tom said proudly. "If we ever build a spaceplane one day we'll be able to land it here. At least, that's the plan."

"You're already thinking about outer space?" Irene asked.

Tom nodded. "I've got a few ideas for turning the hyperplane into a spaceplane, but there's a lot that needs to be done before that can happen."

"Like actually getting our hyperplane off the ground," Irene teased.

The two continued walking down the unfinished road that led into the restricted area of the Institute. To their immediate right were the enormous warehouses that Tom had just mentioned. About a quarter mile ahead of them loomed another giant building.

The two teenagers stepped aside to get out of the way of an

oncoming forklift. “Is that the main reactor building?” the red-headed girl asked.

“That's it all right! It'll house the new unit that Dad's been designing.”

“It looks pretty big!”

“It's actually only one-quarter scale. There was no need for anything bigger than that.”

“That's still an awful lot of power,” Irene remarked. “And say, why aren't there any cooling towers?”

“They just haven't been built yet. When they are built they'll actually be fairly small because Dad's reactor doesn't depend on superheated water becoming steam that drives a turbine. He's going to use Tomasite to convert heat and radiation directly to electricity.”

“Oh, that's right. I should have remembered that! But isn't that process terribly inefficient?”

Tom nodded. “It is, and that's why we still need cooling towers. Even so, though, Dad seems to think he can achieve pretty decent efficiency. Personally, I have my doubts. The Tomasite approach really seems more geared toward small reactors, like something that could power your car. But I think Dad wants to start with something that could power a city and then work his way down from there.”

“Or maybe he'll leave that as an exercise for you,” Irene teased.

“Or to you,” Tom shot back. “After all, you're the nuclear physics expert! I'm just the guy with a notebook and pencil.”

“A pencil which, by the way, you never did finish transforming for me,” Irene pointed out. “I know my red pencil when I see it.”

“Give me time!” Tom pleaded. “These great breakthroughs don't happen overnight. I'm still thinking about it.”

“Promise?” Irene said, looking him in the eye.

“I promise,” Tom replied, grinning.

* * * * *

That afternoon the two young scientists made their way toward the research section of the Institute.

“The grounds of this facility are much larger than I'd expected,” Irene remarked. “This isn't bigger than Swift Enterprises, is it?”

“No, it's not. While the grounds do cover several square miles it's actually a lot smaller than our Shopton facility. It just seems larger because there aren't many buildings here yet. Of course, even when the Phase I construction is finished we'll still be using only a fraction of the space. It'll be quite a few years before we run out of land.”

The two stopped in front of a long, low building. At the moment it was simply a concrete slab with steel girders for walls. Boards, cinderblocks, and pipes were stacked high on the ground.

Irene stepped onto the concrete and looked around. “So this entire building is your office?”

Tom laughed. “Not exactly! Ned would never go for that. No, I'll get this end of the building's first floor, and other people will get the rest of it. I think Dad's laboratory is going to be across the street, in that building over there. Still, I should have plenty of space to run my experiments.”

“So we're going to build a real nuclear reactor right here in this room?”

Tom nodded. “That's the plan! Of course, the room won't be a concrete slab then – we'll have all the equipment we need. And our first test unit will be pretty small. The bigger ones will have to be tested elsewhere. But this is where it will all begin.”

Irene walked over and sat down on a pile of lumber. “So what's the plan, skipper?”

Tom sat down beside her. “Well, come April I'm going to move down here for the summer. I'll start out by building a series of small reactors, to see if I can generate thrust from nuclear power. If I can then I'll start searching for a way to crack the heat transfer problem. If all that works and the numbers say that we've got enough thrust to make hypersonic travel a reality then I'll start

building planes and try it for real."

Irene nodded. "That sounds like a good plan. I like it."

"Oh, and I would like for you to be here," Tom said quickly. "I mean, I realize we're out in the middle of the desert and there are no classy resorts in sight, but we'll only be out here until this project is done. Besides, you'll be closer to your parents – they're just one state over instead of all the way across the country."

"You don't have to sell me on the idea, Tom. I'd be more than happy to come. After all," she said teasingly, "I'd rather not be thousands of miles away from you. You never know when some other pretty girl might catch your eye! If I'm not there to shoot her then there's no telling what might happen. You could end up married to a blond or something!"

"Thanks," Tom said warmly. "I'm glad you're acting to save me from such a terrible fate! You are a true friend indeed."

Irene's eyes twinkled. "So tell me, skipper. What would you have done if I had refused to come back to the Institute this summer?"

"Well, kidnapping you had crossed my mind," Tom replied, grinning.

Irene laughed. She leaned forward and kissed him. "You're so sweet. Is there anything else on your mind that you'd like to talk about?"

"Um, I think I'm good for now," Tom replied.

"Are you *sure*?" Irene asked.

Tom looked at her and smiled. "Trust me, Ace."

"Ok," she said simply.

* * * * *

Two days later Tom and Irene left the Institute and flew back to Shopton, New York. This time they traveled with a small group of construction foremen that were returning home for Christmas. The two young scientists enjoyed being passengers for a change, and they spent the flight talking with the men about their work at the Institute and their plans for the holidays.

At six in the evening the plane landed at Swift Enterprises' airfield. After thanking the pilot for the pleasant flight Tom told Irene goodbye. “I guess I'll see you tomorrow!”

“Aren't you going to drive me home?” the red-headed girl asked.

Tom shook his head. “I'm sorry, Ace, but I can't. Dad wanted to see me the moment I got back and actually stayed late so we could talk. I'd volunteer to take you home after the meeting is over but I don't know how long I'll be. You can borrow my car, though, if you want.”

“That's ok, my car is still here,” Irene replied. “How do you think I got here in the first place?”

Tom looked puzzled. “Then why did you want me to drive you home?”

Irene smiled mischievously. “I'll let you figure that out on your own, genius boy.”

“Ok,” Tom said uncertainly. “I guess I'll see you tomorrow morning?”

Irene shook her head. “Sorry, skipper, but I'm on vacation until after the New Year. And you are too, in fact, along with a lot of other people. It *is* Christmas, you know.”

“Oh,” Tom said. “Right! I guess it is.”

“It'll be good for you! You can finally get all your Christmas shopping done. Think of the possibilities!”

Tom whistled. “I had better get on that! It kind of slipped my mind.”

Irene sighed. “I'm not surprised. Anyway, give me a call sometime. You do know where I live, after all.” She kissed him goodbye and then walked off.

Tom shook his head and walked over to his father's office. The executive floor of the office building was deserted. *Miss Trent probably left an hour ago*, Tom thought. His father, however, was still there.

“Come on in!” his dad said, calling to him from the chair behind his desk.

Tom walked into the suite and closed the door behind him.

“They did a nice job repairing this place!” he commented.

Mr. Swift smiled. “Miss Trent is very efficient. I imagine it's a nice change for you to step in here without feeling that your life is in danger!” He reached out and shook his son's hand. “It's good to have you home, Son. So how was your trip?”

Tom told his father everything that happened in New Mexico, starting with the flight there and ending with the flight back. “I know you've already heard most of this before,” he said, apologizing.

“I'm going to have to meet this Charles Winkler,” his dad remarked thoughtfully. “He sounds like a remarkable character.”

“I think he'd make a great employee,” Tom said enthusiastically. “When we were in trouble he just helped us out then and there, no questions asked. He's dependable, he's loyal, and he doesn't flinch in the face of danger.”

“Those are valuable qualities to have! I'll have security check him out. I'm afraid we're having to check everyone out these days,” Mr. Swift said apologetically. “Harlan is having a terrible time trying to find the leak. I'd like to think that we can trust everyone who works here, but time after time events have proven me wrong.”

“I may be able to help a little in that department,” Tom said. He told his father about his plans to design a state-of-the-art alarm system. “If I can get it to work I'd like to implement it at the Institute.”

“That would be wonderful! If it works as well as you hope it could certainly make Harlan's life a little easier. It won't solve all our problems, of course, but it would make it much more difficult for intruders to enter without our knowledge.”

“Are you still planning on opening the Institute on April 1?” Tom asked.

His father nodded. “So far the project manager assures me that everything is proceeding according to schedule. Even if some things do fall behind, though, I am sure we can at least open the laboratories. The entire plant does not need to be finished in order for the facility to become useful. Speaking of plans, however,

how are you going to approach the hyperplane construction?"

Tom explained the plan that he had discussed with Irene. When he was finished his father nodded thoughtfully. "I can see that you've thought this through, Son. Please let me know if there is any way I can provide assistance. I truly believe that your aircraft will be a monumental step, not only for Swift Enterprises but for mankind as a whole."

"I hope so, Dad," Tom replied.

His father stood up. "Is there anything else you would like to discuss before we head home? I'm sure you're getting hungry."

"Well, there is one other thing," Tom said. He paused for a moment. "It's about Irene."

Mr. Swift looked surprised. "Irene? Is she ok?"

"Oh, sure, it's not that. It's just that – " Tom hesitated. "Dad, I'm pretty sure that she wants me to marry her."

His father burst out laughing and sat back down behind his desk. "Son, are you telling me that you have just now figured this out? After all these years?"

"You mean you knew all along?"

His father smiled. "I had this conversation with her father several years ago. Irene attached herself to you at a young age. She's a very determined girl! She knew exactly who she wanted and she's never wavered in her pursuit of you."

"And you never told me?" Tom asked incredulously.

"Some things are best left to be discovered on your own. But if I might ask, what tipped you off?"

Tom shrugged. "All my life I just never thought of her as anything other than my friend. But lately her behavior has changed, and I've started noticing things. I probably would have realized what was going on sooner but it just never crossed my mind."

"The two of you are growing into fine adults. Some things change with age. I thought it was about time for something to happen."

"So you've even talked to her dad about this," Tom said slowly. "You mean I'm the very last person to know?"

Mr. Swift nodded. “The men in our family usually are, Son. I chased your mother for years before I found out that she was actually the one that had been chasing me. How she managed to put up with me long enough for us to get married is something I will never understand.”

“Mom loved you,” Tom said simply. “She still does. And I believe that Irene loves me. I can see it in how she lives her life.”

“I have no doubt of that. She is an extraordinary person! But the question is, do you love her? You need to be honest here, Son. This isn't a game where you can just pretend to love her, or tell her what she wants to hear because you know she wants to hear it. She's being honest with you, and you need to be just as honest with her. If you're not she will know.”

“I do love her,” Tom said quietly. “She means the world to me. I can't imagine spending my life with anyone else! I'm just not very good at telling her.”

“I don't tell your mother nearly often enough. It's something we both need to work on. So what is your plan?”

“What do you think I should do?” Tom asked. “I've never done anything like this before.”

Mr. Swift said nothing for a few moments. He just looked at his son thoughtfully. “Are you sure you want my opinion?” he said at last.

“Of course,” Tom replied.

“I think that you and Irene would make a great couple,” his father said slowly. “I honestly do. But you're both still very young, and you're in the middle of a very large and complicated project that has international repercussions. Time is on your side. I would suggest pursuing the relationship, but not starting anything serious until after you've finished the hyperplane. When that succeeds your life will be a lot less stressful, and you can focus entirely on building your relationship with Irene. That isn't something you want to do half-heartedly.”

“So you think the hyperplane will be a success?” Tom asked.

“Of course!” he said without hesitation. “Keep in mind I didn't say it would be an overnight success. You may try, and fail,

and try, and fail again. But don't ever give up. If you keep at it I have no doubt that you will ultimately succeed."

"Thanks, Dad," Tom said warmly. "That sounds like a wise plan. I just have one more question."

"What is it?"

"What should I get Irene for Christmas?"

Mr. Swift burst out laughing. "That *is* a good question! I don't think I can help you there, Son. This time you're on your own!"

CHAPTER IX

ENERGIZE!

AFTER MONTHS of hard work and anxious waiting the end of March had finally arrived. On that particular day Mr. Swift and Irene Goddard had arisen early and were walking down a freshly-laid sidewalk at the Institute in New Mexico. The sun had risen only an hour earlier but there were already indications the day would be unusually hot. All around them workers were busy putting the final touches on the new facility. Painters were applying one last coat of white paint to the pristine buildings. Other people were putting up road signs, unloading furniture from trucks, or simply directing the streams of activity.

The Swift family had decided to take up residence at the Institute a week before the plant opened so that they could be on-hand to supervise the laboratory setup. Tom's mother Mary had established housekeeping for the family in a spacious apartment located on the grounds. Irene had accompanied the Swift family and was living in her own apartment, not far from the Swifts.

That morning she had joined them for breakfast, only to find to her great surprise that Tom had arisen an hour earlier. After breakfast she accompanied Tom's father as the two walked toward one of the guard towers.

“I can't believe it's almost April!” Irene remarked excitedly.

Mr. Swift nodded. “The construction crew has truly done an outstanding job. We will be able to open this facility next week, right on schedule.”

“What's even more amazing is that Tom went to work before sunrise,” Irene joked. “Its not like him!”

“I think you're turning him into an early riser! He has shown a remarkable amount of enthusiasm on the new alarm system he has developed. I'm looking forward to seeing it demonstrated.”

“I hope he has all the bugs worked out,” Irene commented a bit nervously. “I mean, I'm sure he does. But some of our earlier tests were, um, not entirely successful.”

“The same could be said for nearly all my inventions,” Mr. Swift replied. “It's all part of the process.”

After a few minutes' walk they arrived at one of the four guard towers that were located on the Institute's grounds. Each of the massive six-story spires were positioned at strategic points and built out of reinforced concrete. The men stationed in them were tasked with keeping watch over the secured facility and raising an alarm should any unauthorized personnel approach, either from the ground or from the air.

The door to the tower was guarded by two officers that stood on either side of the front entrance. Mr. Swift removed his badge from his shirt pocket and showed it to them. The guard on the right nodded in acknowledgment and opened the door. Tom and Irene then stepped inside and walked up a spiraling metal staircase to the top floor.

On the highest level of the tower was the control center. The glass-walled room had a commanding view of its section of the plant and was filled with the most up-to-date monitoring equipment. Normally the room was manned by several highly-trained technicians, but at the moment only Tom Swift Jr. was present. The young inventor was lying on his back underneath a large metal box, performing a bit of last-minute soldering.

“Be with you in a minute,” he grunted. “Just need to make a few last-minute fixes to the patrolscope. It got a bit jostled during

shipping."

"Maybe next time you shouldn't send it by carrier pigeon," Irene called out.

"Very funny," Tom muttered.

The red-headed girl sat down at one of the consoles and examined it admiringly. "This room looks like it means business! I like what you've done to the place."

"The security here is extremely tight," Tom's father agreed. "We have armed guards patrolling the fence, the boundary of the property, and key installations within the grounds. The government has even stationed fighter jets in hangars in order to force down any unauthorized aircraft."

"But isn't this just a non-military research facility? That kind of seems like massive overkill. Ned has to be really unhappy at the expense."

"The government doesn't want to take any chances," Mr. Swift explained. "They're afraid that hostile countries might try to steal our nuclear expertise and put our nation in a bad position. Personally I find it difficult to believe that an army of Brungarians is going to invade a facility located in New Mexico, but – "

"That's the government for you, I guess," Irene interjected. "You know, really, I'm more worried about the protesters. Did you see the pictures in the morning paper? They're already demonstrating even though the plant isn't open yet!"

Mr. Swift sighed. "Apparently the inflammatory episode that happened when you and Tom visited the plant last year has not been forgotten. It is sad to see people who don't understand the value of what we're doing here. Our goal is to provide clean, inexpensive energy to a world that desperately needs it. If our research pays off we can increase the standard of living not just here in America but abroad as well. This facility represents progress, not the apocalypse."

Irene nodded. "At least they can't demonstrate right outside the gate. It was nice of the government to restrict all of the land for miles around. Nobody can even get close."

Tom slid out from underneath the patrolscope's wiring cabinet. He stood up and stretched. “That ought to do it. Sorry about that!”

“Not at all,” his father replied. “I take it this is the security system I've heard so much about?”

Tom nodded eagerly. “This is it! Now keep in mind this is just the first version. At some point I want to replace the secure door locks with amulets so all you need to carry with you is your wristwatch. The badge that we've got to carry around right now is so aggravating and so easy to lose! But I'm getting ahead of myself.”

“Where's the plant's chief of security?” Mr. Swift asked, looking around the room. “Doesn't he need to see this?”

“Once we get it all set up, but not right now,” Tom explained. “I'd like to make sure it's completely installed and operational before explaining it to someone else.”

“That sounds reasonable,” Tom's father replied. He glanced at the machine that his son had just been working on. The main body of the patrolscope was housed in a large, refrigerator-sized box, with thick cables running out of it that plugged into sockets in the wall. Another cable was connected to an adjacent machine that appeared to house a radar display. “Should I turn it on?” he asked.

“First let me explain to you how it works,” his son replied. “You need to understand what you're going to be seeing.”

“Let me do the explaining!” Irene begged. “I can handle it.”

“Be my guest!” Tom replied grandly.

Irene smiled. “Thanks, skipper. The alarm system – or patrolscope, as we prefer to call it – works by means of a sophisticated radar beam. Mounted on top of this tower is a radar dish that constantly sweeps the area. The frequency is tuned to penetrate walls and only pick up on people.”

“How is that possible?” Mr. Swift asked. “I wasn't aware of a people-specific frequency.”

“It's actually detecting the water within people,” Tom explained. “Humans are mostly water, after all.”

“But lots of other things have water too,” his father pointed out. “Like the giant tanks of water that are all over this plant.”

“Or my morning cup of coffee,” Irene added. “We know. It took a bit of work to solve that problem. The system is designed to ignore very small quantities of water, and it will filter out the truly giant ones. If there are any people-sized bodies of water that we don't want to pick up then we can just attach an amulet to it and we'll be set.”

“We're still a little iffy about rainstorms,” Tom admitted. “But fortunately there aren't many of them out here in the desert. Hopefully by the time it does rain we'll have a solution for that too.”

His father nodded. “I'm glad you have thought that through. But what about the shielded areas? There are numerous places within this facility that cannot be penetrated by radar. For example, I know my laboratory is shielded, and I know yours is as well.”

“But to get to them you have to cross the desert that surrounds this plant,” Irene pointed out. “Miles and miles of it, in fact. The system is designed to spot you long before you get to a sensitive area.”

“That's true,” Mr. Swift conceded. “Good point. Now, how do we tell apart the employees from the intruders?”

“With this,” Tom said proudly. He took off his watch and handed it to his dad, who looked at it, puzzled. “You're going to use a watch?” he asked uncertainly.

Irene laughed. “That was Tom's idea. Everyone carries a watch, so it's a great place to hide the amulet! Those who are unfamiliar with the system will never think of looking there. They'll be looking for a badge or something.”

“Exactly!” Tom said. “To get back to your question, the purpose of the amulet is to shield the employee from radar so that they don't show up. Ergo, anyone not wearing a Swift watch will appear on the scope and stand out like a sore thumb.”

Mr. Swift looked at his son in amazement. “There's not very much room in a watch, Son. How on earth could you possibly

have fit a radar-shielding device inside it? Or provided the energy to run it, for that matter?"

"Magic!" Irene said, her eyes twinkling. "*Your* magic, to be precise."

"Tomasite?" he asked uncertainly.

"Tomasite!" his son affirmed. "We've tweaked the formula a little bit. Normally Tomasite just absorbs radar, and while that's nice it doesn't really help us. The modified version reflects it, but it creates a distortion field that wrecks havoc with the signal."

"It's like a fun-house mirror," Irene explained. "A signal does get reflected, but the distortion field degrades it. The machine picks up on the degraded signal and filters it out so it doesn't appear on the scope."

"Amazing," Mr. Swift said. "Truly amazing. And you can scan the entire base from a single guard tower?"

His son shook his head. "Oh no, definitely not. We're going to put one of these units in each tower."

"Are you going to tie the systems together?" his father asked.

"At some point," Tom said. "Probably not today. As I said, there's still some work to be done."

"Load testing is what worries me," Irene confessed. "We've seen it work with a couple amulets, but I don't know what will happen when there are hundreds of them out there. And I don't know how the system will react when multiple scanners overlap. Or, for that matter, whether other things around the plant will create dead zones where people won't be picked up."

"But I'm confident we'll overcome those problems," Tom said.

"I'm sure you will," his father agreed. "So is it time for a demonstration?"

"You bet!" Irene said. "Care to do the honors?"

"It would be my pleasure," Mr. Swift replied. He reached over and pressed the button to activate the patrolscope. Instantly the machine hummed to life! A series of red and yellow lights began blinking on the outside of the box.

"That's good," Tom said quietly. "Power-up was successful and the system diagnostic found no problems. Now to tie in the

radar signal." He flipped a switch on the radar unit, bringing it to life. A green line appeared on the display and began rotating clockwise, indicating the part of the screen that was currently being updated. The rest of the screen was completely blank.

"Should I be seeing something?" his dad asked.

"Just a second," Tom replied. "The calibration may be off." He walked over to a table, grabbed a sheaf of papers, and began flipping through them. "I know I've got the numbers here somewhere."

Irene shook her head. She knelt onto the ground, picked a yellow pad off the floor, and handed it to Tom. "Here you go, skipper! I think you might have left this behind."

Tom glanced at the pad. "Oh, right – I was just using that a minute ago. Thanks!" He took the pad from her and compared the numbers to the settings on the machine. "Hmmm. Let me try adjusting a few tolerances." He slowly turned a small knobs on the exterior of the patrolscope.

Almost instantly the radar screen was covered in a sold mass of green! Irene giggled. "Keep going," she said.

Tom frowned. "I don't get it. What am I missing?"

"I think you're having trouble with the signal quality," Irene said. "The working range was really narrow, remember?"

Tom nodded. "I remember. It took us forever to find a combination of frequencies that would work!" He flipped to a different page on the yellow pad, took a screwdriver out of his hip pocket, and used it to remove the case from the radar unit. "Let me adjust this to emit a little tighter beam."

As he worked with the unit the screen suddenly changed. Little green dots began to appear!

Irene cheered. "Much better!"

"Where are we?" Mr. Swift asked, as he examined the screen.

"We're not on there," Tom replied. He closed the radar unit and put his screwdriver away. "Because of the dish's location it's not able to detect people inside the guard tower. However, there is a way to test it. I have with me one normal wristwatch and one with an amulet inside. Irene and I will both put on watches and

then go outside and walk around the plant. If this machine works you should be able to see one of us but not the other."

Tom's father nodded. "That makes sense. But how does this screen correspond to the plant layout?"

"I *told* you we needed an overlay map," Irene whispered to Tom. "I'll try to put one together this afternoon." The girl then pointed to various positions on the screen and explained how they corresponded to the buildings around the Institute.

When she had finished Tom put on one watch and gave Irene the other. "I've got the one with the amulet," Irene said proudly.

"Ready?" Tom asked his father.

"Absolutely, Son," Mr. Swift replied.

The two teenagers walked downstairs and out of the building. When they exited the building Tom's father saw one dot appear. He was able to track his son as he walked down the sidewalk, but he could not see Irene at all.

"Amazing!" he breathed.

Over the next three days Tom and Irene calibrated the new alarm system and installed it in the other three guard towers. Tom gave Hank Sterling all the information he needed to mass-produce amulets, and the day before the Institute opened Hank flew down to New Mexico and brought with him enough amulet-bearing watches for all the employees. When the watches arrived Tom taught the security personnel how to operate the new system.

The following morning when the facility opened the watches were distributed to all employees. Tom spent the day babysitting the new system, but to his tremendous relief they had no major problems.

At the end of the day he had dinner with Irene in the mess hall. "So how'd it go?" Irene asked, as she ate a chicken sandwich.

"Beautifully!" Tom said. "Better than I had hoped. There are a few minor issues but they're nothing I can't solve. Most of the dead zones should be fixed by the end of the week. I'd also like to tweak the design of the amulet a little bit before we implement

this at Swift Enterprises – there are times when it doesn't capture the signal as well as I'd like. But for a first release I think it's pretty good."

"So when can you join me in the lab?" the red-headed girl asked.

"Tomorrow morning, bright and early," Tom said, smiling. "There are other people here who can handle making the final tweaks to the patrolscope. It's time to bring the nuclear age to the skies!"

"There is one other thing we need to address," Irene said, as she finished her sweet tea.

"What's that?" Tom asked.

"The food, of course! We need to bring in Chow pronto. He wasn't kidding – this stuff really *is* terrible!"

Tom laughed. "We're just spoiled is all. But I agree – it would be great to have Chow back. Somehow it doesn't seem right to be here in Nitro without him! I'll give him a call tomorrow and see if we can work something out."

True to his word, the following day Tom gave Chow a call and asked the happy-go-lucky cook to come and work at the Institute for the summer. Chow was pleased to hear from him and quickly agreed. That afternoon the Texan cook arrived and settled into his galley. He instantly became a plant favorite and started preparing the meals for all the scientists who worked in Tom's building, but he always took special care of Tom and Irene.

One day several weeks later Chow rolled a cart piled high with food into Tom's lab. As he was about to announce that lunch was ready his attention was caught by a giant machine in the center of the lab. "Well brand my turnips, but what in tarnation is that?"

Tom grinned. "This is the prototype for the Sampson 9000, Chow! What you're seeing here is the latest in modern technology."

"Or it will be once it's finished," Irene added.

"Ya don't say," Chow said dubiously. He parked his cart and walked around the invention. The machine was a maze of wires,

tubes, and metal. Underneath the metal he could see Tomasite shielding, and the machine itself was enclosed entirely behind a protective Tomasite barrier. “I've never seen so much plumbing in all my born days! You say it's a Sampson of some kind?”

“We named it after good old Eradicate 'Rad' Sampson,” Tom explained. “He was such a good friend of the family that it only seemed fitting.”

“We were going to call it the Rad 9000 but we decided against it,” Irene added. “What with rad being the term for a unit of absorbed radiation and all. Nine thousand rads is enough to kill anybody.”

Tom nodded. “The marketing department would have gone into fits! Besides, the name Sampson implies strength, and that's exactly the image we want to convey.”

“I still don't get it,” Chow said.

“What we have here is basically a new kind of engine. We're going to use it to drive an airplane. The engine works by taking in air, superheating it, and ejecting it out the rear of the compressor. This will provide thrust. The heat will be provided by a nuclear reaction.”

“That don't look much like an engine to me,” Chow remarked. “Where's the plane?”

Tom laughed. “There is no plane, Chow – not yet, anyway! This is just a test unit. All we're trying to do is build a Tomasite-shielded reactor and test some techniques for superheating air. The unit is basically just a closed loop. Air is going to be circulated through the loop by a fan. As it goes around the air will be pushed through a nuclear reactor and hopefully get pretty hot.”

Irene spoke up. “You know, Chow, we were just about ready to test it! Would you like to stay and watch as history is made before your very eyes?”

“It is safe?” Chow asked dubiously.

“So far we've had trouble getting it to do anything,” Tom said sourly. “You'd be better off using a campfire! The atomic reaction is too anemic, and what little heat we're getting isn't being transferred to the air.”

Chow pulled up a chair and sat down in front of the machine. “I reckon I'm ready, boss. It ain't ever day you get to see somethin' like this. What do I need to be watchin' fer?”

Tom sat down in front of a console and pointed out some gauges. “Irene is going to start the reaction. When she does you should see the core temperature start rising. This other gauge measures the temperature of the air that we're trying to heat. If it works you should see the air temperature rise and pressure start to build inside the closed loop. Are you ready, Irene?”

The girl shook her head. “Don't forget the radiation suits, Tom! I don't want to take any chances.”

Tom grimaced. “Do we have to? Those suits are really hot and uncomfortable. Keep in mind the reactor is behind some pretty thick Tomasite shielding. I'm sure it'll provide plenty of protection.”

“It is *absolutely* necessary,” Irene replied firmly. “Radiation isn't something you can take chances with, kid. If something goes wrong and that shielding fails you are going to be hurting in a big way. Radiation plays for keeps.”

“Ok, Ace. You have a good point.” Tom walked over to the closet and got out the radiation suits. He put one on himself and handed one each to Irene and Chow. After they were all suited up Tom nodded to Irene, who initiated the reaction.

Chow watched, wide-eyed, as the core temperature began building. After a few minutes it leveled off. “Is that good, boss?”

Tom shrugged. “It's in line with what we've seen before. Irene, let's turn the reaction up a bit. The work we've done over the past few days should dramatically increase the heat throughput.”

Irene nodded and made the change. The quantity of heat produced by the reactor started climbing again! Over the next few minutes the readings on the gauges steadily increased.

“This is looking pretty good,” Tom said, pleased. “The heat is finally being transferred to the air. We're getting some good pressure!”

Irene studied the board and frowned. “I'll say we're getting

pressure! In fact, we're getting way too much pressure. I don't like this! How strong are those welds, anyway?"

A moment later they were jarred by a loud bang. The reactor started making a hissing noise!

Irene gasped as she saw superheated steam pour out of the test unit. She immediately reached over and slammed the kill switch. "The chain reaction is shut down," Irene shouted over the noise of the machine.

"But the air temperature's still climbing!" Tom said, with fear in his voice. "How is that possible?"

"The heat must be coming from the leftover radioactivity in the core," Irene replied. "The explosion may have damaged the cooling system. Look!"

Tom looked at the reactor and gasped. Through the protective barriers he saw that the reactor's Tomasite shielding was starting to melt!

"We're losing shielding," Irene gasped. "Tom! That plumbing was never meant to – "

The girl was interrupted by a thunderous explosion!

CHAPTER X

FLIGHT PLAN

THE INTENSE BLAST tore the reactor apart and sent pieces of it smashing violently against the protective barrier. Steam began billowing out of the machine, accompanied by a high-pitched whine. Within moments the transparent Tomasite barrier began fogging up. Irene was petrified for a moment, but she forced herself into action. “Readings?” she asked with a shaky voice.

Tom glanced down at the control panel. “All the gauges are reading zero right now.”

“Of course,” Irene muttered. “The sensors are broken. We'll have to do this the hard way.” The girl stood up and backed away from the table. She grabbed a Geiger counter and began taking radiation readings. Chow stood up as well but said nothing, keeping an eye fixed on Irene.

“Well?” Tom asked. He stared glumly at the ruined remains of his reactor.

“I'm not detecting any radiation leaks,” Irene said slowly. “I can see some deep scratches in the Tomasite from where I'm standing but apparently they haven't penetrated all the way through. I think the barrier is holding for now.”

Tom slumped down in his chair in relief. “You have no idea

how glad I am."

"Wanna bet?" Irene replied. She quickly walked over to the wall and smashed the emergency button. Instantly the room was filled with red light and a shrill warning siren started going off.

"What did you do that for?" Tom asked, startled.

"Because we have an emergency, you lunkhead! I don't know if you noticed, but your reactor just exploded."

"But I don't think it was the reactor," Tom argued. "We were heating air as part of the test, and the air just got too hot and produced more pressure than we had planned for. That's the problem. The reactor actually worked!"

"The reactor was blown apart, Tom!" Irene shouted. "It's in pieces right now! Highly radioactive, dangerous pieces at that! We need people in here *now* to do something about it before we have an even bigger problem. That barrier is holding right now but I can't guarantee that will last forever."

Chow gulped. "I guess I'll be gettin' back to me galley, then."

"All right," Tom replied. "We'll let you know when we're ready to run another test."

"You do that, boss. I'll arrange to call in sick that day."

Irene shook her head as she watched the cook hastily leave the room. "That could have gone a lot better. We did *not* think this through."

"But it was a success!" Tom said, his eyes glowing. "It worked! We heated the air, Ace. We actually heated the air! This is going to work – I can feel it."

"I'm feeling something all right, but it's not the thrill of success. A few more victories like this and they'll have to peel our remains off the floor."

"You worry too much!" Tom chided. "In my book, any test you can walk away from is a good one."

Irene shook her head. "You're just like your dad, you know that? How did any of your ancestors ever live long enough to have kids?"

"It's obviously our genius intellect at work! We just have what it takes."

Irene stuck her tongue out at him, and Tom laughed.

It took the hazardous waste crew the rest of the day to dismantle the reactor and dispose of the pieces. Early the next morning, however, Tom was back at work. This time he was taking a different approach.

"I think we've proven that the basic concept works," Tom explained to Irene. "What I want to do now is build a miniature jet engine – the same thing that we'll eventually put on a plane, but built to a much smaller scale. There's not really enough room in the lab to test it, so we'll just fabricate it in here and test it outside."

"Sounds like a good plan, skipper," Irene replied. "Do you have the engine designed yet?"

"Oh, I did that months ago. It'll need some tweaking now that we've had actual experience, but I think it's nothing the two of us can't handle."

"Then let's get to it!" Irene said cheerfully.

Tom retrieved the blueprints from the laboratory safe and the two spent the rest of the day making changes to the drawings. That afternoon Tom's father walked into the laboratory.

"So how's it going?" he asked.

"Wonderful!" his son replied. He put down his pencil and turned his attention to his father.

"Much better than yesterday," Irene added. "Things got a little *too* exciting in here."

Mr. Swift smiled. "I heard about your brush with disaster. It's the first emergency we've had since opening! You're off to a good start, Son."

Tom grinned. "I'm holding true to Swift tradition! But I think it was actually a blessing in disguise. After all, it did prove that the idea worked."

Irene shook her head. "I think that both of you are out of your mind! If that Tomasite barrier had failed we would have been in big trouble."

"But it held," Tom pointed out. "And that made all the

difference."

"So are you rebuilding the unit?" Mr. Swift asked. He glanced over their shoulders at the blueprints they had been studying.

"We're actually moving on to the next step," his son replied. "I want to build a miniature atomic jet engine – sort of a scale model to what will be on our first test aircraft. Irene and I hope to have it ready for tests by the end of the week."

"We do?" Irene asked.

"You bet," Tom said excitedly.

"Wonderful," Mr. Swift commented. "Speaking of demonstrations, I was wondering if I could get your opinion on something I've been working on. I don't want to interrupt your work but if you have a moment to spare I would greatly value your input."

"Of course!" Irene said. She jumped off of her stool. "How can we help?"

"Just follow me," he replied. Tom put his engine plans back in the safe and secured the laboratory. The group then exited the building, and Tom's father led them to a small jeep. After everyone had taken a seat he drove them to the plant's main reactor building. Once they reached it everyone got out of the jeep and approached the entrance.

"Do you mean to tell me your reactor is actually *finished*?" Irene asked, eying the imposing concrete structure.

"Oh no, not yet," Mr. Swift replied. "I'm still working on it. But I've made a lot of progress!"

After going through security the three scientists stepped inside. Mr. Swift then led them down a long hallway and into a giant, open room. The massive inner chamber was filled with workers who were busy laying wires all over the room. In the center of the room was a giant gray cylinder that stretched thirty feet high and was easily ten feet wide.

Tom and Irene gazed at it in wonder. "So is that where the reaction will take place?" Irene asked.

Mr. Swift nodded. "We've constructed the reaction chamber but we don't have the Tomasite in place yet. There have been

some difficulties acquiring enough material but that should be resolved shortly."

"I've been meaning to ask you about that," Tom said. "Are you having Hank manufacture the Tomasite at Enterprises?"

His father shook his head. "Hank would be hard-pressed to manufacture enough of my plastic meet our needs. No, I've asked Ned to take care of it. Do you remember the Tomasite factory that went online earlier this year?"

Tom nodded, and his father continued. "Well, that factory has proven to be a tremendous success! So, since we already have a facility that can produce Tomasite I've just asked Ned to upgrade it so that it can make the special blend of Tomasite that I need. Once he finishes implementing the new process line he'll be able to manufacture all the material we could want."

"That's great!" Tom exclaimed. "I'm glad that's working out for you. Say, isn't Ned also making some other additions to the facility as well?"

"Yes he is. Ned is building a facility for the testing and further development of experimental aircraft. It will be similar to what we have here, but with a slightly different focus. Once you've finished the initial development of your hyperplane you can simply hand it over to Ned's group, who will finish the work in California and turn the handmade plane into something that can be mass-produced. That way we won't tie up scarce resources here and can move on to the next project."

"Makes sense," Tom said.

Irene continued to stare at the reactor. "I think I understand how this works," she said slowly. "You're sheathing the entire reactor in Tomasite, aren't you?"

Mr. Swift nodded. "The Tomasite will convert the heat from the reaction directly to electricity, which will be carried along all of these wires that you see. The reactor uses a honeycomb design that is composed of many small cells, in order to maximize the Tomasite's exposure to the heat."

"But the process isn't anywhere near 100% efficient," Irene pointed out. "How are you going to keep the waste heat from

melting the Tomasite?"

"Oh, we're still going to have a water-based cooling system. It just hasn't been built yet. As I said, we're still a few weeks away from starting this unit up. But I think it has a lot of promise. In fact, we're already taking orders for commercial power plants."

"Really?" Tom asked. "I didn't even know they were for sale."

"They're not officially, but the governor of New York got wind of the project and wanted the first unit to be built in our home state. We're already breaking ground on a small island not far from New York City! When we finish our testing here we'll duplicate our work there. Just one Swift reactor should be able to provide enough power for the entire metropolis."

"But that's the largest city in the country!" Irene objected. "Something like seven million people live there. How could you possibly generate that much power from simple radioactive decay?"

"Because we're using nuclear fission, not radioactive decay," Mr. Swift explained. "The energy we'll get from the chain reaction is more than enough for our needs."

"How are you going to control it?" the read-headed girl asked.

"The chain reaction will be controlled by a specially-built electronic brain. It will constantly monitor the temperature and keep it within safe levels. Since it is a machine it will be able to react to emergencies far quicker than any human."

"Very nice," Tom said.

"Are you using highly enriched fuel?" Irene asked.

"Yes, but we're spreading it across many individual cells for both efficiency and safety. The enriched nature of the fuel should give us far more energy than would otherwise be possible. Here, let me show you some numbers."

For the next half-hour the group continued to discuss the technical details of the reactor. At last Irene nodded in approval. "I like your design, sir. I think it is a remarkable step forward."

"Thank you," Mr. Swift said, gratified. "I was hoping the two of you would approve."

"Will you let us know when you bring it online?" Tom asked.

“We'd like to be here to watch, if possible.”

“Of course, Son. I don't know when that will happen, but as the time approaches I will definitely let you know. It should be sometime within the next couple weeks.”

Irene glanced down at her watch. “Hey, skipper, I hate to break this up but if we don't head out soon we're going to be late for dinner. I hear your mother's serving spaghetti tonight – her own recipe, too!”

Tom nodded. “Right. Say, I have one other thing I need to talk with Dad about. Mind if I catch up with you later?”

Irene looked puzzled for a second, and then smiled sweetly. “Why of course, Tom. Take all the time you need. I'll see you after dinner.” She nodded farewell to Tom's father and walked off happily.

After Irene had left the building Mr. Swift chuckled. “Son, if your plan was to not raise her suspicions then you failed miserably. You've still got a few things to learn when it comes to keeping secrets.”

Tom grinned. “I guess so, Dad. Do you have a private office or something in this building? I'd like to run something by you.”

“Of course,” his father said. The two exited the reactor chamber and walked to a room located at the end of a short hallway. Mr. Swift opened the door into a small, simple office. After closing the door the two inventors sat down. “So how can I help you, Son?”

Tom reached into his pocket and pulled out a stack of folded-up sheets of notebook paper. The sheets were covered with mathematical equations and hand-made drawings. “Well, Dad, it's like this. I have an idea for a new project, and I was wondering if I could enlist your help. It seemed like something that would be right up your alley.” He unfolded the sheets of paper and handed them to his dad.

Mr. Swift studied the sheets for a moment. He frowned as he read over the first page, and then flipped it over and started reading the following pages. “I see what you're doing, Son, but I don't understand the purpose. Why now? This doesn't have

anything to do with your hyperplane."

Tom shook his head. "This project is focused entirely on Irene. Think about it, Dad."

A light suddenly went off in his father's brain. A smile slowly crept across his face. "I get it, Son. Very clever! She will like this."

"I'd build it myself but I don't want her to find out. I noticed she never goes into your laboratory, though, so I thought that maybe I could design the equipment and you could build it. It shouldn't take long to put together! Once the machine is ready I can make up an excuse and join you. Irene will be suspicious but she'll never guess what we're up to."

"This will take a tremendous amount of electricity to run," Mr. Swift said thoughtfully. "We'll need to wait until my reactor is online, but that shouldn't be a problem. After all, it will take Arv Hanson some time to machine the parts and get them down here. But we should be able to work out the logistics."

After having his son clarify a few details of the design he carefully folded the sheets of paper and put them in his pocket. "It would be my honor to help you, Son. I think Irene will be very pleased."

"Thanks, Dad," Tom replied, grinning. "So, shall we go to dinner?"

* * * * *

True to his word, by the end of the week Tom Swift had constructed a miniature version of his atomic jet engine. After giving it a final check Tom had the unit hauled out of his laboratory and out to the testing range. By the time it was in place word had spread and a fairly large crowd had gathered to see the demonstration. Even Chow ventured out of his galley to watch the trial run of Tom's latest invention.

After the workers securely bolted the engine to a concrete slab Irene checked it over carefully to make sure it had not been damaged during transport. When she was satisfied that nothing

was wrong the two young scientists retreated into a nearby concrete bunker. The rest of the crowd backed away from the engine and assumed a safe distance.

Mr. Swift was already inside the bunker and awaiting the test. “Is everything ready?” he asked as the two teenagers entered the room.

“As ready as I know how to make it,” Irene replied. “Emergency personnel are standing by. It's now or never!”

Tom looked at the control board in front of him. “The purpose of this test is to see how well the engine is able to produce thrust. In the first demonstration we will keep the firing time fairly short. Once we see how it performs we can conduct more prolonged tests at a later date.”

Irene turned to Tom's father. “Can you make sure that the area is clear?”

Mr. Swift nodded, and stepped outside the bunker. After he returned Irene activated the warning beacon. A red light began flashing both inside the bunker and at the testing range, alerting all personnel that a test was under way.

With a deep breath Tom pressed the ignition button. At first nothing happened.

“The core temperature is building,” Irene said quietly. “We should see something soon.”

A moment later the engine roared to life! A thunderous sound shook the testing range and leveled out to a mighty roar. Tom could feel the bunker shaking. Outside heat waves emanated from the engine.

“The engine's performance is looking good,” Irene commented. “We're exceeding five thousand pounds of thrust and the number is still climbing.”

“How long are you going to keep it running?” Mr. Swift asked over the roar of the engine.

“Two minutes, twenty seconds,” she replied.

The engine shut down exactly on time. As the sound died down Irene shut off the warning siren and the bunker returned to normal.

“The engine peaked at eight thousand, four hundred pounds of thrust,” Irene said. “It's well within the predicted range.”

Tom relaxed. “I knew it would work!”

“Congratulations!” his father said. “An amazing accomplishment. You've done well, Son. I realize you still have a lot of testing to do on this model, but what is the next step?”

“I think the next logical step is building an engine capable of moving a plane supersonically,” Tom replied. “And building a plane that can use the engine. We'll test the engine first on the ground, and if it works then we'll install it on a jet.”

“We want to test the Sampson engine in stages,” Irene explained. “We'll start out with using only a fraction of the engine's power, and see if we can get stable subsonic performance – say at 500 mph. If that works then we'll increase the speed into the supersonic range. The maximum velocity for our next model will be Mach 3.”

“That's still not in the hypersonic range, of course,” Tom added. “But if the Sampson engine can prove itself at Mach 3 then we'll scale up the design further and build a second plane that will be a true hypersonic craft.”

“Wonderful!” his father exclaimed. “I'll tell Ned the good news. It sounds like he may have his hands on your first prototype jet much sooner than he expected.”

“So you think there's a market for even our first model?” Tom asked.

“Of course! I think there is a demand for a whole line of nuclear aircraft – subsonic, supersonic, and hypersonic, depending on the need. I realize that we are most excited about the fastest jets, but not everyone has a need for that much speed. The fact that nuclear aircraft can run for weeks or months without needing to be refueled will be a huge selling point.”

Irene spoke up. “That reminds me. Do you think you could find a test pilot for us? We'll need someone to run our tests.”

“I'll take care of that immediately,” Mr. Swift promised.

* * * * *

It did not take Tom and Irene long to build a production-sized model of the Sampson 9000. The unit proved itself admirably in ground tests, to the point where Tom felt confident in beginning construction of the plane itself. Tom's father had outdone himself in providing all the equipment necessary to fabricate an aircraft, and the production of the first experimental nuclear jet progressed rapidly.

Once the jet had been fabricated Tom and Irene personally supervised the installation of the atomic engine. The dark-gray plane was nearly fifty feet long and had a slender fuselage and delta-shaped wings. Despite its size most of the plane's body was occupied by the nuclear reactor, leaving room for only four passengers in the cockpit and a small amount of cargo space.

Installing the engine proved to be a laborious process that took the better part of a week. One day toward the end of the installation Tom and Irene found themselves alone in the hangar. It had been a long, hard day, and at closing time the exhausted workers had packed up their equipment and left the building. Tom sat down on a nearby crate to rest a minute before the two teenagers walked back to the residential section of the base.

“At some point we're going to need to shrink the engine a bit,” Irene said. She was standing beside Tom, studying the jet critically. “I mean, what we have now is fine, but I don't think it will scale. We'll need something much more efficient if we want to hit Mach 15.”

“I know,” Tom said wearily. “I've been thinking about that. The engine is just too heavy. But one step at a time, Ace. We'll let the test pilot put this craft through its paces and see how it goes. I'd like to know for sure that the engine works before we try to miniaturize it.”

“I suppose your right. Say – you know, you never did tell me the name of this plane. At least, I don't think you did.”

“That's because the plane doesn't have a name.”

Irene shook her head. “No name! Why, that's terrible! This must be remedied immediately. After all, what do you expect the

flight controller to say when it comes time to test it? 'Hey you – in the black plane! You have clearance to land.'"

Tom smiled. "You pick something, Ace. I can't think right now. My brain hurts."

Irene sat down beside Tom and put her arm around him. "You really *are* exhausted, you poor thing. You've been working too hard."

Tom smiled. "It'll be worth it, though. We've made a lot of progress! I'll take a break after we get this all done, I promise."

"You'd better!" Irene said teasingly. "Or else I'll have Doc Simpson flown down here to ground you. It won't do to have you die of overwork before you even turn 18! You've got to pace yourself, skipper."

"So what are you going to name the plane?" Tom prodded.

Irene thought for a moment. "Let's call it the *Falcon.*"

Tom nodded. He stood up, wearily walked over to the jet, and gently patted it on its side. "Very well. Plane, I christen thee the *Falcon*. Long may you reign over the skies!"

"Not *too* long, genius! Hopefully its big brother will leave it behind in the dust in a matter of weeks."

"Are you ready to go?" Tom asked. "I am so exhausted, Ace. I need to go home and collapse."

As the two teenagers stood up they were startled by a siren. An orange light filled the warehouse.

"We've had a break-in," Tom said tersely. "Quick – to the guard tower!"

The two teenagers raced outside the building and made a beeline to the nearest guard tower. Before they made it there, however, the alarm stopped. Puzzled, Tom and Irene went through security and climbed up to the top of the tower.

"What happened?" he asked, as he tried to catch his breath.

"False alarm," one of the technicians said. "For a moment there were some blips on the scope, but they vanished after a couple minutes."

"That's odd," Tom said. "It shouldn't do that." He glanced at some of the displays and then peered through the glass window.

“Is something wrong?” Irene asked.

“Tell me, how many parked jets do you see on the radar unit?”

“Three,” Irene replied.

“But I see four on the runway,” Tom said, pointing through the window. He picked up a pair of binoculars and studied the fourth jet.

“That's weird. Why aren't we picking it up on radar?”

“Because it's coated with Tomasite!” Tom said angrily.

“That's pretty clever!” Irene said approvingly. “Tomasite, of course, would absorb the radar beam, rending the plane invisible. I didn't realize we were producing radar-shielded aircraft.”

“We're not. It's an intruder!”

As soon as the chief of security realized what had happened he shouted out orders to have the rogue jet seized. After the security personnel had been mobilized Tom turned to him. “Didn't you say that a few blips appeared for a few moments?”

The guard nodded. “Yeah, about six of them. But they didn't last long.”

Tom snapped his fingers. “They probably waylaid some employees and took their amulets from them. It wouldn't take long to do.”

“But wouldn't the employees without amulets have shown up on radar?” Irene asked.

“Not if they made it inside one of the secured buildings!” Tom pointed out. “The patrolscope can't penetrate any of the shielded areas.”

The chief of security commanded a search of all secure areas. As the guards rushed to comply Irene studied the jet through the window. “You know, that jet landed awfully close to the hangar that houses the *Falcon.*”

“But it's not ready to fly yet,” Tom replied. “They couldn't take off with it.”

“I know that, and you know that. But do they know that?”

The two teenagers looked at each other. “We'd better go check it out,” he said at last.

While teams of armed guards searched the Institute for enemy

agents, Tom and Irene raced toward the hangar. “What about their plane?” Irene asked.

“The guards will take care of it,” Tom shouted back. “Now that we know it's there it won't be allowed to take off.”

When they made it to the hangar door Tom carefully cracked it open. The two individuals quietly stepped into the darkened hangar and closed it behind them. The only light in the cavernous room was provided by the flashing warning lights.

“I don't see anything,” Tom said.

“Neither do I,” Irene whispered back. “Let's climb up onto the catwalk so we can get a better view.”

Tom nodded in agreement. After glancing around and making sure that no one was in sight they climbed up a ladder that led to a narrow walkway high off the ground. Once they reached the walkway the two began walking along the catwalk, peering down to the ground far below. The orange security lights cast an eerie glow over the *Falcon*, obscuring its details in shadow and darkness.

“I wish I had a pair of night-vision goggles,” Tom whispered.

“You'll have to invent some one day,” Irene replied.

“Look!” Tom hissed. Below them they saw a group of men hiding in the shadows!

“What are they doing?” Irene asked. “Are they employees?”

“Let's take a closer look,” Tom replied. As he stood up he saw a blinding flash light up the darkened hangar. A moment later a rocket flew across the room and struck the *Falcon*. There was a deafening explosion!

The blast tore apart the experimental plane and sent pieces of it hurtling through the air. One entire side of the hangar was blown wide open by the shrapnel, and other pieces of the jet slammed into the ceiling and tore apart the catwalk.

The explosion's shockwave threw Tom off the walkway. He wildly grabbed for support and just barely managed to catch a railing with one hand. As he fought to pull himself back up he felt the entire walkway began to give way. Shrapnel had weakened the walkway's supports and they were beginning to snap one by

one!

"Tom!" Irene screamed.

CHAPTER XI

A WOODEN WARNING

HIGH ABOVE the hangar floor Tom struggled to maintain his grip on the iron railing. He desperately grasped it with both hands and attempted to pull himself back onto the walkway. But just as he was exerting all his strength to pull himself to safety the final struts securing the walkway to the ceiling snapped, sending the catwalk hurtling to the ground!

Irene screamed as she watched Tom fall and slam into the ground, narrowly missing the burning remains of the radioactive *Falcon*. From her vantage point on the surviving section of the catwalk she could see that Tom was badly injured. Blind panic gripped her heart. All thoughts of the intruders left her mind as she realized that Tom was not moving.

“No!” she screamed, running like mad down the metal walkway. She made it to the ladder and climbed down to the ground without realizing what she was doing. With all thoughts of danger thrown aside she ran to his body and knelt beside it. When she saw the extent of Tom's injuries she began to cry.

“No no no no no!” she screamed. She buried her face in her hands. “Please, please don't die,” she begged her unconscious friend. “You can't do this, Tom. You can't leave me.”

Irene struggled to pull herself together and ran over to a phone that was hanging on the wall. “Operator, I need a doctor in here immediately,” she said between sobs. “Tom Swift is – hurt. Real bad. Please, please send someone.”

After receiving a promise that a medical team would be there in moments she collapsed onto the floor.

* * * * *

A few hours later Irene was sitting in the surgical waiting lounge in the infirmary at the Institute. Tom's father had just gone in to talk to the doctors, and she was waiting anxiously to hear the news. With her were Tom's mother Mary and sister Sandy.

Emotionally Irene was a wreck. All she could think about was Tom lying on the hangar floor, injured and motionless. The medical team responded immediately and took him straight to surgery, where he had been for the past three hours. A cold, dark fear gripped Irene's heart. She felt like her world was coming to an end. Mary and Sandy had both tried to calm her down but she refused to be comforted.

When Mr. Swift at last emerged he walked over to his wife and sat down beside her. “So what did the doctors say?” Mary asked.

“It will take some time but he'll recover,” he assured her. “He's broken both of his legs in more than a dozen places, and broke some ribs, and bruised some internal organs, among other things. But it's nothing that won't heal in time.”

Irene looked at him for a moment, and then replied in a voice filled with emotion. “I thought he had died,” she said quietly. “I was sure the fall had killed him.”

“But he didn't,” Mrs. Swift replied. She put her arm around Irene and held her. “It will be ok, dear. My son will live to get himself in trouble yet again.”

Sandy spoke up. “This isn't the first time he's been injured, you know. Don't you remember the kite-flying incident?”

Irene cracked a small smile. “I remember. For a nine-year-old

he sure could get into a lot of trouble."

Mr. Swift nodded. "Yes, he could. But he recovered from that adventure and he'll make a fully recovery from this as well. I know he gave you quite a scare, but not long ago you gave him quite a scare too. When Xanthus shot you in my office my son was convinced it was a fatal blow. His first question when he regained consciousness was to ask what had happened to you."

"I know," Irene said quietly. "I know, sir. But Tom can't die. He can't. I won't let that happen."

"You'll be able to see him in a couple hours," Mr. Swift assured her. "They still have him sedated from surgery and they'd like to keep him under for a while. I told the doctors to let you know the moment he can see visitors. You're welcome to stay here as long as you'd like."

"Thanks," Irene said. She stood up and hugged Tom's dad tightly, her eyes filling with tears. "Thanks for understanding."

* * * * *

True to their word, a few hours later the doctors told Irene that Tom had regained consciousness and could see visitors. Irene spent every waking moment of the next week in his hospital room. At Tom's insistence she assembled a team to begin rebuilding the Sampson engine and constructing a *Falcon II*, but she refused to be on that team. Her place, she said, was at Tom's side.

"So whatever happened to the intruders?" Tom asked one day, as he was sitting in his hospital bed. "I don't think anyone ever told me."

Irene shook her head. "We didn't. I thought I'd wait until you got better to break the news to you. It's not pretty, skipper."

"You mean they got away?" Tom asked, surprised.

"Not entirely. Here's what happened. After you raised the alarm their plane was seized, and they even caught the goons that blew up the *Falcon*. As we thought they were Brungarians. Their plane was actually a Swift-model jet, by the way – I guess they

picked one of our own aircraft so they could land without attracting attention."

Tom nodded. "That makes sense. But if security caught them then how did they get away?"

"Security didn't catch all of them, skipper. Just the ones that were in the hangar. It turns out that the hangar crowd blew up your jet for the sole purpose of attracting the attention of the guards. As everyone focused on chasing them it allowed the rest of the group the time they needed to break into your father's laboratory and make a clean getaway."

Tom sighed. "What did they get?"

"Everything," Irene said glumly. "They got his reactor design and the plans for making Tomasite. They even had time to break into your lab and steal both your hyperplane design and the blueprints for the Sampson 9000."

"But how did they get away? I mean, we had their plane, didn't we?"

Irene nodded. "Sure. But they just stole a truck and drove right off the base. Since they had stolen amulets and were using a Swift truck they didn't raise any attention. After all, everyone's focus was on the hangar."

Tom shook his head. "That is really bad news. But at least what they got was incomplete. I'm nowhere near finished with the Sampson engine, and the hyperplane plans aren't finished either. But it is a tough blow."

"There is a tiny bit of good news," Irene added. "Security was able to pinpoint the employees that helped the intruders get away. Based on the documents they found in their possession they were able to locate the spies at Swift Enterprises as well. Your dad thinks we may finally have uprooted all the traitors. They're being questioned, and so far all signs are pointing to Xanthus."

"That makes sense. I guess we know what he's after now! I just wish we hadn't made getting it so easy for him. Is there anything else?"

Irene thought for a moment. "The intruders did leave a threatening note behind in your Dad's office. Xanthus apparently

took a piece of wood and burnt a message into it. Your dad really freaked out when he saw it."

"What did it say?" Tom asked.

"'Judgment Day is coming'. A bit unoriginal, if you ask me. But it sure was effective! I'd never seen your Dad so upset before. I think he was genuinely frightened."

"Where did the wood come from? They didn't carve their threat into his desk, did they?"

Irene shook her head. "No, it was on a block they'd brought with them. I didn't recognize the type of wood, but then I'm not a dendrologist."

Tom nodded. "You know, speaking of trees, I can't wait to get out of this hospital room! It feels like I haven't been in my lab for ages. I wasn't made to just sit still and do nothing."

"You are scheduled to be released next week," Irene pointed out cheerfully. "Of course, you won't be able to walk for months but I'll help you get around. You'll be out of here just in time to witness the completion of the *Falcon II*! I can't wait to see that jet fly."

Tom reached out and took Irene's hand. He squeezed it. "Thanks," he said softly. "For everything."

She smiled, and then leaned over the bed and kissed him. "You're welcome," she replied.

* * * * *

Early the following week Tom was discharged from the hospital. Since he was unable to get around on his own the doctors gave him a wheelchair, which Irene immediately took charge of. Tom was not happy at the thought of being wheelchair-bound for the next eight weeks, but there was nothing he could do about it. With Irene's help, however, he was able to get around the Institute and continue his work on Project Arcturus. Work on the *Falcon II* progressed rapidly after that, and a few days later the plane was ready for its initial test flight.

"So who is the test pilot going to be?" Tom asked Irene, as a

team of highly-skilled workers made a final check on the atomic plane.

"Mark Spring has volunteered. He's actually from Swift Enterprises! You remember him, don't you?"

Tom thought for a moment. "I'm not sure. We have a lot of test pilots, Ace. Is he the one with the wife and two kids?"

Irene laughed. "As if only one of them were married! But yes, he has a wife named Megan and two sons, Ted and Ray."

"Isn't Ted in college?" Tom asked.

Irene shook her head. "Not until this fall. He's going to be studying aeronautics, but I think he really wants to be an astronaut."

Tom laughed. "Then I'd better wrap this project up so I can start building rockets! I wouldn't want to disappoint him."

The next morning a small group of people gathered on the runway at the Institute. Present were Tom, Irene, Mr. Swift, Mark Spring, and a small group of emergency personnel. Irene had just finished her final inspection of the *Falcon II* and pronounced that it was officially ready for its first test flight.

Tom rolled over to Mark in his wheelchair and shook his hand. "Good luck," he said, smiling.

"Thanks," Mark replied. He then got into the jet and prepared for takeoff. The rest of the group retreated to the flight control tower, where they would watch the plane on radar.

"So what's the plan for the test?" Mr. Swift asked, as they rode an elevator to the top of the tower.

"The plane will take off conventionally," his son explained. "Once it gets into the air Mark will engage the Sampson engine and bring the plane up to a maximum speed of 500 mph. He'll then put the jet through a battery of maneuvers that are designed to put stress on the engine. The entire flight shouldn't take more than a half-hour. After he lands we'll inspect the plane and make sure everything is sound, and then tomorrow we'll attempt a supersonic flight."

"Assuming everything goes well," Irene added.

"So the jet will take off without using the atomic motor?" Mr.

Swift asked, surprised. “Why is that?”

“The Sampson engine will only work if the plane is in motion,” Irene explained. “It can't get the plane off the ground. That is just one of the drawbacks to a ramjet design.”

“It's really only a minor inconvenience,” Tom added. “All we need is to get the plane into the air. Once it's flying the Sampson engine can take over.”

“Interesting,” Mr. Swift said. “It sounds quite different from anything I've built before.”

At the top of the control tower were three flight controllers. When the Swifts walked into the room one of them spoke up. “The *Falcon II* is requesting clearance for takeoff.”

“Then let's do it,” Tom replied. He rolled his wheelchair over to the control panel. After checking the telemetry data from his jet he nodded. “We're ready.”

The flight controller made sure that no other planes were in the area and gave Mark clearance for takeoff. The *Falcon II* taxied into position, and with a roar of its engines it took to the skies! Once the jet had lifted off the runway and exceeded 200 mph Mark contacted the flight controllers. “Are you ready for me to engage the Sampson engine?” he asked.

Tom quickly checked the data on the screen in front of him. “The reactor temperature looks good and the flight systems appear to be stable. Tell him to go for it.”

The flight controller relayed the information and a moment later Mark flipped the switch. Instantly the jet surged forward in a mighty burst of power! The plane climbed rapidly to 500 mph, where Mark eased back on the reactor output.

Over the next thirty minutes Mark put the jet through a variety of tests. Tom closely monitored the engine's performance while Irene kept an eye on the reactor. “It's looking pretty good,” she said at last. “Of course, we are just using a fraction of its power. It's capable of much more.”

Tom nodded. “The real test will be tomorrow morning. Still, I'm very pleased! This is good news.”

Tom's father clapped his son on the back. “It looks like you

have reached another milestone, Son! I'll look forward to tomorrow's demonstration."

Tom gave the order to have the jet brought in for a landing, and Mark brought the *Falcon II* back home. "She handles like a dream!" Mark radioed enthusiastically. "This is an amazing plane."

After making sure the jet had landed safely Tom dismissed the emergency personnel that had been on standby and the group left the tower. "So how is your project going, Dad?" Tom asked, as Irene pushed his wheelchair toward the hangar.

"Very well," Mr. Swift replied. "In fact, we're going to turn on the reactor the day after tomorrow. You're more than welcome to be there if you'd like."

"It would be an honor," Irene said. "I'm sure your reactor will be a success."

"I certainly hope so. The governor of New York is anxious for us to begin construction on the commercial facility I promised to build. He wants our home state to be the first one in the nation to have a nuclear power plant."

"But what about your other project?" Tom replied.

"Oh!" he explained. "*That* other project. It's coming along well. I have all the parts and have started assembling them. It will be ready when you need it."

"What project is this?" Irene asked curiously. "Have I missed something?"

"All in good time!" Tom said mysteriously. "You'll see."

"You know, you can't go anywhere without me," Irene pointed out. "Walking is not on your agenda until August. If you're going to work on this 'other project' then I'll have to be involved."

"Where there's a will there's a way," Tom quipped. "But don't worry – you'll find out. Just be patient."

Tom and Irene spent the rest of the day checking their experimental aircraft. To their delight the *Falcon II* was in perfect condition! Satisfied, Tom ordered another test flight the following morning. After getting a good night's rest the group once again

found themselves in the flight control tower at the Institute, watching the *Falcon II* take off. When Mark asked for permission to engage the atomic engine Tom granted it without hesitation.

The Sampson engine immediately roared into action. The plane's speed built up quickly, and Mark soon exceeded the speed of sound. Tom reviewed the telemetry data with great satisfaction. "The plane appears to be stable at supersonic speeds!"

"The reactor looks good," Irene commented. "I'm not seeing any signs of problems."

"Then let's keep going," Tom said. He gave Mark permission to push the jet to its limit. Over the next ten minutes Mark slowly increased the speed of the plane, until it was at last roaring over the New Mexico desert at a speed of Mach 3.

Mr. Swift whistled. "Nice job, Son! The *Falcon II* is officially our fastest plane. She's something you can be proud of!"

Tom nodded. "The Sampson engine is performing very well. I think next we'll have Mark perform some maneuvers. I'd like to know – "

"Tom!" Irene shouted. "The reactor – something wrong!"

Tom glanced over at the reactor's telemetry data and frowned. "Strange! No, wait a minute. Those numbers don't make any sense! They're garbage, Irene. What's going on?"

"I don't know," Irene replied. "Something's corrupting the data. I have no idea what the reactor is doing. I don't like this!"

"We'd better have Mark land," Tom said thoughtfully. "It may just be a broken sensor, or – "

A flight controller interrupted him. "We're getting an urgent message from Mark! He said the radiation detector in the cockpit is going off. Radiation levels are climbing!"

Tom gasped. "Have him land the plane immediately. We must be losing shielding!"

CHAPTER XII

PREPARE TO LAUNCH

THE FLIGHT CONTROLLER anxiously relayed the information to Mark. Everyone in the control tower watched the radar scope as the *Falcon II* began slowing down and heading back to base.

"Do you think he'll make it?" Irene asked nervously.

"I hope so," Tom replied tensely. "But without accurate telemetry data I can't tell what's happening. If the engine shuts down or shows any signs of trouble he'll have to ditch the jet, and that will make it much harder to figure out what went wrong."

"The jet appears to still be handling well," Tom's father remarked quietly.

"For the moment," his son replied. "Let's just pray it stays that way."

After a few tense minutes the atomic jet came within visual range of the control tower. With emergency response crews standing by the group watched as it came in for a landing. When the *Falcon II* finally touched down on the runway everyone breathed a sigh of relief.

Tom was the first to speak up. "Tell the emergency crews to take the plane and decontaminate it, and have Mark brought to the infirmary."

“He's on his way now,” one of the flight controllers replied.

Tom nodded. He then turned to Irene. “I think all we can do now is wait. Once the ground crew finishes their work on the plane we should be able to take apart the engine and tell what went wrong. At this point I really don't have any guesses.”

“The radiation leak really concerns me,” Irene said. “Having a shielding failure is one of the worst things that could happen aside from a complete reactor meltdown. I was worried about this.”

“But we will solve it,” Tom said confidently.

“I'm sure you will, Son,” his father replied. “Please let me know if there is anything I can do.”

“Thanks, Dad,” his son said.

With the crisis behind them the group separated. Irene wheeled Tom back to his laboratory, where he spent the rest of the day examining the blueprints for the Sampson engine. The following day the ground crews finished their work on the plane, and Tom and Irene went to the hangar to investigate the jet's failure. Since Tom could not walk he stayed on the sidelines and directed a group of workers as they dismantled the jet. Irene pitched in as well, and by the following day they had their answer.

“It was definitely not a parts failure,” Irene explained. “This is a design flaw, I'm afraid. The Tomasite shielding just isn't effective. Oh, it's shielding all right, but the way the engine is designed the radiation isn't being completely contained and is leaking into the interior of the jet. When the plane was going at subsonic speeds the reactor was basically idling and there wasn't enough radiation to notice. However, once we ramped up the thrust it started registering on the cockpit's radiation detector.”

“Oh boy,” Tom said weakly. “What a disaster! I am so glad we caught this now. I can't believe I made a mistake like that! It could easily have killed someone.”

“Mark was very fortunate,” Irene agreed.

“He definitely was. By the way, how is he doing?”

“Oh, he's fine,” Irene said. “He got a pretty good dose of

radiation, but it's nowhere near a lethal amount. Of course, had the radiation gone unnoticed he would have run into problems pretty quickly. Even an hour's flight at Mach 3 would have made him pretty sick. And if the plane been going at Mach 15 with the supersized reactor wide-open, well – ”

“Right,” Tom said thoughtfully. He stared at the dismantled atomic engine and let his mind wander. “You know, Ace, this isn't going to be an easy problem to solve. I'm going to need to redesign the shielding entirely. This will take some time.”

Irene smiled. “So does that mean you think you can have something ready by this evening?”

Tom laughed. “We'll see.”

As Irene predicted, the following morning Tom had a new set of blueprints ready. The rest of the week was spent rebuilding the engine. Once again Tom found himself forced to sit on the sidelines while Irene rebuilt the Sampson engine.

“I think this new design will work pretty well,” Irene said at the end of another long day. “You had to make some fundamental changes but it really nailed the problem. And you did it all in a single day, too! You know, you have a tremendous ability to rapidly solve problems. I wish I could do that.”

Tom smiled. “I come by it honestly, I think. Dad's the same way. Did you see how much energy he's getting from his new Tomasite reactor?”

Irene nodded. “It's amazing! It's only been two days since he turned it on and already it's stabilized and running wide-open. I was sure he would need weeks of trial runs before he got it to work, but I was wrong. I just can't figure out what he's going to do with that much surplus energy, though. It's not like there are power lines stretching from here to Nitro.”

Tom blushed, and Irene looked at him quizzically. “You're up to something, kid,” the red-headed girl said, wagging her finger at him. “And one of these days I'm going to find out what it is.”

“You certainly will,” Tom promised. “By the way, has Dad said anything else about the power plant he's building in New

York City?"

Irene nodded. "It's going pretty well. Your Dad hopes to have it up and running by the end of the summer."

"He's certainly moving rapidly!" Tom remarked.

"Your dad never was one to let the grass grow under his feet. I've heard that he's already breaking ground on a rocket base at Fearing Island, too. He's got his eye fixed on space, skipper, and I think he's expecting you to lead the way."

Tom laughed. "One project at a time, Ace. Let's wrap up the hyperplane first. I'd at least like to reach the horizon before I start exploring beyond it!"

When Irene finished rebuilding the Sampson engine Tom and Irene ran it through a battery of tests. Tom felt particularly bad for endangering Mark Spring's life and wanted to make absolutely sure that the atomic engine would not leak radiation under any circumstances. After two weeks of exhaustive testing the young inventor was satisfied and scheduled another trial run of his jet.

To Tom's surprise Mark once again volunteered to test the rebuilt *Falcon II*, claiming that he had the utmost confidence in the Swifts and that problems were just part of the territory. Tom reluctantly agreed, and one bright morning in early June the *Falcon II* once again climbed into the skies. To Tom's great relief the test was a success! No radiation was detected in the cockpit, and when the emergency personnel scrubbed the plane down after it landed they were unable to find any signs of a radiation leak.

Tom continued to test the jet for the remainder of the month, but at last he was satisfied that he had truly fixed the radiation problem once and for all. In order to celebrate his success the Swifts had a cookout at the Institute one fine summer evening. Chow eagerly volunteered to do the cooking. As always, the happy-go-lucky cook provided far more food than the Swift family could eat. Thick grilled steaks were piled high on picnic tables, accompanied by grilled corn, baked potatoes, yeast rolls, and fresh green vegetables.

"This is delicious, Chow," Tom said, as he helped himself to a

second steak. “You really know how to cook!”

“Aw, shucks, 'twern't nothin',” the cook replied. “I jes' hate to see a growin' boy go hungry. You hardly ever eat anything, son. It's no wonder you're as skinny as a bean pole.”

Tom thought back to all the meals the loyal cook had brought into his lab that had gone uneaten. He turned red. “Sorry about that. I just get caught up in inventing sometimes.”

“I can tell,” Mr. Swift remarked, smiling. “Your atomic engine is a wonder! It is truly a marvel of the age. By the way, Ned was delighted to receive the blueprints. I think Hank Sterling is already working on a plan to mass-produce it.”

“Ned will have the actual jet soon,” Tom said. “Mark Spring is going to fly it to our California testing center tomorrow morning.”

“Now that there's a real shame,” Chow interjected. “I was hopin' I'd get to fly it.”

Tom's eyes grew wide. “You mean to tell me that you're a *pilot*?”

Chow nodded. “Well, o'course, son. Who d'ya think was acting as copilot the day we met? 'Twern't anyone else on that old bucket but Thorndyke and me. I've been flyin' fer years.”

Tom shook his head in wonder. “I had no idea! Why didn't you tell me?”

Chow shrugged. “You never asked.”

Tom's father laughed. “Is there anything else we should know about you, Chow?”

The balding cook thought for a moment. “I always did want to be a spaceman,” he replied. “'Course, I figger it won't be long before you Swifts go gallivantin' off into space. When you do you'll need a cook. Otherwise you gents are liable to starve to death.”

Tom smiled. “Don't worry, Chow. If we ever do make it up into outer space we'll be sure to bring you along. After all, we can't leave an old friend like you behind!”

Irene spoke up. “You mean *when* you make it into outer space, young man. I'll have you know that it's a foregone

conclusion."

"I don't know," Tom teased. "I might decide to become a submariner instead. They say there's a lot of interesting plant life at the bottom of the ocean!"

"Oh, sure, just think of all that seaweed out there," Irene said dismissively. She pointed to the full moon that was on the horizon of the darkening sky. "But look at that orb over there, skipper. You can't honestly tell me you wouldn't like to be standing on that cratered surface, looking up at the Earth high in the sky, can you?"

"She's got a good point," Mr. Swift replied. "I've done a lot of exploring in my life but I truly believe that in this modern age the real adventures are just beginning. Who can even imagine what mysteries can be found on the planets, or the stars beyond them?"

Sandy spoke up. "I wish Phyl could be here. She's missing all the fun."

"Why didn't she come?" Irene asked. "I mean, school's out for the summer, and we've got plenty of room. I miss her too. Us girls haven't been out shopping together in ages."

"I can answer that," Mr. Swift said. "Our government considers the Institute to be an ultra-sensitive facility. There are very few organizations that are allowed to conduct atomic experiments on the scale that we are doing here. It was very, very difficult for me to persuade the government to allow my wife and daughter to be here. Trying to get a pass for Phyl was simply not possible."

"What a shame!" Irene said. "I know we can't all be nuclear physicists, but she did enjoy hanging around Swift Enterprises. She's got to be lonely with all of us away from Shopton."

"On a more positive note, I believe our work here is wrapping up," Mr. Swift said. "My nuclear experiments have been completed successfully and construction on Tom's hyperplane begins in the morning. By early August it should be ready to fly."

"I should be fully recovered by then," Tom added. "And boy, am I ever ready to start walking again! Not being able to work on the *Falcon II* has been aggravating. I miss being hands-on."

Mr. Swift spoke up. “Speaking of being hands-on, there's something I need your help with, Son. I know you're busy but if you could spare a few evenings over the next couple weeks I would really appreciate it.”

“I think we can work that out,” Irene said. “What's up?”

The two Toms exchanged glances. Irene raised her eyebrows. “Oh, it's *that* project. The one you won't tell me about. I should have known.” She sighed. “You do realize that the suspense is killing me, right?”

Tom grinned. “Of course! That's half the fun right there.”

Irene looked at him sourly. Everyone laughed.

* * * * *

As predicted, construction on the hyperplane was completed by the end of July. Tom had hoped to wrap up the project quickly, but designing the enhanced Sampson engine proved to be much trickier than he originally thought. He and Irene struggled for weeks to find a light, compact, and yet powerful design that could provide enough thrust to accelerate the plane to Mach 15. Once the engine was built they had to perfect the plane itself, and once again he found himself faced with a bracing challenge.

But late one evening in July he found himself in his father's laboratory, talking with his dad. The two of them had been at work for hours. A large machine filled most of the laboratory and father and son were sitting beside it, waiting for it to complete its work. Tom had finally recovered from his injuries and was able to walk around with no wheelchair in sight.

“I really think I've got it,” Tom was saying. “I realize there's a lot we don't know about hypersonic flight, but if my calculations are correct the plane should be stable. All the tests we've done indicate that this really should work.”

Mr. Swift nodded. “I agree, Son. I believe it is time to test your plane and see how it behaves.”

“And that will happen two days from now, Dad. In just two days the *Eagle* will take to the skies for the first time. I can hardly

wait!"

Tom's father looked at the machine in front of them. He had a distant look in his eye. After a few minutes he brought himself back to the present. "I'm glad we decided to do this," he said at last. "This is one thing that's always bothered me."

"I had no idea it would take this long," Tom replied. "Or be so expensive! I dramatically underestimated the complexity of making diamonds."

Mr. Swift smiled. "It's ok, Son. The ability to manufacture diamonds will be invaluable! There are many industrial uses for diamonds, especially if we can manufacture them cheaply and in sizable quantities. This is a process that was worth perfecting. Your design is quite brilliant."

"Of course, we couldn't have done it without your reactor," Tom pointed out. "It takes a tremendous amount of energy to do this."

"Energy the diamond makers obtained from bolts of lightning," Mr. Swift said, remembering an adventure from his youth. "We're not creating diamonds in quite the same way they did, but at least we don't have to depend on thunderstorms. Today we can harness the power of the atom."

His son glanced at his watch for the upteenth time. Tom's father saw this and smiled. "Just give it a few more minutes. The batch is almost done."

"I know," Tom replied. "It's just getting close, that's all. I really want to propose to Irene after the hyperplane makes its first test flight, and that's just two days away. Even if this batch is good it'll be tough for the jeweler to polish the diamond and get it set in a ring in that amount of time. I really thought we would be done weeks ago."

"Large diamonds are much harder to make than small ones," Mr. Swift pointed out. "We've been able to make microscopic diamonds for months. Scaling the process to make large, jewel-quality gems has been tough. But we've been getting some pretty good batches over the past couple days."

Tom stood up and began pacing around the room. "Do you

think she'll like it?"

"I have no doubt," his father replied. "You didn't go out and buy a diamond for her, Son. Instead you created one using your ingenuity and skill. The ring will mean far more because she will know you went through enormous trouble to create it just for her. She will adore it. Besides," he said, his eyes twinkling, "I think she'll be glad that you finally asked her. She's not quite as patient as your mother."

"I guess not," Tom said, grinning. "But I wouldn't want her to be any other way."

A few minutes later the machine finished its work. Tom carefully opened a heavy metal panel. After putting on protective gear he reached inside and removed a hard, black cylinder. He carefully transferred the cylinder to another machine, where his father began dousing it with chemicals.

"It's still pretty hot," Tom remarked.

"As you would expect. The heat and pressure it takes to make diamonds is extraordinary. I don't know how we would have contained that much pressure without Tomasite. Now all we need to do is dissolve the excess carbon and see what kind of diamonds we created."

Tom watched anxiously as his father processed the hardened carbon cylinder. After an hour's work a small pile of dirty pebbles rested in a glass dish. Tom picked up the largest one and held it up to the light. "It's beautiful," he said at last.

Mr. Swift examined the diamond over his son's shoulder. "That's probably at least three-quarters of a carat. Of course, the processed stone will be somewhat smaller."

"But it's big enough to work," Tom breathed excitedly. "I can't believe it. We did it!"

Mr. Swift clapped his son on the back. "Yes we did, Son. If you'd like I would be happy to take the stone to the jeweler first thing in the morning. I can even pick it up for you so that Irene won't be suspicious. With luck you should have it back just in time."

Tom handed the diamond back to his father, smiling happily.

“This is great! Thanks, Dad. That would be wonderful. The hyperplane will fly in two days, and then I'll give the ring to Irene and ask her to marry me. Boy, that will be a great day!”

“That will truly be a day to remember!” Mr. Swift added. “A day you will never forget as long as you live.”

CHAPTER XIII

MACH 15

AT EXACTLY six o'clock in the morning the thunderous refrains of Tchaikovsky's 1812 Overture woke Tom Swift Jr. out of a sound sleep. The moment his alarm went off the young inventor yawned, stretched, and got out of bed. *This is it – the big day!* he thought excitedly to himself.

He quickly showered, put on a pair of blue jeans and a striped t-shirt, and went into the kitchen to get breakfast. The Swifts' living quarters at the Institute were not nearly as spacious as their home back in Shopton, but they were large enough to meet their needs. The only other person already out of bed that morning was his father, who was reading the morning paper and eating a bowl of oatmeal. He was already dressed in a black suit and tie.

"Good morning, Son," Mr. Swift said, looking up from the *Shopton Evening Bulletin.* His father had his hometown paper delivered to the Institute. Since it traveled by mail it was always a few days behind, but he liked to follow the local events in Shopton. "Are you ready for the big day?"

His son nodded as he took two slices of wheat bread and put them in the toaster. "As ready as I'll ever be, I think. I've done everything I know to do. All that's left is to try it and see what

happens."

His father nodded. "You've demonstrated remarkable caution in the development of your Sampson engine! The *Eagle* is definitely ready for its first flight. Ned is eager to get his hands on your hyperplane – he's convinced that there is a significant market for it."

"How is his work on the *Falcon* coming along?" Tom asked.

"Building nuclear jet engines is not something he's ever had to do before, but he's made great strides in perfecting an automated manufacturing process for them. By the end of the year his aircraft production facilities should be able to start making *Falcon*-class aircraft in production quantities. Of course, the *Eagle* will take a bit longer since it is so much more difficult to assemble. Washington is particularly interested in it, however, so he might have some additional resources at his disposal."

"Washington?" Tom asked. He removed the two slices of toast from the toaster and put butter and cinnamon on them. "As in the federal government?"

His father nodded. "They feel that the hyperplane could give the United States a strategic advantage in the world. The military will almost certainly be our first customers."

"I can see that," Tom said. He poured himself a glass of orange juice and then sat down at the kitchen table with his dad. "Still, I'm not too keen at having the hyperplane turned into a weapon. I believe science should be used for the peaceful advancement of mankind. I'm not a weapons scientist, Dad."

Mr. Swift smiled. "No, Son, you're not. In my day, though, I invented quite a few inventions for the military – everything from airplanes to war tanks to giant cannons. There are times when one must put aside the role of the scientist and seek the welfare of the nation."

"But yet you never gave the government your electric rifle," Tom pointed out.

"No, I never did," Mr. Swift said thoughtfully. "Of course, there are reasons for that. But Tom, surely you're going to have more than just a piece of toast for breakfast, aren't you?"

Tom finished his last piece of toast and got up from the table. “I'm afraid not. I've got a million things to do today! Breakfast will just have to wait.”

“Just don't let Chow catch you!” his father warned. “He'll have a fit.”

Tom laughed. “I can hear him now! 'Well brand my suspenders, but you ain't had nothin', Tom! Don't you take another step until I rustle you up some vittles. It ain't natural.'”

Tom's father laughed with his son. “Charles Winkler is truly a remarkable person. So are you off to work?”

Tom nodded. “If you don't mind. Is there something you wanted?”

Mr. Swift eyes twinkled. “No, but I have something *you* wanted.” He reached into his suit pocket and pulled out a small velvet box, which he handed to his son.

Tom gently opened the box. He whistled when he saw the jewel that was nestled inside. “It's beautiful,” he said softly. He removed the thin golden ring from the case and held it up to the light. The diamond sparkled with unusual brilliance.

“You can be proud of that stone,” his father said. “The jeweler said that it was a very good diamond. Not flawless, but of a high quality. The final weight of the finished gemstone was just over a half-carat.”

“Irene will love this,” Tom remarked as he put the ring back the case. He then put the case in his pocket. “Especially when she finds out where it came from! After the hyperplane test this afternoon we're going to Nitro for dinner. There's a little steakhouse on the north side of town that has a beautiful outdoor dining area. That's where I'm planning on proposing to her.”

“She will be delighted. You'll have to tell me all about it! But don't let me hold you up, Son. After all, the all-time speed record is waiting to be broken!”

“Aren't *you* the one that set that record, Dad?”

His father smiled. “What can I say? Records are made to be broken. But now it's your turn to get in the history books!”

After saying goodbye to his father Tom made his way to his laboratory, where he put the ring in his private safe. *I'll come back here and get it right after the hyperplane test*, he thought. *I don't want to risk losing it or have Irene find it too soon!*

Tom had just barely had time to start going over the flight checklist when Irene entered into the laboratory. "Good morning!" she said brightly. "Are you ready for a day of excitement and adventure?"

Tom looked up at her, surprised. "Why hello there, Ace! I wasn't expecting you this early. I didn't think you'd be coming in until seven-thirty."

"It *is* seven-thirty, skipper. It comes right after seven twenty-nine, you know! Same as always. Where have you been?"

Tom glanced down at his watch in surprise. "Oh. I guess it is. Whoops."

The red-headed girl laughed. "Your mind really is in the clouds, isn't it? But I don't blame you. So how can I help?"

Tom and Irene spent the rest of the morning preparing for the hyperplane test. Some time was spent coordinating ground personnel and making sure that they had sufficient flight clearances, but the rest of the morning was spent examining the hyperplane itself. They had spent the past few days going over every system in the nuclear-powered aircraft, testing them one-at-a-time and looking for any signs of trouble. The final check was not completed until well after one o'clock that afternoon.

"I think it's as good as it's going to get," Tom said wearily. His thoughts were suddenly interrupted by a loud, bellowing voice behind him. "Well brand my biscuits, but there you are, son! I've been looking everywhere for you."

Tom and Irene whirled around to see Chow standing behind him. He was wearing a bright red-and-yellow shirt that had an eagle emblazoned on it. The outfit was topped off by an enormous white hat and bright yellow cowboy boots.

Tom grinned. "That's quite a shirt you've got there, Chow! Are you trying to give the sun a run for its money?"

Chow smiled proudly. "I picked up this little thing in San

Antone," he replied. "It's quite a number, ain't it?"

Irene tried not to laugh. "It is remarkable. But you said you were looking for us?"

"O'course I was! You were supposed to be at lunch an hour ago. There's a big dinner before the flight, remember? Your Dad and everybody was there. Except fer you two."

Tom's eyes widened. He slapped his forehead "Oh no! I can't believe I forgot. Please tell me they're not still waiting on us."

Chow shook his head dourly. "Nope. The meal's done finished. But I saved a few bites fer the two of you."

"I'm so sorry," Irene apologized. "We've been trying to complete our work on the plane. We just finished a few minutes ago. Time just kind of got away from us."

"Shucks, it's ok," Chow replied agreeably. "It ain't like it's never happened before. But say, is this yer plane?" Chow looked at the enormous craft in front of him with a mixture of awe and respect. The *Eagle* was a black aircraft 107 feet long and vaguely resembled a long, narrow triangle. The oddly-shaped body spread out near the end of the craft and gave the impression of small, stubby wings. The Sampson engine was mounted on the bottom of the fuselage and ran nearly the entire length of the jet.

"Yes, this is it!" Tom said proudly. "If all goes well she will become the world's first hypersonic jet in about two hours from now."

"Technically, hypersonic speeds start at Mach 5," Irene explained. "This plane should be able to go well beyond that. We're hoping to reach a top speed of Mach 15, which is about 12,000 miles per hour. At that rate she could cross the entire United States in less than 15 minutes! It would only take about two hours to circle the entire planet."

"If that don't beat all," Chow said with amazement. "Why, you could be plumb out of New Mexico before you've had time to blink."

"And that little fact has led to no end of headaches," Tom sighed. "The government doesn't want us leaving US airspace during this initial test, so we're going to have to essentially circle

the country. In thirty minutes the *Eagle* should be able to get from the Institute to Shopton and back. At least, that's the plan."

"But it ain't got any wings," Chow said, perplexed. "How does that work?"

"The fuselage acts as a lifting body," Tom explained. "The plane doesn't need wings because, essentially, the entire plane acts as a giant wing. It won't be very efficient at low speeds but once we reach supersonic and hypersonic velocities it will provide plenty of lift. And the entire plane has been coated with Tomasite to keep the enormous heat generated from air friction from melting the plane."

"I kinda get it," Chow said dubiously. "Are you gonna fly it yerself?"

Tom shook his head, laughing. "Oh no! I'm afraid not. I'm sure I could with some training, even though it's quite different from anything I've ever flown before, but Dad won't let me. No, that honor is going to Mark Spring. In just a few minutes he will become the fastest man alive!"

"In fact, we should probably go meet him now," Irene replied, looking at her watch.

"Not so fast!" Chow said warningly. "You two pardners have got to eat something. I didn't save all that food just so you could go hungry. It ain't right."

"Ok," Irene relented. "You got a good point. Lead the way!"

* * * * *

Two hours later Tom Swift Jr. once again found himself in the flight control tower at the Institute's airport. With him were Irene Goddard, his father, and two flight control technicians.

"I was kind of expecting more people to be here," Irene remarked, as she and Tom took their positions at the control desk.

Tom's father spoke up. "There are a great many people interested in this test, Irene. But since the majority of the flight will take place far away from the Institute there did not seem to be any particular advantage to assembling in this room."

“Even tracking the flight by radar is going to be a headache,” his son added. “We've had to patch into all kinds of systems that span from here to Shopton. And radio communication will be another challenge, for similar reasons. But I think we've got it all worked out.”

“I had a feeling it would be a pain,” Irene said teasingly. “That's why I let you handle it and stuck with testing the hyperplane's flight systems. I'll take building a nuclear reactor over dealing with government red tape any day of the week.”

Tom's father snapped his fingers. “Say, isn't the plane coated in Tomasite? How is it even possible to track it on radar?”

“We're using a kind of transponder,” his son explained. “Essentially the plane is going to tell us where it's at. Otherwise you're right – there'd be no way for us to tell what was going on.”

“The *Eagle* is ready for takeoff,” one of the flight controllers said. “We are awaiting your signal.”

“Ground crews are standing by,” another controller told him. “We have clearance for takeoff.”

Tom took a deep breath. “Then let's go for it,” he said quietly.

The flight controller relayed the message to Mark, who had already taxied the plane to the runway. After receiving word he fired up the Sampson engine and began speeding down the long airstrip.

Tom's father spoke up. “It takes a lot of ground to get the plane in the air,” he noticed.

Tom nodded. “I'm afraid so. The plane has to be going at a pretty good clip before the lifting body starts working. It's one of the trade-offs of its design.”

A moment later the sleek black hyperplane left the ground and soared into the air! Its pilot quickly brought the jet up to speed and effortlessly broke the sound barrier. He set course for Shopton and leveled the jet's speed off at Mach 3.

“Mark is standing by,” the flight controller said. “He is waiting for your order to take the plane to Mach 5.”

“The reactor is looking good,” Irene reported. “No problems so far.”

“The telemetry data is good too,” Tom agreed. He monitored the jet for a few minutes and then nodded. “Tell Mark to bring it up into hypersonic territory and then hold it there for a while.”

The flight controller relayed the message. Over the next few minutes Mark slowly brought the jet up to nearly 4,000 miles per hour. Everyone held their breath as plane crossed the threshold!

“The plane has reached Mach 5,” the flight controller said. “The *Eagle* is holding course.”

“Amazing,” Tom's father breathed. “The first hypersonic flight! Mark is now traveling faster than any human being has ever traveled before.”

Tom watched the data on the screen in front of him carefully. “The hull temperature has risen, but it's well within the predicted range. The plane looks like it's still stable. Irene?”

“The reactor is working fine,” she told him. “We still have plenty of power available, and there is no sign of any radiation leaks. We could hold this speed indefinitely.”

“Mark may not appreciate that,” Tom said dryly. “But I agree that things are looking good. We really nailed the radiation problem!”

Once again Tom waited a few minutes, but at last he gave the order that everyone had been waiting for. “Tell Mark to push the plane to its limit. Let's see what the *Eagle* is capable of doing.”

As soon as the order was relayed the plane began accelerating. Tom watched anxiously as the plane exceeded Mach 7, Mach 8, and then Mach 9. When the plane hit Mach 10 Tom spoke up again. “Tell Mark that everything is still looking good from our end. We're not seeing any signs of problems.”

Mark continued to accelerate the plane. A few minutes later it hit Mach 14!

“The plane's acceleration is slowing,” Tom remarked. “The Sampson engine is working pretty hard.”

Irene nodded. “We have plenty of fuel, but the engine can only produce so much thrust.”

Still, the *Eagle* continued to accelerate. As the plane crossed over into New York State's airspace it finally reached Mach 15.

Everyone cheered. “Well done!” Mr. Swift said. “Well done.”

“It took a bit longer than I thought, but we got there,” Tom said. “Mark's going to turn the plane around now and head back. We'll see if he can maintain that speed on the entire return journey or if he'll need to back off a bit. This will be an excellent test of the engine's performance and reliability.”

Tom watched the radar scope as the *Eagle* made a lazy turn over New York State and started heading back to New Mexico. He also kept a close eye on the telemetry data. “The plane is running pretty hot, but it's within tolerances,” Tom said at last. “I'm not seeing any signs of hull failure.”

He glanced over at Irene, who was intensely staring at the monitor in front of her. Tom suddenly felt a chill go down his spine. “What is it?” he asked.

“Something's not right,” Irene said uncertainly. “The reaction is producing too much heat. I don't like it.”

“Are you sure?” Tom said. Fear clutched his heart. He nervously glanced over at her monitor and frowned. “We performed ground tests on that engine at burn levels this high and higher. It worked fine then.”

“But look at the temperature of the reactor's Tomasite shielding,” Irene said, pointing to a number on the screen. “We shouldn't be anywhere near that hot at these power levels. I mean, I realize it's nowhere near Tomasite's melting point, but I don't understand it. And I don't like not understanding it.”

Tom stood up so he could get a better view of the data on Irene's screen. His eyes suddenly grew wide. “The problem's not the reactor – it's the Tomasite! This is really, really bad.”

“Are you sure?” Irene asked dubiously. “What makes you think that?”

“We're using some of it to generate power for the plane's electrical systems, right? Well, look at that efficiency ratio. It''s losing its ability to convert the heat into electricity! It's getting warmer, and I'd bet anything its chemistry is changing. The Tomasite is losing its ability to function.”

Irene looked horrified. “But that's not possible! We tested for

this, Tom. How could this happen?"

Tom shouted at one of the flight controllers. "Tell Mark to cut speed immediately and land the plane! I don't care where he lands it, but he's got to get it on the ground immediately. Take emergency action now!"

As Tom and Irene watched, the *Eagle* rapidly lost speed. But, to Tom's horror, the plane's energy level dropped even faster.

"He's losing power rapidly," Irene said tersely. "Electricity production is falling off a cliff, and the reactor shielding temperatures are up sharply. The Tomasite is about to fail."

"But he's still going Mach 10!" Tom said with fear in his voice. "If he ejects at that speed he'll be killed instantly. The plane has got to hold together for just a few more minutes!"

Then suddenly, to Tom's horror, the telemetry data stopped. Tom and Irene's monitors went dark, and the plane disappeared from radar.

"We've lost radio contact," one of the flight controllers reported. "What should we do?"

"He's lost power," Tom whispered. "There's no way he'll be able to control it now! He was just going too fast." He buried his face in his hands.

A thousand miles away all of the electrical systems on the *Eagle* suddenly went dead, causing the plane to instantly spin out of control. A split-second later the jet slammed into a Kansas prairie at a speed of more than five thousand miles per hour.

The impact was so severe that it broke windows in cities more than a hundred miles away. In seconds the wide, grassy prairie was turned into an enormous crater that stretched for several miles. By the time the shattered remains of the aircraft finally stopped moving there was nothing recognizable left of it.

CHAPTER XIV

THE END OF A DREAM

THE *EAGLE* disappeared from radar right before it crashed, so at first the Swifts were not sure where it hit the ground. Given its enormous speed and its invisibility to radar it could have went down anywhere within several hundred miles, and there would be no immediate way to pinpoint it. However, it did not take long for news reports of a devastating plane crash in Kansas to begin pouring in. When they received word that a mysterious plane had crashed into a prairie and created a scar several miles long they knew they had found their missing jet.

The Swifts responded immediately. Tom Swift Jr., his father, and Irene took a cargo jet to the crash site, accompanied by a team of emergency personnel from the Institute. Tom's father called ahead and spoke with the local Kansas authorities, warning them of the danger from radiation and giving precise instructions. He also contacted the federal government and let them know what happened so they could deploy around the site and establish a perimeter.

During the trip there Tom was in shock. “I just don't understand,” he kept repeating. “This couldn't have happened! We ran all kinds of tests, Irene. All kinds of tests! The Tomasite never

failed that way in the lab. Or in the tests on board the *Falcon*. This just doesn't make any sense."

"You'll figure it out," Irene assured him. "I'm sure there are answers out there."

"But what about Mark?" Tom asked soberly. "It's too late for him. He died because of a mistake I made. What is his wife going to do? What about his children? I'm responsible for this. What am I going to tell them?"

Tom's father spoke up. "I've already spoken with them, Son. We will take care of them and see that their needs are met. I don't want to minimize that, but right now we need to focus on cleaning up the crash site. If it's not handled properly the radioactive debris could endanger the lives of others as well. There's never been a nuclear accident like this before and it will be up to the three of us to manage its cleanup."

"I guess," Tom said sadly. "I just can't believe it. I tested for this, Dad. I really did. This should not have happened."

When they arrived at the crash site a few hours later Mr. Swift had the jet circle the area before landing. Tom was astonished at the extent of the damage. The grassy prairie had been destroyed. Dirt and rocks were strewn everywhere. A deep scar now ran across the land.

"It looks like a meteor hit," Irene remarked.

"That's pretty close to what happened," Tom replied. "Do you see how much of the aircraft is left?"

Irene shook her head. "I'm really not seeing much of it at all. There's a few scraps, maybe, but that's about it."

"Exactly," Tom sighed. "The plane hit the ground so hard that it shattered like glass. Even the Tomasite couldn't take it. It's going to be almost impossible to find out what went wrong. What can you possibly learn from a few pieces of twisted metal?"

"I see a lot of people out there," Mr. Swift remarked. His son looked again and realized that he was right. The military had arrived some time before and cordoned off the entire area. There were already people in anti-radiation suits scouring the land and picking up small fragments of the plane. Other teams were

scanning the soil for radiation and searching the surrounding area for anything that might have been missed. To the far end of the field, nearest the place where the remains of the plane had come to rest, was a large crowd of onlookers. Even from the air Tom could tell that they were reporters.

"That didn't take long," Irene said. "It looks like every news outfit in the country has a reporter here."

"Of course," Tom said bitterly. "I bet this is the biggest story of the year. I don't even want to know what the headlines are going to say."

"You're going to have to face them, Son," his father warned. "This is all part of being an inventor. When things go well they will praise you, and when things go wrong they will destroy you. Our inventions have an impact on many people's lives, and part of that means constantly being in the public eye."

The group spent the rest of the night managing the cleanup of the crash site. Most of the wreckage had been removed by the following morning, but it took three more days to finish the job. By the time they were on their way back to the Institute they were exhausted.

"I've asked them to put the remains of the *Eagle* in the hangar where it was built," Mr. Swift told Tom as their plane took off from Kansas. "Let me know what you find."

"I will," Tom promised. "But that will have to wait. I'm exhausted, Dad. I need to recover."

"Are we completely sure we covered everything?" Irene asked. "We're absolutely sure that no radioactive debris were left behind?"

Tom's father nodded. "I think so. But remember, we're not completely abandoning the site. There is still a team from the Institute there that will scan the area to make sure we haven't missed anything. And we'll monitor it at regular intervals over the next few years to see if there is any lingering radiation. But I think this time we got lucky, Irene. If the plane had plowed into a city it would have been a whole different story. Thousands of people could have been killed."

The jet landed at Institute that evening, and everyone went home and got some rest. The following day Irene got up around noon and went into Tom's laboratory. To her surprise she found Tom in tears.

"What's wrong?" she asked, as she sat down on a stool next to him. Then she noticed the newspapers that were strewn all over his workbench.

"You haven't seen the press coverage, have you?" Tom asked bitterly. He grabbed a newspaper and tossed it at her. "Read this. Read what they're saying in our own hometown."

Irene took the issue of the *Shopton Evening Bulletin* from him and read the headline. "Nuclear Meltdown," she read aloud. "Experimental nuclear jet explodes in the sky, showering local populace in deadly radiation." She looked up from the paper, puzzled. "The jet exploded?" she asked. "It showered cities with radiation?"

"No, it didn't," Tom said. "But it doesn't matter. Keep going."

Irene resumed reading. "Early this afternoon an experimental nuclear jet from Swift Enterprises exploded over the skies of Kansas and crashed into a prairie a few miles from Topeka. In what is the worst disaster ever for the world-famous technology company, the jet showered the area with deadly radiation and narrowly missed wiping out the state capitol. Private sources within Swift Enterprises have revealed that the jet was designed by Tom Swift Jr., the son of the company's famous founder."

Irene quickly scanned the rest of the article. Her heart sank as she finished reading it. "I can see why you're upset," she said quietly. "There's a lot of anger directed at you."

"You should read the others," Tom replied. "They're all the same. They say that my jet is a terrible idea – a flying atom bomb. They say that I nearly wiped out an entire city. That I'm young and irresponsible and a public menace. And they're right, Irene."

Irene put down the paper and looked at Tom. "No, they're wrong. You're not a public menace. It's just that you're attempting something that has never been done before, and sometimes things go wrong. I admit this is a terrible accident, but we took every

precaution. And it's just as much my fault as it is yours. The two of us designed the jet together."

"But look what I've done," Tom said with anguish. "I really did endanger thousands of innocent lives. I killed Mark Spring. And I destroyed the good name of Swift Enterprises! Dad spent a lifetime building up this company's reputation, and in a single afternoon I destroyed it. We went from a national treasure to a public menace in the blink of an eye. And it gets worse."

"Worse?" Irene said. "What do you mean?"

Tom's voice wavered. "Dad came in earlier this morning to talk to me. It seems that when he got back to the Institute there were some people from the government waiting to talk with him. The upshot is that he's canceled Project Arcturus. Even the mass-production on the *Falcon* is being stopped. The public is demanding that we halt our research into nuclear aviation, and so it's all over." He looked at her with great pain in his eyes. "I'm finished, Irene, It's over. My career has ended before it even began. I guess I'm not going to follow in my father's footsteps after all."

Irene jumped out of her chair and grabbed Tom. "This is *not* happening. There is *no way* I am going to let your father cancel this project. You had it working, Tom. *It worked*. I don't know what went wrong, but we're going to find out and we're going to fix it. Your dad never gave up on a project and I'm not going to let him start giving up now. He promised to support you to the hilt and I am *not* going to let him back out of that promise."

Tom shook his head. "But he's right. The public was already upset with us before the Institute was even built, and it's far worse now. They'd never let us continue after a disaster like that. Nuclear-powered aircraft are just a bad idea. It's just not worth it."

Irene looked at Tom angrily. "You are *not* going to just give up, Tom. Do you hear me? There is no way you can let a single failure, however bad, stop you in your tracks and send you running home and feeling sorry for yourself. If you don't want to go talk to your dad then fine – I'll do it myself." She then stormed out of the laboratory, leaving Tom behind, staring off into the

distance.

It did not take her long to track down Tom's father. She found him in his office. To her surprise, Ned Newton was there.

“Irene!” Mr. Swift said, as she barged into his office and slammed the door behind her. He hesitated. “I see that you've talked with Tom this morning.”

“I certainly have,” Irene said. She walked up to his desk, put her hands on it, leaned over, and looked him in the eye. “Am I to understand that you are really canceling Tom's hyperplane project?”

Mr. Swift nodded. “I'm afraid so.”

“You can't do that,” Irene said firmly. “You promised to support him no matter what. You told him to never give up no matter what happened. Remember that? You told your son you believed in him.”

“I'm sorry,” he replied quietly. “I know what I told him. But things have changed. It's just not that simple anymore.”

Irene glared at him. In a cold, steely voice she said, “I'll tell you what's changed. You don't have the guts to keep your promise. Faced with some heat you took the easy way out. *You are a coward.*”

Mr. Swift sighed. “I knew you would be upset, but you have to understand that I had no choice. The only way the government would even allow us to build this facility is if we agreed to operate within certain guidelines. If the authorities won't allow me to continue Project Arcturus then I have no choice.”

“Don't give me that!” Irene shot back. “What really happened is that some politicians saw that the public was upset and wanted to score a few cheap political points. And then *you*, instead of fighting for your son, caved in like a wet newspaper. You have a lot of clout, Mr. Swift, but you didn't use it. No, you just caved and crushed your son's hopes and dreams. You told him your promises mean nothing.”

“You have no idea what you're talking about,” Tom's father said angrily. “I'm not above the law. I can't just do whatever it is I want to do.”

“But you can do something about it!” Irene shouted back. “You can change public opinion. You can ask to be given time to find out what happened. You can put a hold on the project and give the public a chance to cool off. But you didn't do any of those things. No, you just quit. In your entire life you have never been willing to sacrifice any of *your* projects on the alter of public opinion, but you're willing to cancel your son's first invention the moment anything goes wrong.”

“It's a bit more serious than that,” Ned said, speaking up. “I admit that my partner has invented a lot of things in the past thirty-odd years, but even our worst accidents weren't really that bad. Nothing he ever invented put an entire city into danger. Nuclear power is incredibly dangerous, and in hindsight it probably was irresponsible to let some as young as Junior work with it.”

Irene gritted her teeth. “You weren't saying that when he invented the *Falcon*, were you now? Oh no. Back then you had nothing but praise for him. But you didn't really mean it, did you? Oh sure, you'll support Tom as long as nothing goes wrong. But remember, it wasn't the Sampson engine that failed – it was the Tomasite. And *that* wasn't Tom's invention. In fact, that Tomasite came from *your factory*.”

Ned stood up. “Are you trying to blame all of this on me, young lady?”

“I guess we'll never know,” Irene said icily. “After all, you two canceled the project without even bothering to investigate what happened. Nice move.” With that, she stormed out of the office and slammed the door behind her.

Ned sat back down and shook his head. “She just doesn't understand. I'm sure she'll eventually calm down.”

“I don't know,” Mr. Swift replied sadly. “I'm afraid she may understand all too well.”

Irene did not reappear until the next day. When she finally returned she found Tom Swift Jr. in his laboratory packing up his equipment.

“And just what do you think you're doing?” she demanded.

“I'm going back home,” Tom said quietly. “All my projects have been canceled, and Dad won't let me do anything else here so there's no point in staying. I might as well go back to Shopton.”

“I don't think so,” Irene said fiercely. “You need to find out why that plane crashed.”

Tom sighed. “Dad told me about your meeting with him yesterday. He hasn't changed his mind, Irene. The project is still dead.”

“But you're missing the point!” Irene argued. “Look. Let's lay aside the hyperplane for now. You and I are both pretty convinced that something went wrong with the Tomasite, right?”

Tom nodded. “Sure. That's what it seemed like to me, anyway.”

“And you do realize that your father is using that same Tomasite to shield the nuclear reactor he's building in New York City, right?”

Tom froze. “You mean that project wasn't canceled?”

Irene shook her head. “Oh no. You see, the newspapers blamed *you* for the accident, not your father. They're still quite excited about the new Swift reactor. After all, your dad has never really failed at anything his entire life! He's got a golden reputation. But the thing is, his reactor is *based on Tomasite*. If the plane failed because of a flaw in his miracle plastic then his reactor is going to fail as well. Only when it fails it's not just going to kill one person. It's going to kill millions of people.”

“Oh man,” Tom said weakly. “I never thought of that. Does Dad know this?”

Irene shook her head. “Of course not. He hasn't thought it through. But the remains of the jet are still out there in the hangar. I saw samples of the reactor shielding in the wreckage when I combed through it last night. We've got to examine those fragments and find out what happened.”

“Then help me get unpacked!” Tom pleaded. “We don't have much time. I think the plant is already undergoing trials. The

opening ceremonies are just a few days away!"

After the laboratory was set back up Tom and Irene went to the hangar. There was not much left of the *Eagle*, but Irene pointed out the few Tomasite fragments she had found. "The Tomasite that shielded the reactor can easily be told apart from the Tomasite that covered the jet," she pointed out. "It's the reactor shielding that we want."

Once they had gathered a handful of fragments they took them back to the laboratory and ran them through a series of tests. Tom once again found him puzzled.

"It's just as we thought," he said at last. "The plastic has lost its ability to turn heat into electricity. It's just not working anymore. But what I don't understand is why that happened. We put Tomasite through all kinds of tests and we never saw this sort of behavior."

"But we have seen this kind of behavior in the past," Irene reminded him. "At least, I have. You weren't there when your father and I were developing this material, but I remember all the useless batches that we created. It's very difficult to manufacture Tomasite. If you don't do it exactly right – "

" – it won't work," Tom said excitedly. "That's right! I remember now. But the thing is it worked at first! We tested this very batch of plastic right before we installed it on the *Eagle*. Why would it suddenly stop working?"

"There's one way to find out!" Irene said. She took a sample and spent the next hour performing a chemical analysis of the Tomasite fragment. When the last test had been completed she looked up at Tom in triumph. "I think that answers it beyond a doubt!"

"I can't believe it," Tom said. "The material was poisoned with rare earth elements! And not just any elements, either. It was just the right substance to cause a sudden failure after a certain threshold was met. All it needed was a sustained load of energy over a period of time in order to mutate into something else."

"I don't think it was accidental," Irene said.

"I don't either," Tom replied. "You just don't find these ultra-

rare metals laying around. Irene, this was sabotage!”

CHAPTER XV

"YOU'VE GONE TOO FAR"

"SO WHAT do we do now?" Irene asked.

"I think we need to make a trip out west," Tom said. "Now that we know what happened we need to find out who is responsible and bring them to justice."

"Do you think it will even be possible?"

"Definitely," Tom replied. "It would have taken a great deal of care and effort to poison the Tomasite, and there would only have been a few times in the production process where it would have even been possible. There aren't many people who would have been at the right place and the right time. I think we can make a trip to the factory and get some good leads on who might have done it."

"That's true," Irene said thoughtfully. "But even if we can't prove who did it, we can at least show what really brought down the *Eagle*. That alone may be enough to get the nuclear hyperplane back in the air."

"I'm afraid not," Tom said glumly. "Our hyperplane will never fly again. The public doesn't really care what destroyed the aircraft – to them it's a flying bomb and a public menace, and it will never be anything else. Xanthus found a great way to kill this

project once and for all. I really have to hand it to him."

Irene frowned. "So you think it was our Brungarian friend?"

"Who else? We know he was interested in the project – after all, he did send his men to come and steal my blueprints. Then once he had the plans he made sure that we could never use them ourselves. It was brilliant. Things couldn't have gone better for him."

Irene shook her head. "Maybe so, Tom, but we'll get to the bottom of this. He will regret the day he decided to tangle with the Swifts! You just wait and see."

Tom looked at her and smiled. "Thanks, Ace. You always have a way of making me feel better. I'm sure you're right. But we had better be going – I think Dad's already on his way to New York City. We need to get to the bottom of this before his nuclear power plant opens for business."

"Don't you think we should go ahead and tell him what we found? I mean, if we're right then a lot of innocent lives could be in danger."

Tom shook his head. "Not until we know for sure what happened. Right now we can't prove anything. I mean, for all we know the poisoned Tomasite could have been the result of a faulty manufacturing process."

"That seems *really* unlikely," Irene pointed out.

"Sure, but it's possible. Stranger things have happened. But besides that, we don't have *any* evidence at all that Xanthus sabotaged Dad's new power plant. It's entirely possible that he only cared about the hyperplane. If I say something now and turn out to be wrong it's only going to make things even worse. I've got to have an airtight case before I can go to Dad. Do you know how embarrassing it would be if he delayed the opening of the plant for what turned out to be a false alarm?"

"If you say so," Irene said doubtfully.

Tom and Irene left the laboratory and walked to the airstrip. After securing a jet they took to the skies and began the short flight to the Tomasite factory in central California. Irene acted as pilot while Tom brooded.

At last Irene spoke up. “Don't you think we should at least let Ned know we're coming?” she asked.

Tom shook his head. “Ned's not going to be there. I heard Dad say the two of them were traveling to New York City this morning. The opening ceremonies aren't until tomorrow, but there was some sort of dinner tonight that the Governor was throwing in their honor.”

Irene frowned. “So we're just going to land at the factory unannounced?”

Tom shrugged. “Why not? I'm a Swift, after all. Who's going to complain?”

“I guess,” Irene replied. “I just don't like it. It seems rude to arrive without calling first. Besides, do you realize that the only people in the whole world who know where we're at right now are the flight controllers at the Institute?”

“Word gets around,” Tom said off-handedly. “If someone wants to get in touch with us I'm sure they'll find a way.”

Several hours later their jet touched down at the private airfield just outside the sprawling Tomasite plant. Tom was impressed with the size of the complex. The large industrial complex was spread out over several square miles and filled with enormous building after enormous building, each dedicated to the production of different types of Tomasite. Tom knew that they were still severely back-ordered despite the plant's enormous production capacity. It would be at least next year before they finally fulfilled all the orders that they already had, and more orders kept coming in all the time. The lightweight but immensely strong plastic was revolutionizing industry after industry.

After their plane had been safely stowed in the hangar Irene turned and looked at Tom. “All right, skipper, so we're here. What's the plan?”

Tom glanced around the area and pointed to a low building in the distance. “I've never been here before, but that building looks quite different from all the others. My hunch is that it's the administrative building. Let's head that way.”

Irene nodded. “Of course! They'll have all the records. Only

let's not walk there, shall we?" The teenage girl walked over to a jeep that was parked outside the hangar and started it. Tom got in with an amused look on his face. "What?" the girl asked. "It does say 'Property of Swift Construction Company' on the side. Nobody will mind us borrowing it."

"If you say so," Tom said, grinning. Irene then floored the accelerator and the jeep shot across the plant. Tom grabbed at the door for support.

"I figured there was no time to waste," Irene explained innocently. Tom grinned but said nothing.

After the jeep reached the administrative building the two got out and walked inside. In the foyer was a desk with a receptionist. "May I help you?" she asked.

Tom spoke up. "I'm Tom Swift and this is Irene Goddard. We're here to inspect your production records. Could you point us in the right direction?"

The receptionist's eyes lit up at the mention of the famous Swift name. "Of course!" she said brightly. She handed Tom a clipboard. "If you'll sign in I'll have someone direct you to the right place."

Tom wrote his name and the current time on the clipboard and then handed it to Irene, who did the same. The receptionist then took the clipboard from her and gave them both visitor badges. A moment later they were approached by a security guard.

"It's always a pleasure to meet a Swift," the guard said as he shook Tom's hand. "I understand that you wish to see our production records?"

"That is correct," Tom answered.

"Right this way," the guard replied. He led them down a series of corridors and then into the basement. Once they had reached the lower level he led them down another corridor and up to a locked steel door that was labeled RECORDS. The guard then took out a keychain and unlocked the door for them. "Everything you need should be in here," he said.

When he opened the door Tom gasped. Beyond the door was an enormous room that stretched for hundreds of feet in all

directions. Row upon row of filing cabinets filled the cavernous area. Bright lights hung from the ceiling but did little to dispel the gloom.

"Is there anything else I can do?" the guard asked.

"Thanks, but I think we're good for now," Irene replied.

"I'll be upstairs if you need me," the guard said. The two teenagers then walked inside the room and shut the door behind them.

"Now let me see," Tom muttered to himself. He walked up to the nearest filing cabinet and read the labels on the outside. "It looks like these are organized by date. We know more or less when the Tomasite for the *Eagle* was produced, so it's just a matter of finding the right area and then going through the paperwork."

"I can't believe they've accumulated so many records so quickly," Irene replied. "They haven't been open that long!"

Tom laughed. "It's not as bad as it seems. Most of these filing cabinets are empty. See?" he said, knocking on the nearest cabinet as they walked by. It let out a hollow sound. "I think the ones we're looking for are located in the back of the room."

Tom and Irene began walking in that direction, scanning each cabinet for the right date. Irene eventually shook her head. "There has *got* to be a better way to do this, skipper. One day you need to invent a more modern way of storing massive amounts of information. This is such a pain."

"Dad thinks they'll eventually use electronic brains for this sort of thing," Tom said vaguely, as he quickly scanned filing cabinet labels. "He says you'll be able to access an entire library's worth of data with the touch of a single button."

"Oh, sure," Irene remarked sarcastically. "And you'll need an entire city to house the brain, and an army of engineers to keep it working. That will never work."

"You could be right," Tom agreed. He opened up a filing cabinet drawer and started going through it. "Man, but they produce a lot of Tomasite here. Irene, can you check that cabinet over there? I think this cabinet only has purchasing records. That

one should have the production run details."

Over the next half-hour the two combed through pages of documents. Eventually a picture started to emerge.

"There's no doubt about it!" Tom said excitedly. He held up a typed document triumphantly. "Look at this! This is the formula that was used to produce the poisoned Tomasite. It's been altered! The Tomasite wasn't poisoned during the manufacturing process – it was poisoned before the run even started."

"And the instructions were followed scrupulously," Irene agreed. "I have here the purchase order for the raw materials, including the rare earth elements. And here are the confirmations that each shift followed the instructions to the letter."

"They used our own efficiency against us," Tom said wryly. "Xanthus knew that we were sticklers for detail and quality and he used that to ensure the Tomasite was poisoned to perfection! I'm impressed."

"But they made one mistake," Irene replied. "There aren't many people who could have altered the instructions. They must have been changed the moment they were received or someone would have noticed the difference. That means we can limit the suspects to – "

"Quiet," Tom hissed. "Did you hear that?"

Footsteps were coming toward them!

Tom quickly gathered up the documents and stuffed them into his jacket, and then silently closed the filing cabinets. A moment later a man wearing a black suit appeared at the end of the hallway. As soon as he saw them he pulled out a gun and started firing!

Tom grabbed Irene and yanked her out of the way as bullets whizzed by. The two darted down another aisle of filing cabinets, desperately trying to stay out of the line of fire. Tom tried to knock some cabinets over to slow the shooter down but they were too heavy to move.

"You can't get away!" the armed assailant shouted. "I have the door covered."

"What are we going to do?" Irene whispered, as they darted

down another long corridor of cabinets.

“We've got to find a way to disable him!”

“But how?” Irene asked.

Tom heard another gunshot behind him. “Let's split up. You go that way, away from the door, and I'll draw his attention. I have an idea.”

“Be careful,” Irene pleaded, and then ran off. After listening for a moment Tom climbed on top of a filing cabinet and crouched down low. As Irene ran for cover he heard the assailant slowly making his way around the room.

Tom stopped breathing as the gunman walked right past the filing cabinets where he was hiding. At just the right moment Tom jumped on top of him, crushing him into the ground. The gun went off with a thunderous roar! The shock of the noise startled Tom, which allowed the gunman time to grab his jacket with one hand. Tom desperately wriggled out of it just as the gunman took aim with his weapon. He quickly smashed the attacker's hand against a filing cabinet and the gun clattered to the floor. Before the gunman could react Tom kicked it out of reach.

His assailant glanced inside Tom's jacket and saw that the incriminating evidence was still stuffed into an inner pocket. To Tom's surprise he stuffed the jacket under one arm and bolted for the door. Tom ran over to the gun, picked it up, and shouted at Irene to follow him. Before they could reach him, however, the attacker ran out the door and disappeared.

“What just happened?” Irene said breathlessly as she reached Tom. “I heard gunshots! Are you ok?”

“I'm fine, except he got away with our evidence,” Tom said curtly. He yanked open the door and ran into the hallway. It was deserted.

A moment later he heard footsteps coming down the stairs. The security guard ran toward him with his gun drawn. “I heard gunshots! What's going on?”

“An armed man just attacked us and ran out of here!” Tom said. “He must have ran right past you.”

“I didn't see anyone,” the guard replied. “What did he look

like?"

"He was wearing a black suit with a dark blue tie and had neatly-trimmed brown hair" Irene said. "He was about 5' 10" and was carrying Tom's jacket under one arm. You couldn't have missed him."

"I guess I did see him after all," the guard said. "I thought he was an executive! He didn't seem to be in a hurry so I didn't give him a second look."

The three of them ran upstairs and down the hallway to the building's entrance. When they got outside they saw a jeep roaring toward the airfield at high speed. It was being driven by a distinguished-looking man in a suit. There were no other vehicles in sight.

"How are we going to follow him?" Tom asked anxiously.

"I'll raise the alarm," the guard said. "We'll secure the area! He won't be able to leave."

"What should we do?" Irene asked, as the guard ran off to alert the rest of the plant's security team.

Tom thought a moment. "Go downstairs and find the paperwork on Dad's nuclear power plant. We need to find out if Xanthus sabotaged it as well. Meanwhile, I'll stick around and accompany the guard when he goes to apprehend the assailant. I've got to make sure he still has those papers on him! If he doesn't then I'll lead a team to search for them."

"Good idea," Irene replied. She walked back into the building and left Tom alone outside. He sat down on the front steps and waited for the guard to reappear. *I can't believe I let him escape with the evidence!* Tom thought bitterly. *I should have known Xanthus would station a lookout. I underestimated him yet again.*

Tom's thoughts were interrupted when a voice called out to him. "Hey! Tom!" He looked up and saw a big, bright-red pickup truck idling in front of the administrative building. The ultramodern pickup had a camper built onto the rear of its body and sported California license plates. The driver's window was rolled down and a teenage boy with short blond hair was leaning out of it. "There you are! I've been looking everywhere for you.

Man, but your dad is fit to be tied."

"*My* dad?" Tom said uncertainly.

"Yeah. Did you know he's here?"

Tom looked astonished. "Are you kidding? When did he get here? He's supposed to be – "

"Yeah, I know. Tell me about it," the teenager replied. "But look. He wants to talk to you. As in right now. He is *so* not pleased. You've really done it this time."

Tom sighed. "This just isn't my day. Where is he?"

"Inside, in his office," the teenager said.

"Thanks," Tom replied. As he turned to leave the teenager called out to him once more. "Hey, have you seen Bud anywhere?"

"Um, not that I know of," Tom replied hesitantly.

"That's odd. Well, don't worry about it. I'm sure he's around here somewhere. When I find him I'll send him in as well. Your dad wants to see you both. But look – I'll catch you later." With that, he rolled up his window and drove off.

What on earth is Dad doing here? Tom wondered as he walked back inside the building. He smiled at the receptionist and asked her where his father's office was located. After receiving precise directions he walked up to a small room in the back of the second floor. He hesitated just a moment to gather his nerves and then carefully knocked on the door.

"Come in," a voice said. He nervously opened the door and walked inside. Sure enough, his father was sitting behind an empty metal desk, wearing a stern look. The room was very sparsely decorated. It had a desk, a couple chairs, and a filing cabinet, but little else. *I guess Dad doesn't come here often*, Tom thought.

The young man sat down in front of the desk and looked at his father. "Um, so what are you doing here?" he asked hesitantly. "I wasn't exactly expecting to see you."

"I imagine not," his father said. "Look, Tom. You've done a lot of crazy things in your life, but this latest stunt of yours really tops them all. Did you even stop to think through what you were

doing?"

"Look, Dad, I'm sorry," Tom replied. "I really am! I didn't mean for things to turn out this way. And it's not my fault! I was sabotaged. Things would have gone fine if – "

"*If* doesn't cut it this time," Mr. Swift said angrily. "You put the entire universe in danger! I know you're hurting, but what right did you have to do something like that? This time you've gone too far."

"Now wait just a minute. I put the *entire universe* in danger? Don't you think you're overreacting just a little bit?"

"You know the risks of a resonance cascade as well as I do!" his father snapped. "I've read those papers. Don't you remember what happened last time?"

"Last time?" Tom asked. "What are you talking about? The *Eagle* flew exactly one time. One time! I feel really bad about what happened to Mark, but at the very worst it could only have destroyed a single city. In what possible way did it endanger the entire universe? How were galaxies a billion light-years away imperiled by my nuclear hyperplane?"

Mr. Swift froze. "Your hyperplane?"

"Of course. You know – that little project I've been working on for the past year? The one that has been headline news for a week now? The one that you just canceled, putting me out of a job? What on earth did you think I was talking about?"

"Let me see if I understand what you are saying," his father said slowly. "You came here because of your hyperplane project? But – why? I could understand if Irene was behind this, but what you're saying doesn't make any sense."

"I came here to prove that my hyperplane crashed because its Tomasite shielding was sabotaged," Tom said angrily. "And I *did* prove it! The man with the evidence to prove it is being rounded up by security as we speak. It wasn't my fault! Xanthus is behind this. The whole thing was just a plot to kill Project Arcturus."

"Oh," Tom's father replied. His expression instantly changed from anger to fear. "That's really bad. I can't believe this happened. What have I done? I just hope this isn't fatal. Who sent

you to my office, Tom?"

"A guy in a fancy red pickup truck," Tom replied. "I'd never seen him before."

Mr. Swift quickly stood up. "I'm so sorry, Son. I really am. I didn't realize what was going on. Please, just go back to whatever you were doing. I really did not mean to interrupt. There's been a terrible mistake."

"What? I don't understand. One minute you're all upset, and the next – "

"You will understand it all in time," his father answered. "I'm afraid I can't explain now – there's something urgent I have to do."

"But – "

"It's ok, Tom. Just go ahead and finish your errand. When you're done look for me in New York." With that, his father left the office and closed the door behind him.

What was that *all about?* Tom wondered. As he stood up to leave the door opened again. This time a tall, well-build teenager stepped through the doorway. He was wearing a leather pilot's jacket. As he entered the office he walked up to Tom and shook his hand. "Have we met before?" he asked.

"Not that I know of," Tom replied. "I'm Tom Swift. And you are?"

"Bud Barclay! A guy in a red pickup truck told me to meet your father here, but it looks like I'm too late. So, what have I missed?"

CHAPTER XVI

PLAN OF ATTACK

“BUD BARCLAY”, Tom Swift Jr. said thoughtfully. “I'm afraid that name is not familiar to me. Do you work here?”

“You bet!” the young man said, grinning. “I'm a test pilot – I was just hired a few weeks ago. I've been testing your new *Falcon*-class jets. Man, are they ever amazing! I've got to hand it to you, pal, that is the slickest plane I've ever flown. The sheer power you've built into their engines is just unbelievable.”

Tom found himself grinning despite himself. “Thanks. But it wasn't entirely my invention, of course. I couldn't have done it without Irene.”

“Irene?” Bud asked, puzzled. “Is she your assistant?”

Tom laughed. “Not exactly! She's an old friend. Well, my girlfriend, actually. But say, what are you doing here? Were you supposed to meet with my Dad?”

“It was the craziest thing! A guy in a red truck drove up and told me that your Dad wanted to see both of us in his office pronto. So I asked him for directions and high-tailed it right over.”

“So it was that same guy,” Tom said thoughtfully. “He talked to me too. Had you ever seen him before?”

“Never,” Bud said, shaking his head. “He seemed to know me, though. And man, what a truck! Is that some new Swift invention or something? I've never seen anything like it.”

Tom shook his head. “No, I'm afraid not. I've strictly been working on aircraft, not automobiles. But it was pretty sharp.”

“I'll say! If you strapped wings onto that thing I bet it could've taken off. You see the craziest things around here.”

“Stick around! You haven't seen anything yet. But you really don't know why Dad wanted to see us?”

“I'm afraid not. It's a mystery to me!”

“Weird,” Tom said thoughtfully. “Then I guess there's no use waiting around here. If Dad wants to talk to us about something I'm sure he'll let us know. But I would *really* like to know why he's not in New York.”

With nothing else to do Tom and Bud left the office and headed back outside. There they met Irene, who was waiting for them on the steps of the administration building. She was holding a yellow folder filled with papers.

“And just where have you been?” the red-headed girl asked impatiently.

“You're back already?” Tom said, surprised. “I thought it would take at least a half-hour to find those documents. We've only been gone a few minutes.”

“Since I knew exactly what I was looking for it didn't take long,” Irene explained. “But I thought you'd be out there with the security guards. And who is this?”

“Oh, sorry – this is Bud Barclay. He's a test pilot that works for the Swift Construction Company. Bud, this is Irene Goddard.”

“Got it,” Bud said. He shook Irene's hand. “It's a pleasure to meet you, ma'am.”

“So you have the documents?” Tom asked eagerly.

“Yeah, I do,” Irene said. She handed them to Tom, who quickly glanced over them. “The Tomasite formula looks ok to me. It's not quite what I remember, but your Dad did spend a few months perfecting it after I left to join Project Arcturus. Plus, I would expect there to be a few differences between our lab

version and what the factory produces."

"True," Tom said thoughtfully. "And I don't see any rare earth elements in the process list at all. The saboteur may have just been after the hyperplane."

"Hey Tom?" Bud said. "I hate to interrupt and all, but I think something bad is happening."

"Oh? What?" Tom asked, looking up at the test pilot.

Bud pointed into the distance, where a sleek gray aircraft was just taking off. "Do you see that? That plane is the *Freelancer*. It's the non-military version of our production *Falcon*-class jet."

"I see it," Tom replied. "It looks sharp! I like it. But what's the problem?"

"Well, nothing, except I'm the only test pilot in the world authorized to fly it. That particular prototype has been souped up to go Mach 5. We were going to train other pilots to work with that technology, but when the *Eagle* crashed the entire program was canceled. I'm the only one that's got the training and has flight experience with it."

"Then who's flying it?" Tom asked, puzzled.

"Our attacker, you dummy," Irene snapped. "Who do you think?"

"But that's ridiculous!" Tom objected, as the jet soared into the sky. A moment later they heard an earth-shaking boom as the jet broke the sound barrier and soared off to the west. "I find it really, *really* hard to believe that the stooge who jumped us just happens to be a crack test pilot."

"The Brungarians who infiltrated the Institute and blew up your first prototype were pilots," Irene pointed out. "And what if that guy was sent here for the express purpose of stealing that plane? It's a new model, remember – Xanthus wouldn't have gotten the plans for it during that raid. Maybe he was planning on stealing it some other way and decided to cut and run when he realized we were onto him."

"I see security headed our way," Bud said.

"Probably bearing bad news," Tom said glumly.

Tom soon found out that Irene was right. Their attacker had

headed straight to the hangar, where he managed to elude security long enough to steal the plane and get into the sky.

"We thought he would head for the gate," the chief of security explained apologetically. "It never occurred to us that he might be a pilot. The hangar was being guarded but apparently the man had the proper authorization passes so they let him through. I'm sure they were forged."

"So what do we do now?" Irene asked, as the chief of security walked back inside the administrative office.

"We could always go after him," Bud suggested. "We've still got the military version of that same aircraft. The Air Force isn't supposed to come by and pick it up until next week."

"What's that?" Tom asked. "The military is taking one of my planes?"

"It makes sense," Irene pointed out. "The *Falcon* and the *Eagle* are the two fastest jets in the world. The Air Force is going to want them even if no one else can have them. The public will think that the whole project got canceled and no one will be the wiser."

Tom turned to Bud. "You guys didn't start building a prototype of the *Eagle*, did you?"

Bud shook his head. "I think they were going to wait for you to work out the bugs first. I've heard of your hyperplane, of course, but that's all."

"Still, I bet the military requested the blueprints for it," Irene replied. "You know how closely your Dad has been working with them."

"Nobody tells me anything," Tom complained. "I'm losing control of my own project! My hyperplane gets sabotaged by Brungarians and in response the government shuts it down and takes it away so the military can use it secretly. And I'm not consulted at all!"

Bud spoke up. "I hate to interrupt again but that plane is getting further away by the minute. If we're going to tail it we've got to leave immediately."

"I guess you're right," Tom said. "Let's go."

Irene grabbed Tom's arm. “I don't think so, Tom. Are you completely out of your mind? What, exactly, are you planning on doing?”

“I'm going to follow the jet, see where it lands, and get the evidence back. It's simple!”

“It's *totally insane*!” Irene said firmly. “You don't even know where that plane is going! For all you know it could be headed straight to Brungaria. Do you really intend to invade Brungaria all on your own? With your two bare hands?”

“It's a military jet,” Tom replied.

“But it's not armed,” But added hastily. “I mean, it could have been, but the Air Force was going to test those systems so it's not stocked with missiles and things. But unlike the non-military version it is sheathed in Tomasite, so at least the Brungarians can't track it on radar.”

“Look,” Tom said, looking Irene in the eye. “I have *got* to get that evidence back. It's the only way I can prove beyond a doubt that our project was sabotaged. And besides, if he does go straight to their base that's even better – perhaps we can find more evidence that will blow this whole conspiracy wide-open. Xanthus has been far too effective at raiding our installations. We've got to shut them down, and no one else is going to do it.”

Irene shook her head. She paused, and then looked off into the distance. “This is such a bad idea,” she said at last. “I can't believe I'm letting you do this. Your dad would kill me if he ever found out. This is beyond idiocy.” She sighed. “Ok, Tom, I'm with you. But let's at least bring some firepower.”

“You mean guns?” Tom asked, surprised. “Where are we going to get them? Ned manufactures plastic here, not bullets.”

“Yeah, but we also guard nuclear secrets,” Bud pointed out. “We do have a small cache of arms. They keep it locked in a small concrete shed.”

“Ok,” Irene said. “I'm taking charge here. Tom, you go and get the weapons. You're probably the only person here who can get them without being asked too many questions. Bud, you and I will go to the hangar and get the jet warmed up. You will be

flying us since neither Tom nor myself have actual flight experience with the Sampson engine. Building it and actually flying it are two totally different things."

"Not a problem!" Bud said confidently. He gave Tom the directions to the shed where the weapons were stored, and then he and Irene walked to the hangar. Once they had gone through security and walked inside they found a sleek, black jet.

"Wow!" Irene said, surprised. "This is quite a bit larger than the *Falcon*."

"The *Polaris* can go quite a bit faster too," Bud said proudly. "You and Tom did an amazing job designing it. It has zero cargo space but *man* can it move! I used that very jet to set the world record for fastest time circling the globe."

Bud and Irene removed flight suits from a nearby closet, put them on, and then entered the plane. The cockpit was small but there was still room for six people. Bud sat in the pilot's seat and Irene sat beside him. As they strapped themselves in and prepared for takeoff Bud turned to Irene. "Since you helped design this aircraft, is it safe to assume that you know how to fly?"

Irene giggled. "Yeah, I have a pilot's license. I've even flown supersonic before. But this is a bit – different. Can you show me how it works?"

"Of course," Bud replied. While they were waiting on Tom he pointed out the different controls inside the plane and explained how they worked. As Irene was asking questions Tom suddenly drove into the hangar at top speed. The young man was driving a jeep that had several wooden crates stacked in the back seat. After parking the jeep next to the plane Tom lugged the four crates into the jet and set them on the two seats at the rear of the cockpit. After securing the boxes he exited the plane, donned a pilot's suit, and climbed back on board, taking the seat located directly behind Irene.

"So what did you bring us?" Irene asked, as Bud taxied the plane onto the runway.

"A box of everything," Tom remarked. "We've got guns, bullets, and grenades."

Irene sighed. “This is *such* a bad idea. Do you even know how to shoot?”

“I've fired a weapon before,” Tom said defensively, as the *Polaris* lifted off the runway and soared into the sky.

“That's not what I asked,” Irene replied.

Bud spoke up. “It just so happens that I'm not a bad marksman. Now, grenades are something I've never dealt with before. That will be interesting.”

“So can you see the other plane on radar?” Tom asked, changing the subject.

“You mean the *Freelancer*?” Bud asked. “Give me a minute here.” He brought the plane up to an altitude of 40,000 feet and then quickly accelerated it to its top speed of Mach 5, all while keeping an eye on the radar.

“There she is,” Bud said at last. He pointed to a dot on the outer edge of the scope. “That's got to be her. We're not gaining on it and it's not pulling away from us. There's no other plane in the world that can do that except for my baby.”

Irene removed a map from an overhead pocket and plotted their course. “It looks like I was right,” she said, sighing.

“Brungaria?” Tom asked.

“Brungaria,” Irene replied.

There was silence for a moment. Bud was the first one to speak up. “Brungaria is just over 9,000 miles away. At Mach 5 we should be there in about two and a half hours. Assuming nothing happens we'll get there shortly after midnight, local time.”

“If that really is where he is going,” Irene added.

“Can this plane really maintain Mach 5 for that long?” Tom asked.

“Oh, sure,” Bud replied. “I've flown the *Polaris* all the way around the world before. This jet has got tremendous stamina.”

“You did?” Tom asked. “I never heard about that. How did you get the clearances from all those countries to fly over their airspace?”

Bud grinned. “What they don't know won't hurt them.”

Irene shook her head. “You two are just alike. Do you guys

not realize how dangerous this is?"

"We'll find a way," Tom said confidently. "We always do, after all."

"What do you mean, 'we always do'?" Irene asked. "I don't ever remember invading Brungaria before. I'm pretty sure that doesn't happen very often. Even the United States government has never invaded Brungaria."

"There's a first time for everything," Tom quipped.

There was silence for a few minutes, and then Irene spoke up. "That Tomasite formula bothers me," Irene said at last. "Bud, can you contact the factory and have them transmit the plans to Tom's father? I'd like him to double-check them, just to be sure."

"Sure," Bud replied. "How do you want them to transmit the formula?"

"I don't know," Irene said. "Tell them to think of something. Maybe they can just get him on the phone and read it to him. I don't really care."

As Bud relayed the order Tom leaned forward to talk to Irene. "How are you going to know Dad's response? It's not like he can give us a call back."

"It doesn't matter if he can reach us or not. If something is wrong with the formula he'll realize it and will know what to do. That should be enough."

"Good thinking," Tom said approvingly.

"They've got the message!" Bud said a few minutes later. "They're calling the hotel now."

Irene shrugged. "We've done all we can do."

"Not quite!" Tom said. "There is still something else that needs to be done. Next stop, Brungaria!"

CHAPTER XVII

CRITICAL MASS

“I THINK that went rather well!” Ned Newton remarked to his friend Mr. Swift.

Tom nodded absently. The two men had been in New York City all day and had spent the evening at the Ritz Carlton hotel, attending a celebration hosted by the state governor. Dignitaries from all over the country had flown in to attend the black-tie affair. Everyone wanted to be at the invitation-only event to celebrate the latest miracle from Swift Enterprises. The following day would see the opening of the world's first commercial nuclear power plant, and Tom Swift himself would be there to bring online his greatest invention. Even for Swift Enterprises this was a bold step into the future.

The press had been talking about the new power plant for days, running stories about the wonder of the atomic age and the grand promise of cheap, clean electricity that was now just around the corner, thanks to Swift Enterprises. The coverage had finally pushed from the headlines all mention of his son's accident with the hyperplane, a fact that still weighed heavy on his mind.

“I wish my son had been here,” Tom said at last, as the two men left the hotel and walked into the street. A doorman called a

cab for them, and the two were soon on their way to another five-star hotel just down the road.

"Did you remember to invite him?" Ned asked.

Tom smiled wryly. "I did indeed, but he was not interested in coming. From what I could gather he is still very upset over the hyperplane. He definitely took its failure personally, and I really don't blame him. I would be upset too."

"You did what you had to," Ned replied, sighing. "It was really unfortunate, especially since the *Falcon* was such a success. We actually had customers lined up to purchase as many of them as we could produce. I don't even want to think about how much money we lost on that when the government forced us to cancel the product! Maybe we can revisit it one day, but right now the world just isn't ready."

"Perhaps," Tom said. "But what if Irene was right? What if we did just give up too easily? Never before in the history of Swift Enterprises have we canceled a project due to public pressure. My son may have been able to perfect the jet if we had just given him time."

"Everyone has a failure at some point," Ned replied. "What matters is how you deal with them. Tom just needs to move past it and work on something else. After all, he's got his whole life ahead of him."

The cab stopped and the two men got out and walked into the hotel. When they entered the lobby a man behind the counter called out. "Mr. Swift!"

"Yes?" Tom replied as he walked over to the hotel manager.

"We have a message for you. A call came in several hours ago." He handed Tom a sheet of paper.

"What is it?" Ned asked curiously.

"A message from your California plant," Tom said, frowning. "Someone there wants me to go over my Tomasite formula. Apparently they're concerned about it."

"Oh?" Ned said. "Should I be worried?"

"I don't think so," Tom replied, as he folded the message and placed it in his pocket. "Whatever it is can wait until I get back to

the Institute. For the next few days I'm going to be right here monitoring the operation of my new power plant, and I don't need anything to distract me from that." Tom thanked the manager, told Ned goodnight, and went up to his room.

The next day Tom got up early, had a quick breakfast at the hotel with Ned, and then headed out to the plant. Ned had some business to take care of but he was still able to show up several hours later. The plant was located on a long, narrow island just off the coast of the great American city. When Ned arrived he saw that people and vehicles were everywhere and a sizable crowd had gathered just outside the gate. As he went through security and entered the grounds he noticed that the press were already being admitted even though the actual opening ceremony was still an hour away.

Ned found Tom in the control room. To his surprise he was not giving orders but simply standing to one side and watching his employees operate with smooth efficiency. Ned walked over to him and nodded in approval. "It looks like everything is going well."

"It is," Tom remarked. "The truth is we've been producing power since yesterday morning. It takes a lot of time to bring a reactor online. What will happen in an hour is that the power will start flowing into the city's power grid."

Ned grinned. "I'm pretty sure that fact is lost on the public! They seem to have this idea that at the stroke of noon you'll push a button and everything will start humming at that exact moment."

"With sparks flying and the crash of thunder reverberating across the landscape," Tom grumbled. "That's reporting for you, I suppose. But what can you do?"

"Is there any way I can help?" Ned asked.

His friend shook his head. "At this point there isn't even anything *I* can do. I think everything is in place. The event itself should go very smoothly."

Tom proved himself right. Just before noon a large crowd of reporters and dignitaries gathered in a cordoned-off section of the

control room, and they watched anxiously as Tom activated a switch. Power began flowing from the plant's reactor into the city's power grid. When Tom announced that the plant had been brought online successfully there were cheers, and reporters began taking pictures and asking questions.

It was a full three hours later when security finally escorted the last reporter out of the plant. After he left an exhausted Tom sank down in a chair. Ned looked at him with a slight smile. “You never were a publicity hound.”

“It runs in the family,” Tom said, sighing. “Next time I should let our publicity department handle this.”

“I don't think that will ever work,” Ned replied, laughing. “The press demands their famous inventor! Nothing less will do. So what are you going to do now?”

“I'm going to head to my office and get some peace and quiet. What about you?”

Ned shrugged. “I think my work here is done, old friend. If you have no objections I'll leave the plant in your capable hands and head back home.”

Tom bade his friend goodbye and headed into his office. Once there he sat down behind his desk, took out a sheaf of papers from a drawer, and placed them on the desk. Instead of poring over them, however, he leaned back in his chair and fell asleep.

Several hours later something jolted him awake. When he opened his eyes he saw a well-dressed man sitting peacefully in a chair in front of his desk. As soon as Tom saw him a chill ran down his spine.

“May I help you?” Tom asked.

“Oh no, my friend,” the man said with a slight smile. “You have already done quite enough. It is I who am hear to help you.”

“Thanks, but I don't need any help right now.”

“Oh, but you do!” the man said earnestly. “You do. Things have been out of balance for a very long time, and I have come to make them right again. It is time.”

Tom frowned. “Have we met before?”

The man shook his head. “I have not had that privilege, I am

afraid, although you have done so much to make me who I am today. But I have had the honor of meeting your son." He removed a business card from the inner pocket of his suit and handed it to Tom.

The middle-aged inventor looked at it and gasped. "Xanthus!"

"In the flesh," Xanthus said agreeably. "Truly, this is a moment I have been waiting for all my life. It is the culmination of a dream."

Tom rose out of his chair, but Xanthus waved him back. "Do not attempt anything foolish, my friend. I may look harmless but I assure you I am armed. Even if you got past me, however, there is my man just outside."

"How is this possible?" Tom asked, as he sat back down in his chair.

"Many things are possible when one is sufficiently motivated," Xanthus remarked. "A fact that you yourself know."

"My son said you had an Eastern European accent. But that's not what I'm hearing."

Xanthus smiled. "I can have one of any number of accents when it suits me. But perhaps I should explain what I am doing. I know you must have many questions for me."

"Not really. I do think you should leave before security finds out you're here. Things could get ugly."

"Ah, security! They will not intrude on the Great Man himself while he rests in his office. No, my friend, they will leave you in peace."

Tom sighed. "So what do you want? You've already stolen the plans for my plastic, my reactor, and my son's jet. What else his there?"

"Bah!" Xanthus shook his head. "I wanted none of those things. I merely stole them so the Brungarians would not guess my true purpose. They are hateful, the Brungarians, but they have their uses. As long as I gave them what they needed they were quite helpful indeed. They provided all the resources I required so I could at last bring balance."

"I knew it!" Tom replied accusingly. "The moment I saw that

wooden warning you left in my office I knew exactly what was going on. Talcap wood is unmistakable. I would have recognized it anywhere."

Xanthus nodded. "Exactly. I am not a Brungarian at all. I am a Haargolander. I left the piece of talcap behind so you would know I was coming. You cannot say I did not warn you."

"But that was not my fault! I had nothing to do with it."

Xanthus leaned forward. "Oh, but what happened in my country was very much your fault. You wanted wood for your Ocean Airport, and of all the trees in the entire world you decided that only talcap wood from Haargoland would suit you. So what did you do? Do you even still remember?"

"Your government wouldn't sell it," Tom argued. "I had little choice."

"Not selling it was our right," Xanthus shot back. "Why should anyone be forced to sell merely because you wanted to buy? Did you inquire to find out why my country was not interested in selling? Or, perhaps, did you investigate to see if talcap could be obtained from other countries? Or maybe you could have obtained some seedlings and grown your own. Did you do that?"

Tom was silent, so Xanthus continued. "Oh no, my friend. You did not. No, what you did was finance a revolution to overthrow the legitimate government of a sovereign nation so that you could put into power people who were more sympathetic to your ends. That is what you did."

"I was told there would be no bloodshed!" Tom said angrily. "What happened was not my fault."

Xanthus looked at him bitterly. "Did you think we would not fight when a foreign power tried to seize control over our homeland? Were you expecting us to go willingly as our families became slaves to a dictator? What exactly were you expecting, Mr. Swift? That you could simply do whatever you wanted and there would be no consequences? After all, if Tom Swift, the great humanitarian, wants talcap wood then surely it is worth the lives of a few innocent people in a small, unknown country. Is that

what you were thinking?"

Tom put his head in his hands. "What do you want from me?"

"I want balance!" Xanthus said angrily. "You cannot tell me you were not responsible for what happened to Haargoland twenty years ago. That revolution was made possible solely because of your financial support. Do you know what it did to my country?"

"It destroyed it," Tom said quietly.

Xanthus stood up. "Do you know how many people died? Do you know how much was lost? My own brother was killed in the fighting. If it was not for you he would still be alive today."

"I'm sorry," Tom said. "I really am. If I could take it all back I would. But I can't."

"It is much too late for that," Xanthus snarled. "Justice is balance. You destroyed my life, so I will destroy yours. You ruined my country, so I am going to return the favor. And I will use your invention to do it."

Tom looked at him in horror. "What are you going to do?"

Xanthus sat back down in his chair and regained his composure. "You are a smart man, my friend. I believe you can figure it out."

Tom thought for a moment. "If you melted down this reactor it would surely be a disaster, but I don't see how you can do that. It has been designed specifically to – " and then Tom suddenly remembered the message he had been given last night at the hotel. He froze.

"Go on," Xanthus said encouragingly. "You are almost there."

"You poisoned the Tomasite," Tom said at last. "That's why the *Eagle* crashed! You sabotaged the nuclear shielding as practice for your real goal – the destruction of this plant."

"It had the side-benefit of destroying your son's life," Xanthus remarked. "It worked out well, I might add. I did not expect you to also pile misery onto your son, but I was pleased when you did."

"I had no choice," Tom protested.

"You say that a lot, you know. You 'had no choice' but to

overthrow the Haargoland government. You 'had no choice' but to destroy your son's dreams. It simply had to be done." Xanthus looked him in the eye. "You always have a choice, my friend. You have made your choice and I have made mine."

"It's not going to work," Tom said flatly. "I hate to disappoint you, but the reaction is controlled by a computer. Even if you sabotaged the Tomasite it won't do any good because the computer monitors the reaction and will simply shut it down at the first sign of trouble."

Xanthus sighed. "I have the blueprints for this marvelous plant of yours, my friend. Do you think I did not realize that?"

Tom suddenly became very afraid. "What did you do?"

"Come, Mr. Swift. Is it not obvious? I simply sabotaged the computer as well. The operators will not know anything is going on, but the computer and the Tomasite are doing their work as we speak. For you see, my goal is not to simply cause a meltdown – not when I can harness your invention and cause your plant to destroy itself in a nuclear explosion!"

Tom gasped. "You'll destroy the entire city!"

"You mean *you* will destroy the entire city," Xanthus corrected. "The magic of Swift Enterprises will be blamed for destroying the largest metropolis in America. Your company will be destroyed and your nation will fall into chaos. What happened to your son will happen to you – only for you the infamy will be far worse."

"You can't do this!" Tom protested. "Millions of lives are at stake! What kind of monster are you?"

"That did not concern you when you overthrew the Haargoland government," Xanthus said angrily. "Why should it concern me now?"

"Someone will find out and stop you," Tom said desperately.

Xanthus shook his head. "It is too late for that. You foolishly decided that the entire reactor would be controlled by an electronic brain. Where are you going to find an unmodified one that you can use to shut down the reaction? Do you happen to have a spare one lying around?"

“I've got one at the Institute – it's controlling my test reactor,” Tom said urgently. “We can still stop this, Xanthus. You don't have to do this.”

“You mean you *used* to have one at the Institute. I took the liberty of having it disabled yesterday. No, my friend, for you there is no hope. All you can do is wait for your inevitable end!”

CHAPTER XVIII

FIRE IN THE NIGHT

FOR THE NEXT several hours the *Polaris* followed the stolen nuclear jet as it streaked through the stratosphere, never getting any closer but also never dropping further behind. Most of the trip passed in silence as the occupants of the plane simply waited it out. After what seemed like ages Bud finally spoke up. “There's something! It looks like our prey is slowing down.”

“Where are we?” Tom Swift Jr. asked.

“We're just entering Brungarian airspace,” Irene said crisply. “Since we haven't been shot down yet I'm going to assume we haven't been spotted.”

“Good old Tomasite!” Tom said warmly. “You know, I really like using our enemies' tricks against them. They used a Tomasite-cloaked jet to invade our base, and we're about to return the favor.”

“So it would seem,” Irene said, sighing. “I still think this is a very bad idea, but we're here so let's get it over with.”

Bud began easing off the throttle and slowing their jet down. A few minutes later he reported that their enemy had landed on what appeared to be a secret airstrip hidden in the mountains.

“What should we do?” Bud asked. “Do you want me to land?”

“Not yet,” Tom said. “Let's circle the area. Maybe we can see something.”

Irene shook her head. “It's midnight in this part of the world, Tom. The sun won't rise for at least six hours. There's no way we can see anything, especially at this altitude. Besides, this part of Brungaria has some of the most rugged and impassible mountains in the world. Even with radar it will be almost impossible to find anything.”

Irene's misgivings proved to be right. Bud circled the area several times but could not make out anything that appeared to be a covert base. Even the airfield was completely hidden. They only way they even knew it existed was because they had just watched a plane touch down there.

“Do you see anywhere else we can land?” Tom asked.

“Nope,” Bud replied. “Not unless this plane can land vertically without a runway.”

“It can't,” Irene replied.

“But that's a terrific idea!” Tom said thoughtfully. “If I ever build another nuclear-powered airplane I'll make sure it has jet lifters. I don't know why I didn't think of that in the first place.”

Irene spoke up. “Well, skipper, the fact is we don't have jet lifters so we're faced with three choices. One, we can take a wild, dangerous chance and land on a runway we can't see. Two, we can use magical powers to find another runway in some other part of the country and then try to hike back into these impassible mountains on foot. Or three, we can act like sane adults and turn around and go back home.”

“That about sums it up!” Bud agreed.

“I say we land,” Tom said at last. “We've wasted too much time as it is. If we want to have any hope of recovering that information – to say nothing of my plane – we need to act now.”

Irene looked at Tom and frowned. “You do realize that they're going to see us when we land, don't you? Tomasite doesn't make the plane invisible or stop people from hearing it. We're going to be noticed, and the people who notice us are not going to be happy about our arrival. The welcoming committee is not going

to be bearing gifts, skipper."

"Then we'll have to make the best of it!" Tom said cheerfully. "We at least have the darkness on our side. We can't see them, but they can't see us either."

"You're the boss," Irene said at last. "Take us down, Bud."

Bud nodded and cautiously flew the plane down into the mountains of northern Brungaria. Since it was pitch black he was forced to fly by his instruments and trust that what worked for the stolen plane would work for them as well. As the plane came uncomfortably close to the ground he saw that the runway was indeed dotted with lights. He breathed a sigh of relief and landed the plane. As their jet reached the end of the runway and began to come to a stop he saw a series of buildings that had been built into the side of the mountain. One of them had a set of massive steel doors that had been slid open. Inside was a large, well-lit room that appeared to contain several aircraft.

"It's the *Freelancer!*" Bud gasped, pointing. "They're taking it into that building!"

Irene pointed to a flashing yellow light on the console. "We're being hailed. It looks like someone noticed that we've arrived and wants to know what we're doing here."

"Ignore it," Tom said curtly. "Bud, drive in after them. The pilot must still be in that plane! All we need to do is get into the hangar, board that plane, overpower the pilot, and fly it back."

Irene opened her mouth to say something sarcastic, but decided against it. Instead she reached into the back seat, opened a crate, and pulled out a grenade launcher. As she loaded the weapon Bud taxied their plane into the hangar behind the stolen jet. From his vantage point he could see that the hangar was nearly deserted. To their right were two men that appeared to be mechanics, and at the far end of the hangar were three armed guards that were keeping watch by a door. The mechanics were sitting at a table playing cards. They paid no attention to the two jets that had just landed. The guards, however, were gesturing excitedly toward the *Polaris*. As the two jets came to a halt they began running toward them!

“Let's go!” Tom said. “Bud, you stay here. Irene, you're with me.”

“Aren't you going to take a weapon?” Irene asked.

“I'm going to fly the plane,” Tom explained. “Just cover me.”

Irene shrugged and grabbed a revolver as a backup weapon as the two jumped out of the plane. The moment they left the cockpit the guards stopped in surprise. One of them drew a weapon and started firing at the two teenagers. Tom dove behind the *Freelancer* for cover while Irene fired the grenade launcher at the far end of the hangar. A moment later there was a deafening explosion! A cloud of smoke filled the hangar and debris rained down from the ceiling, temporarily shielding them from the oncoming guards.

As Tom raced toward the cockpit of his stolen jet he noticed that the explosion had scattered the guards, who were now running for their lives. Then he saw something that made his heart stop. The explosion had blown a huge hole in the far wall, and a transparent liquid was pouring out of several shattered pipes. Even at a distance Tom recognized the smell. Irene had ruptured a major jet fuel pipeline! The highly flammable liquid was gushing all over the hangar floor and would reach them in seconds.

Behind him Tom heard screams as the mechanics ran for their lives. Moments later the cockpit of the *Freelancer* opened and the spy leaped out, with his attention on the flood of gasoline that was rapidly approaching his plane. Tom caught the man off-guard and knocked him off his feet.

As Tom wrestled with the man he heard gunfire. The guards were still shooting at them! Irene pulled out her pistol and fired back, and the guards dove behind some crates for protection. As the spy desperately tried to get away Tom reached into his jacket and grabbed the incriminating evidence that he had traveled halfway around the world to get.

Tom never found out exactly what happened next. One moment he was struggling with the spy and the next moment he was blown into the air by a thunderous explosion! In a split

second something had ignited the gasoline and turned the entire hangar into a raging inferno. The room was instantly filled with flames! A crate of ammunition in the far corner of the room exploded, and the fire spread out of control.

A dazed Tom felt someone grab him and pull him away from the stolen jet. Then he lost consciousness.

* * * * *

"Is he hurt?" Irene asked.

"He'll live," Bud said confidently.

The two of them were outside the Brungarian base. When the explosion knocked Tom unconscious Irene had tried to drag him out of the fire. Bud left the doomed *Polaris* and came to her aid, and together the two of them were able to carry Tom across the airfield and hide in a grove of trees. From their vantage point they could see that the entire base was going up in flames. The fire was so hot that they could feel its heat radiating from several hundred feet away.

"There goes our ride home," Irene said, sighing. The fire had completely destroyed their jet and every other jet in the hangar.

"But we've got the evidence," Bud pointed out. He gingerly pried the now-singed papers out of Tom's hand.

"Hang on to those," Irene said. Bud nodded and stuffed them inside his pocket.

"So what do we do now?" Bud asked.

Irene thought for a moment. "Are there any more nuclear jets back in California?"

"Nope," Bud replied.

"Then that's out," Irene said. "I guess we're just going to have to find another way to get home. There's got to be some other way to get out of these mountains."

"Now is a perfect time to look," Bud pointed out. "It's going to take them hours to get that fire under control – if they can do it at all. This is a perfect opportunity to sneak around and look for a way to escape."

“Someone has to stay with Tom,” Irene pointed out. “He's in no shape to be doing anything and there's no telling how long he'll be unconscious. I really wish we could get him to a doctor.”

“I'll flip you for it,” Bud suggested. “The winner goes and looks for help, and the loser stays with Tom.”

“Fair enough,” Irene replied.

Bud took a dime out of his pocket. “Heads or tails?”

“Tails,” Irene said without hesitation. Bud flipped it, and they watched it land on the ground.

“Tails it is,” Bud said sadly. “Are you sure you won't let me go?”

“Positive,” Irene said. She handed Bud the grenade launcher and gripped her pistol tightly. “Given what just happened I wouldn't recommend using that, but you've got it if you need it.”

“Right,” Bud said. He hesitated just a moment. “And by the way, please take care of yourself. I don't want to have to explain to Tom what happened to you, if you know what I mean. That's just not a good way to start a lifelong relationship.”

“Of course. And don't worry – I'll be back. But I'm not sure how long I'll be gone.” As a group of Brungarian soldiers desperately tried to fight the raging fire she quietly crept across the airfield and headed toward the buildings. Within a few minutes she was completely out of sight. As she disappeared Bud wondered if he would ever see her alive again.

Under the cover of darkness Irene crept toward the imposing concrete buildings. She had to admire the way they were camouflaged. The complex had been impossible to spot from the air and under normal circumstances it would have been difficult to see even from the ground. Only the light of the fire enabled her to see her way.

She soon reached the side of the mountain. After looking around to make sure that no one was nearby she opened a metal access door and stepped through it, quietly closing it behind her. Inside was a long, dimly-lit concrete tunnel that seemed to stretch endlessly into the heart of the mountain.

Keep it together! she told herself. *Act like you belong here. Just go about your business. You can do this! You got the evidence you came for, Irene. Now you just need to find a way to get everyone back home.*

Irene cautiously walked down the long, empty corridor, straining to listen for the sound of oncoming footsteps. There were a few doors along the grimy passageway but none of them looked interesting. She spotted some signs along the wall but they were all in Brungarian. *And to think I took Spanish in school*, she thought sourly. *Figures.*

As she continued walking into the mountain she noticed a door with an air vent on the bottom. On a hunch she opened it and found her suspicions to be correct. It was a maintenance closet! Inside were rusted shelves lined with cleaning supplies. She quickly stepped inside, turned on the light, and closed the door behind her.

No uniforms, blast it, she thought to herself. She sighed. *I'll have to make the best of it, I guess*. She took a pair of rubber gloves from a cabinet and put them on. Next, she donned a hat and put on a dirty apron. The closet was full of cleaning supplies so she grabbed a mop bucket, filled it with water, and grabbed a mop as well.

As she was preparing to leave the closet she heard footsteps approaching! The girl froze. Through the vent in the bottom of the door she saw a shadow come into view. To her horror a person stopped right in front of the door! Irene stood perfectly still as the the doorknob began to turn. A moment later the door opened and an elderly man blinked at her in surprise.

Gathering all of her nerve, Irene glared at him and snarled. The man took a step back, startled. He mumbled something in Brungarian, closed the door, and walked away.

Oh boy, she thought to herself. Her knees felt weak and she was sweating profusely. *Let's not ever do that again.*

After she regained her composure Irene reopened the door, wheeled the mop bucket outside, and closed the door to the supply closet. She then began pushing it down the long, deserted

corridor. After what seemed like an eternity Irene reached the end of the passage, and as she expected there was a metal elevator in the far wall. She pushed a broken button and waited, gently fingering the pistol that she carried in her pocket.

A few minutes later the elevator dinged and the doors rattled opened. To her enormous relief there was no one on board. She wheeled the mop bucket onto the elevator and glanced at the controls. The base had six different levels. Two were above her, and three were below.

Let's go up, she thought to herself. *Hopefully that's where they keep the important things.* She pressed the top button and the doors clanged shut. A moment later they reopened, revealing yet another long, deserted concrete corridor.

As she stepped out of the elevator and looked around she began to get nervous. *Just where is everyone? I mean, I know there's a fire, but this is ridiculous! Are they all in bed, or are they off doing something that I should know about?*

The hallway branched off in three directions. After looking around Irene spotted what looked like an important office at the end of the hall to the right. She confidently headed in that direction. When she reached the door she smiled in satisfaction. *I may not be able to read Brungarian, but I know the name Xanthus when I see it!*

She tried to open the door but found it to be locked. After verifying she was not being watched Irene broke the glass door with her mop, reached in, and unlocked the it. As she opened the door she frowned. *Drat – his office is carpeted! No one will believe I'm here to mop a carpeted floor. Time to adopt a different disguise.*

Irene walked back down the hall, found an unlocked office, and hid her disguise there. She then returned to Xanthus' office, shut the shattered door behind her, and turned on the light.

After enduring the drabness of the rest of the base she was surprised at the quiet elegance of this room. The floor was covered with a thick purple carpet and the walls were lined with a strange wood she had never seen before. An elegant, hand-carved

desk was in the middle of the room. On the wall hung many pictures of what appeared to be a South American countryside. A large bookcase took up much of another wall and was filled with books written in foreign languages. She was not surprised to see that one entire shelf was devoted to *Swift Enterprises Monthly.*

Irene walked over to the desk and sat down in the plush leather chair that was behind it. The first thing that caught her eye was a calendar that was lying on the desk's surface. She glanced over it, not expecting to be able to read it, but found to her surprise that it was written in Spanish.

That's weird, she thought. *Why would a Brungarian not write in his native language?* She leaned over it to get a closer look. *Hmmm. It looks like tomorrow's date is circled – well, I guess technically it's today, seeing how it's about 1am local time. I wonder what 'New York' means?*

Irene suddenly gasped. *New York! That's where the Swift nuclear reactor is being built. It goes online tomorrow! I've got to find out more. What is Xanthus planning?*

She tried to open the drawers of the desk but found that they were locked. To her surprise, though, one of them had been left unlocked. That drawer was filled with snack food, but at the bottom was a sheaf of coffee-stained papers.

Irene took them out and spread them over the desk. Like the inscriptions on the calendar, the notes were all written in Spanish. The dialect was a little different from what she had learned in high school but it was close enough to enable her to understand most of it. After a few minutes she was able to piece together what she was looking at. As she already knew, the papers confirmed that Xanthus had indeed stolen the blueprints for the Tomasite formula, the hyperplane, and the Swift nuclear power plant. The pages were engineering critiques of the stolen blueprints, filled with design changes that Xanthus was considering making.

Irene stared at the notes thoughtfully. *Xanthus isn't just critiquing Tom's design. He's offering suggestions on how to build the stolen inventions! You don't suppose he actually* built

them, do you? The girl shook her head in amazement. *Of course he did! Why else would he steal the blueprints? Did you think he was going to frame them and hang them on his wall?*

As she read through the pages she suddenly remembered her doubts about the Tomasite formula. Acting on a hunch, Irene flipped through the documents and saw extensive notes on the production of Tomasite. She read them over carefully. When she realized what Xanthus had done she began to panic. *Oh no*. *He* did *modify the formula! I've got to warn Tom. He's got to stop the plant from going online! If he doesn't the whole city will be destroyed. I've got to contact him immediately!*

Her concentration was broken when a voice suddenly called out to her. She looked up and saw that a soldier was standing in the doorway, yelling something in Brungarian. The soldier was aiming a gun right at her!

CHAPTER XIX

CHAIN REACTION

IRENE GLARED at the guard and shouted at him in Spanish. “Where have you been, you incompetent fool? Can't you see that someone has broken into this office? Where is security? Why has no one answered my calls?”

The guard's eyes widened in surprise. He, too, switched to speaking in Spanish. “There has been a fire in the hangar, madam. It has taken all of our attention. We have still not been able to control it.”

“And so you decided to leave this entire floor unguarded?” Irene shouted. “Have you no sense?”

“We are understaffed,” the guard protested. “All of our forces have accompanied our leader to America. There is only so much we can do.”

“It's not enough,” Irene snarled. “I will see that this incident gets reported.” She gathered up the papers on the desk and put them in a folder, which she took with her as she walked toward the door. “Now, escort me to the hyperplane. I must get this information to our leader immediately.”

The guard looked at her and frowned. “But the hangar is on fire, madam. It will be hours before it can be put out. While it

rages it is not possible to retrieve the other aircraft from the hangar's lower levels. Besides, there is no one here who can fly the plane."

Irene opened her mouth to protest, but the guard cut her off. "Let me see your pass. If you are one of its few pilots then you must have the clearance, no?"

The girl sighed. *I knew it was too much to hope for*, she thought to herself. When she could not produce a pass the guard pronounced her under arrest and escorted her to the lowest level of the base. After searching her and taking her revolver from her the guard locked her in a vault, promising to keep her there until Xanthus returned and decided her fate. "He will be most interested in dealing with one who attempted to steal his aircraft!" the guard said as he closed the door. "Most interested indeed."

After the metal door clanged shut and was bolted securely Irene took a look around. The room where she was being held prisoner was surprisingly large. Its floors, walls, and ceiling were all made of some kind of steel, and the walls were lined with enormous shelves made of thick steel. There was no furniture of any kind and the only source of light was a row of light bulbs embedded high above her in the ceiling. *This obviously wasn't built to be a prison. I wonder what they stored in here?* Thinking about it gave her an uneasy feeling.

Irene shook her head sadly. *Great. Just great. So what do I do now?* As one hour after another passed by with no sign of help the girl began to realize that she was in serious trouble.

* * * * *

Later that morning Tom Swift Jr. slowly returned to consciousness. "Welcome back, skipper!" Bud said eagerly.

Tom opened his eyes and groaned. "What happened? Oh, my head. The last thing I remember is tackling that spy. Did he get away?"

"Yeah, but not before you got the evidence from him!" Bud removed the incriminating papers from his pocket and gave them

back to Tom. “Right after you took it something ignited the jet fuel in the hangar and turned the place into a raging inferno. There must have been some other explosives in there because all kinds of things started going off! You were knocked out by the blast, and Irene and I had to drag you out of there. You've been unconscious ever since.”

Tom winced in pain. The fire had singed in him several places and he was covered in bruises. “You know, I am really getting tired of being knocked unconscious. I have a headache like you wouldn't believe.”

“No, I'd believe it. You've been out for hours! I was beginning to get a bit worried about you. I would have taken you to a hospital but I didn't see one that was handy.”

Tom sat up, rubbed his eyes, and looked around. He frowned. “Hey, where's Irene? I don't see her anywhere.”

“She went inside the base to look for a way to get us home,” Bud explained.

“And you let her go alone?”

Bud shrugged. “Somebody had to stay with you. We couldn't exactly just leave you here by yourself.”

“I guess,” Tom said reluctantly. “How long ago did she leave?”

Bud looked at his watch. “Man. I guess it's been about twelve hours now. She's been gone quite a while.”

Tom leaped to his feet. “She's been gone *how long*? Why haven't you been looking for her?”

“Well – ”

“I know,” Tom sighed. “You couldn't leave me. But we've got to find her, Bud! Something must have happened to her.”

“Agreed. So what's the plan?”

Tom thought for a moment. He looked through the trees and across the runway at the Brungarian base. “It looks like they put the fire out.”

“Yeah, they did that a few hours ago. They've also removed the burned-out carcasses of the jets. The hangar is almost operational again. I've got to give them credit – they're a pretty

efficient bunch."

"Do you think you could grab one of the guards?" Tom asked.

Bud nodded. "Probably. I haven't seen very many of them. All I'd need to do is find one that's by himself. I think there's a lone guard a few hundred feet from here guarding an access door. What's the plan?"

"It's quite simple. You're going to dress up as a Brungarian guard and escort me inside the base, as if I was your prisoner. With his uniform, access cards, and weapon no one should look at you twice. Then all we have to do is find where Irene is being held, set her free, and go home."

"I see one tiny flaw in the plan," Bud replied. "I don't speak Brungarian. English is pretty much all I know – unless you count Pig Latin."

Tom grinned. "Yeah, that's what I figured. But I'm hoping we'll get lucky and the base personnel will let you go about your business. I am open to suggestions, though. Do you have another idea?"

Bud shook his head. "Nope! Sounds like a plan to me. Wait right here."

The young test pilot left Tom and walked into the trees. About twenty minutes later he returned, dragging the unconscious body of a Brungarian guard behind him. When he reached Tom he let the body fall to the ground and breathed a sigh of relief. "Man, he was heavy!"

Tom smiled. "You did good! He's about exactly your size. You should be able to wear his uniform without any problem."

Tom proved to be right, and a few minutes later Tom and Bud were inside the base. Before entering the complex they had tied the security guard to a tree so that he could not raise an alarm if he woke up. The two teenagers walked through the long concrete corridors of the base, looking for an elevator. *I sure wish I could read all these signs*, Bud thought to himself. They passed a few people in the hallway but no one stopped to talk with them. Each person was too wrapped up in their own business to pay any attention to what an armed guard happened to be doing with an

unfortunate prisoner.

When they got to the end of the hallway they found a large metal elevator. As Bud pushed the button to call the elevator he suddenly heard a voice behind him. He turned around to see a large, burly guard talking to him excitedly. The guard walked up, slapped Bud on the shoulder, and grabbed Tom.

What do I do now? Bud wondered. Panic immediately gripped him and he fought hard not to show it. A moment later the elevator doors opened and the guard pushed Tom inside. Not knowing what else to do, Bud followed. The Brungarian pushed a button on the panel and the elevator descended to the lowest level of the base. All Bud could do is stand beside Tom and wait.

When the elevator finally reached the basement the guard once again grabbed Tom and forcefully escorted him down a long series of dimly-lit corridors. Bud could not read any of the signs but he did recognize the radiation symbol on a few doors. *This must be where they do nuclear research*, he thought to himself. *Although they haven't been doing much of it lately. This entire floor looks deserted! There's not even any equipment down here.*

The guard stopped in front of a massive iron door that prominently displayed several radiation warnings. He took out a key and unlocked the door, and then swung the massive vault door open. As the guard thrust the prisoner inside Bud saw that Irene was in the room!

That's good enough for me! Bud thought to himself. He grabbed a nearby chair and with all his might smashed it over the guard's head. The chair shattered and the guard slumped to the floor.

As Tom escorted Irene out of the room she turned to Bud. “You have *no idea* how glad I am to see you!”

Bud dragged the guard into the vault and then shut and locked the door. “It was touch and go there for a minute,” he said weakly. “When that guard came up behind me and grabbed Tom I thought for sure it was curtains. But it worked out well.”

“Are you ok?” Tom asked Irene.

“I'm fine,” Irene replied. “But your dad isn't. He's in terrible

danger!" Irene quickly told Tom what she had discovered in Xanthus' office.

Tom whistled and glanced at his watch. "It's already late in the afternoon back home. Wasn't the plant supposed to open at noon?"

Irene nodded. "Unless something has happened the reactor is already online. We've got to reach your Dad! Maybe there's something he can do. He's got to be told that the plant is going to enter an uncontrollable chain reaction if he doesn't shut it down."

"But how are we going to do that?" Bud asked. "I mean, Brungaria is kind of far from New York. I've never tried it before but I'm pretty sure you can't just place a phone call and hope for the best."

Irene looked at Tom. "Well, genius boy? What's the answer?"

Tom thought for a moment. "I think we're going to have to do this the hard way. We'll just have to find some radio equipment, send out a message, and hope that the United States government picks it up and relays it to Dad. I'm sure they're monitoring all messages that come out of Brungaria. It's not much, but it's our only hope."

"And, of course, we still need to find a way out," Irene said.

Tom nodded. "Definitely. But one thing at a time. First, let's call Dad."

* * * * *

Thousands of miles away, Mr. Swift glanced at his watch. It was fifteen minutes past four. He then looked back at Xanthus, who was seated comfortably in one of his office chairs. "So what's the plan? Are you just going to sit here and wait?"

His enemy nodded. "It is not that I am trying to prevent you from escaping, my friend. You cannot escape from your fate. By now the reaction is too far gone. There is nothing you can do to prevent it from going critical, and it matters not where you are when this happens. The world will know that the great Tom Swift is responsible. Your infamy will never be forgotten!"

“How long do we have?” Tom asked.

“A couple hours,” Xanthus replied. “I am not sure of the exact time. It may be sooner. But it will come.”

Tom's door suddenly flew open and armed guards rushed in. Before Xanthus even knew what was happening he was overpowered.

Tom jumped up in surprise. “It's such a relief to see you guys! But what brought you here? Did you know something was wrong?”

Frank Herschell, the chief of plant security, spoke up. “The Navy just called. They told us that a Brungarian was here trying to destroy your plant. We immediately began a thorough search.”

“The *Navy* called? How did they know?”

“Apparently your son tipped them off. They want to speak to you immediately.”

Tom nodded. As he walked out the door Xanthus called after him. “You cannot escape! There is nothing you can do to save them.”

“We'll take care of him,” Frank said. He sent a guard to escort Tom to the communications center, where a high-ranking officer from the Navy was on the phone. “This is Admiral Thompson,” a gravelly voice said on the other end of the line. “I trust the Brungarian has been apprehended.”

“He has,” Tom replied. “My security guards have him in custody. He will not escape.”

“Splendid! I will send some men over shortly to take him off your hands. The Armed Forces are very interested in what he has been doing. This is an international incident that will have worldwide repercussions.”

Tom spoke up. “I understand that my son told you he was here?”

“That is correct. About a half-hour ago a Navy warship off the coast of Brungarian picked up a message. Your son had infiltrated a Brungarian nuclear research facility and learned of Xanthus' plot.”

“My son is in *Brungaria*?” Tom shouted. “What in the world

is he doing there?"

"Apparently he went there to learn more of Xanthus' activities. He told us that your reactor has been sabotaged and is in danger of undergoing an uncontrollable chain reaction that will destroy New York City. Can you confirm the safety of your reactor?"

"Give me a moment to check, sir. I will be right back."

"We will be standing by," Admiral Thompson replied. "Please hurry. This is an urgent matter. If your son's claims are correct then we do not have much time to act."

Fifteen minutes later Tom returned to the communications center. "I apologize for keeping you waiting, Admiral. I had to make sure before I made my report."

"I trust you bring good news," the Admiral replied.

"I'm afraid not," Tom said sadly. "Xanthus did his work all too well. We've disconnected the computer that was driving the reaction but it's already too late. The reaction is self-sustaining and its intensity is slowly building. Since he sabotaged my electronic brain there is no way of telling it to shut down."

"Can you repair the damaged machine?" Admiral Thompson asked.

"I'm afraid not, Admiral. I have no replacement parts, nor a way to make them in time. If I had several days I could find an alternate method of control, but we have less than two hours. There just isn't time."

There was silence, and then Admiral Thompson spoke up. "Then we will do what we can for the safety of the nation. I will relay the news to your son. I strongly urge you to keep trying to shut down the reactor. The consequences of its destruction are most dire. That must not be allowed to happen, Mr. Swift."

"I understand," Tom said. He hung up and then stared into space, straining to think of a way to shut down the runaway reactor. *There's got to be something I can do*.

His concentration was broken by another phone call, this time from Ned Newton. "Hey, Tom, I just touched down in California and I heard the news. What's going on?"

Tom was surprised. “You mean it's already in the news?”

“Oh no – I got a call straight from the government. But it'll be in the papers soon. Did you know that in a few minutes they're going to issue an order to evacuate New York City?”

Tom whistled. “That's not going to go well, Ned. People are going to panic on a massive scale. There is no way they can even *begin* to evacuate a metropolis of that size in the time we have left.”

“It gets worse,” Ned replied. “Apparently the State Department sees this as an act of war on the part of the Brungarians. My sources tell me that our armed forces are on high alert, and the government is mobilizing its nuclear arsenal. If the reactor goes off they're going to strike Brungaria with everything they have.”

“They can't do that!” Tom gasped. “Brungaria never intended to destroy New York. They just wanted to steal our nuclear secrets. They had no idea that Xanthus was a Haargolander and wanted revenge over the talcap incident. It's all a mistake.”

“That's not how the President sees it,” Ned said. “Xanthus was working for the Brungarians. They financed him and they provided financial and tactical support. None of this would have happened without them.”

“But no one can win a nuclear war! If we strike them they'll strike us back. The resulting exchange could end civilization as we know it.”

“I know,” Ned replied. “That's why you've got to stop your reactor from going off. You've *got* to, Tom. If you can shut it down then the whole thing will blow over and we'll live to see another day. If you don't then the world as we know it will end tonight.”

“But I can't shut it down!” Tom shouted. “It can't be done, Ned. There's nothing I can do.”

“Then I guess this is the world's last night,” Ned said quietly.

CHAPTER XX

DEADLINE

BUD BARCLAY, Irene Goddard, and Tom Swift Jr. were hiding in the deserted basement of the Brungarian base. Several hours earlier they had managed to steal an unused radio transmitter from another area of the complex. Once Tom got it to work they used it to contact a Navy destroyer that was stationed off the coast of Brungaria. The trio had been waiting anxiously for news from New York City on the fate of the Swift power plant. When that news finally came they were crushed.

"I guess that's the end of it," Bud said sadly. "I was really hoping we would be able to reach him in time. It looks like we were just too late."

"Not necessarily," Tom said slowly. "Irene, tell me a little bit more about this laboratory."

"Sure," Irene replied. "Xanthus' notes had quite a lot of information about this lab. It seems that when he stole your father's reactor designs he built a duplicate here so he could study it. Once his research was completed he shut it down and the Brungarians started building a commercial-sized plant elsewhere. His test reactor still exists, but it's been mothballed."

"Then we might still have a chance!" Tom exclaimed.

“Xanthus must have built a duplicate computer. All we need to do is fly it to New York. After all he did build copies of my nuclear jets, didn't he?”

“He did,” Irene affirmed. “But we don't have much time left. Your Dad said we have less than two hours until the reactor goes critical. The *Falcon*-class jet could never make it in time. The *Eagle*-class jet could make the trip in around 45 minutes, but that doesn't leave us very long at all to find the computer, load it on board the jet, and leave – and keep in mind we're surrounded by hostile Brungarians. And don't forget that the power plant in New York doesn't have a runway! You'll have to figure out a way to safely drop it from the air, since there won't be time to land somewhere else and then transport it.”

“Then we'd better get started!” Tom said.

The room housing the reactor was not hard to find. Like its sister unit at the Institute, the reactor was an enormous machine that had been installed in a very spacious room. This room, however, was very clean. There were no pipes or wires anywhere, nor was there any electrical cabling to be seen. The reactor itself had been disconnected and the control equipment sat quietly along the sides of the room, covered in white sheets.

Tom removed the sheets from the units and examined them critically. A minute later he spoke up. “Xanthus sabotaged the electronic brain that controlled the reaction itself, correct?”

“Yes,” Irene replied. “That's the one.”

“Then I think I've found it!” Tom pointed to a cabinet about ten feet long and five feet high. The cabinet was studded with lights, controls, and signs written in Brungarian. “I don't recognize the writing but I do recognize the layout. This is what we're looking for.”

Bud's eyes grew wide. “That looks big and heavy, skipper. How are you planning on moving that to the plane? I think someone would notice if we tried to hide it under our shirts and walk out nonchalantly.”

“But what if we build a wooden crate around it?” Tom asked. “And I bet we've got enough sheets here to make a good

makeshift parachute so we can drop it from the sky while the plane is still in the air. All I need are some tools."

"We should probably add some radiation symbols to the side of the box," Irene suggested. "That would keep anyone from looking too closely."

"What can I do?" Bud asked.

"Help Irene look around for their storage closet," Tom ordered. "I'm hoping that when they closed this facility down they just packed everything up and put it in a room somewhere. Since all of this machinery is still here that gives me hope that other things may be here as well. While you're doing that I'll start dismantling this unit and getting it ready for shipping. I don't want anything to break while it's in transit!"

"Then let's get started!" Irene replied. After a tense search Bud and Irene found a staircase that led to a sub-basement. Inside the room were rows and rows of wooden crates. A quick examination revealed that the crates were packed with equipment.

"Tom can use the wood to build his own shipping container," Bud remarked. "We've even got packing materials to go with it! Now we just need to find some tools for him to use."

Once the tools were located they rushed the supplies upstairs. It took several trips to carry up enough wood, but Tom at last had everything he needed. They feverishly hurried to construct the crate. The hardest part proved to be getting the computer into the box. Tom had to remove most of the computer's internal parts before the trio was able to lift it. As he was reassembling the unit in the crate he turned to look at Irene. "Are you sure we need to bring the entire unit? Can't we just find the one piece that Xanthus sabotaged and bring that?"

Irene shook her head. "He didn't do it that way, Tom. Xanthus had to redesign the entire unit to make it do what he wanted. It's not a matter of just fixing one piece."

"And Dad never noticed?" Tom said incredulously.

"Your Dad subcontracted the construction work," Irene pointed out. "Before he built his commercial plant he tried to establish an industrial process for making the components so he

could quickly build more as orders came in. When he got the unit in I'm sure he tested it but I doubt he took it entirely apart. Your Dad had no reason to suspect that it might have been sabotaged."

"I guess," Tom said, sighing. "So how *do* we carry this to the plane?"

"Easy!" Irene replied. "We do it the same way they got it down here in the first place. The elevator is big enough for a forklift, and I'm sure there's got to be one around here somewhere. We just need to find it."

"I haven't seen one down here anywhere," Tom said.

"I've seen one!" Bud exclaimed. "It was in the hangar. They were using a forklift to move things around while they were cleaning up the debris left by the fire. I bet it's still up there!"

Tom snapped his fingers. "Then let's split up. Bud, you and Irene go get the forklift. I'll make my way to the hyperplane and get it warmed up. You can then bring the forklift back here, load up the crate, and bring it to the plane. Then we can take off and head for home."

"I have a better idea," Irene said. "Bud and I both know how to fly that plane, but you don't. I'll go get the hyperplane and you and Bud can work on moving the computer to the jet. I'll have the plane ready by the time you get there."

Tom looked surprised. "When did you learn how to fly the jet?"

"Back in California, when Bud and I were waiting on you to bring our weapons supply," Irene replied. "I had to do *something* while I was waiting."

"Ok!" Tom said. "Then let's go."

Tom, Bud, and Irene made their way to the elevator. Irene got off on the third floor. Tom and Bud needed to go up one more floor to find the forklift, so Irene bid them farewell and headed off. By now she knew the general layout of the base and had a vague idea where the hangar's sub-floor was located.

Before she left the deserted laboratory Irene had adopted a disguise. Inside one of the crates she found a stained lab coat, which she put on and daubed with grease and dirt. As she walked

out of the elevator she clutched a wrench in one hand and a box of tools in another. Both groups of people had a valid ID card – Tom's came from the guard Bud had captured outside the base, and Irene's came from the guard that Bud had imprisoned inside the cell. Once again Irene found herself hoping that no one would look at her too closely.

When Irene got to the hangar's lower level she saw that it was bustling with activity. She stood still for a moment and watched as workers carried supplies around. A few guards loitered at one side of the hangar, chatting.

Of course! Irene thought to herself. *With the upper level of the hangar destroyed they're relocating what they can to the lower level. This is going to be their primary base of operations until the upper level is fully repaired, and that could take weeks. I should have thought of that!*

Gathering all of her nerve, Irene forced herself to act calm as she walked across the hangar toward Xanthus' copy of the *Eagle*. She hoped desperately that in the maze of activity around her no one would pay her any particular attention. As she drew near the jet she started thinking about how to get it out of the hangar. At the far end of the room was an elevator designed to lift jets to the upper level. To the right was a room with a bank of controls. Irene guessed that the plane lift was operated from there.

This is going to be a bit tricky, she thought. *I'm going to have to turn on the jet and taxi it over to the elevator, and then someone will have to operate the controls and raise it to the upper floor. At least the jet is coated with bulletproof Tomasite! It's a sure thing they're going to start shooting at us. Or maybe not – the plane does have a nuclear reactor on board, after all. But how am I going to get everyone out of the hangar?*

And then she had an idea.

* * * * *

Tom and Bud stood in one corner of the ruined hangar. It was obvious to both of them that the fire the night before had caused

significant damage. Steam was still rising from the heated metal floor, and broken girders dangled from the ceiling. The charred remains of several jets could be seen in a few places. The entire area was in a state of chaos. Maintenance crews were busy cleaning up the debris, and Tom could see they had their work cut out for them.

"Wow," Bud whispered. "This place is a mess! At least jet fuel isn't still spraying everywhere."

"There's a forklift!" Tom hissed. He pointed over to one side, where a worker was using it in an attempt to lift a charred engine off the ground.

"Yeah, but it's in use," Bud pointed out.

"I don't see any others," Tom replied.

"Then we'll take that one," Bud said confidently. To Tom's amazement Bud walked right over to the forklift. He shouted something unintelligible at the worker and waved his gun at him, making it clear that he wanted the worker to get out of the forklift. The Brungarian looked surprised but he obeyed. Bud got inside and drove it over to Tom, who got on board. The two then maneuvered it inside the base and toward the rear of the compound.

"Nice going back there!" Tom remarked.

Bud grinned. "It's like Al Capone used to say. You can get more with a kind word and a gun than you can with a kind word alone!"

"I guess so!" Tom laughed. "I'm sure that guard uniform you've got on had nothing to do with it!"

They passed by a number of people on their way to the elevator, but no one stopped them. One glance from Bud convinced them to mind their own business! After they reached the elevator and took it to the basement it did not take them long to load up the crate and bring it to the third floor.

"How much time do we have?" Tom asked.

Bud glanced at his watch. "About an hour."

Tom grimaced. "That's not good. This is taking way too long."

To their surprise, Irene was waiting for them just outside the

lower level of the hangar. Bud stopped the forklift and Irene climbed on board.

“Is the jet ready?” Tom asked.

“Kind of,” Irene replied. “There's been a slight change of plans. Let me handle this.”

Irene took over the controls of the forklift and drove it into the hangar. When she got inside she drove over to the nearest worker and shouted at him in Spanish for a few minutes. The worker got a panicked look on his face and began screaming at everyone else in the room. The response was immediate! Within moments people streamed out of the room. The guards started to walk toward her, but Irene waved her ID at them and pointed to the exit. The room was soon empty.

“Wow!” Tom exclaimed, as Irene drove the forklift over to the jet. The plane's cargo door was already open. “I'm impressed! What did you tell them?”

Irene smiled. “I just said that the hyperplane had been damaged in the fire and needed immediate repairs. I also told them that the crate was filled with highly radioactive materials and they needed to leave immediately if they didn't want to die.”

“That'll work!” Bud said approvingly.

“But not for long,” Irene warned. She drove the forklift into the jet and parked it inside the plane's cargo area. “When I turn on this jet they're going to come running back to see what's going on. And we can't get out of here until someone works the elevator controls and lifts the plane to the upper level. Can you do that, Tom?”

“Sure!” Tom replied. “Just taxi the plane over to the lift and I'll raise you up. But how will I get back on board?”

“There's a flight of stairs behind the control room,” Irene explained.

“Thanks!” Tom left, leaving Bud and Irene alone.

As Irene closed the cargo door she turned to Bud. “I hate to do this but I need you to do me a favor. Do you think you can go with Tom and stop him from boarding this plane?”

Bud's eyes widened in surprise. “Are you serious?”

Irene nodded. “There's a *Falcon*-class jet right over there, and like this plane it's coated with Tomasite. I need you and Tom to take that jet home. The elevator can only lift one jet at a time, so you're going to have to act fast. Do you think you can make it without getting shot?”

“I guess,” Bud said slowly. “But what do I tell Tom?”

“Tell him anything,” Irene replied. “Tell him that we can't leave nuclear jets in the hands of Brungarians. Tell him that they owe him a jet. Make something up. But make sure he doesn't try to board this hyperplane! I'm counting on you, Bud.”

“Consider it done,” Bud said confidently.

As he turned to leave Irene called out after him. “You'll make sure nothing happens to him, won't you?”

“Of course!” Bud called back. “Don't even worry about it.”

After Bud had left, Irene climbed into the cockpit and fired up the Sampson nuclear engine. *You can do this, Irene*, she thought to herself. *Just don't think about it. You've got to keep it together! Millions of lives are riding on this.*

* * * * *

“Bud!” Tom exclaimed in surprise, as his friend walked into the control room. “Why aren't you on the hyperplane?”

“There's been a change of plans,” Bud said. He pointed to another jet in the hangar. “It turns out you and I need to take that jet home.”

“Not a bad idea!” Tom said approvingly. “That's the only other nuclear jet I see down here. I like the idea of not leaving our nuclear technology in their hands. Good thinking!”

A moment later the nuclear hyperplane roared to life! Irene taxied it over to the giant lift. As soon as the plane was in position Tom threw the switch. A large section of the floor slowly began rising, carrying the hyperplane into the air.

“I'll go grab the other jet,” Bud said. “Meet me upstairs, will you?”

“Sure thing!” Tom agreed. A moment later the hyperplane

reached the top level and was out of sight. Once Tom saw that its weight no longer registered on the lift he lowered it again so Bud could taxi his jet onto it.

Good luck, Irene! he thought to himself. He glanced at his watch and grimaced. *I sure hope you can make it in time. We're cutting it awfully close.*

As Bud taxied the second nuclear jet into position Tom heard the sound of gunfire. He glanced out the window and saw that guards were streaming out of the doors! Several of them were firing automatic weapons at Bud's plane, but so far no one had noticed Tom. He hit the switch to raise the lift and ran out the back door and up a flight of stairs. He could hear shouts from down below and the sound of pursuing footsteps, but he kept on running.

By the time he made it to the upper level Bud's jet was in position. Tom ran toward it as fast as he could. As he neared the jet he heard more gunfire. The guards were chasing him!

Tom frantically climbed into the cockpit as Bud taxied the jet onto the runway. As soon as they were outside the base Bud slammed on the throttle and the jet roared to life. The Brungarians continued to shoot at the jet, but the bullets bounced off harmlessly.

Once they were in the sky Tom breathed a sigh of relief. “I can't believe it! I just can't believe we made it. Nice going, Bud!”

“Thanks,” Bud replied. He quickly got the plane up to its cruising altitude and brought its speed up to Mach 3. “It looks like old Xanthus didn't steal all of your secrets. Evidently he didn't get the Mach 5 blueprints.”

“No, he wouldn't have,” Tom said thoughtfully. “That's probably why the Brungarians wanted someone to steal our jets from the California plant. After all, the raid on the Institute happened before I even perfected the *Falcon* design. I hadn't even discovered the radiation problem yet.”

Suddenly his eyes grew wide. Bud glanced at his friend. “Is something wrong?”

“You could say that,” Tom said slowly. He started to panic.

“I'll bet anything this jet is based on the early version of my Sampson engine. That version leaked radiation! I figured out how to fix it, but not until after my blueprints were stolen. Without extensive testing Xanthus would never have known the jet had a problem.”

Bud looked frightened. “You mean this plane is *leaking radiation*? Should I be worried?”

Tom shook his head as fear clutched his heart. He felt like his world was coming to an end. It was all he could do to force himself to talk. He knew that he was about to come unglued and there was nothing he could do about it. “We'll make it back to Shopton just fine. Doc Simpson won't be happy, but we won't be exposed long enough for it to matter. But Irene is in a very different situation. At the speed she's going the radiation levels are going to be fatal. I don't think she'll even survive the trip there!”

CHAPTER XXI

THE FINAL FLIGHT

IRENE GODDARD waited anxiously for the hydraulic lift to carry her nuclear hyperplane up to the ground floor of the hangar. She could feel a tense knot forming in her stomach. The girl knew that it would only be a few seconds before the Brungarians realized they had been tricked, and while her plane was bulletproof it was not invincible. Even more pressing was the urgent need back home for the precious cargo that her jet was carrying. Everything depended on her reaching New York before the Swift reactor went critical and wiped out the entire city. As the elevator slowly lifted the jet to the upper level she wondered if it was already too late.

Although it seemed like an eternity it only took her a moment to taxi outside the hangar, get onto the runway, and blast into the clear blue sky. Irene ignored all pretense of caution and forced the hyperplane up to Mach 15 as quickly as possible.

As the jet soared off toward the eastern horizon she checked her radar and wondered if Tom and Bud had gotten away safely. As time went on and she saw no planes appear she suddenly remembered that their jet was coated in radar-absorbing Tomasite. *Of course!* she chided herself. *I knew that. I guess there's nothing*

I can do but wait. I just wish I knew what was going on. Bud, wherever you are, take good care of Tom for me. He's going to need someone like you in his life.

Irene set a course for the Swift nuclear plant and then mentally went over what had just happened. When she found Xanthus' notes in his office Irene immediately realized that he had not realized the Sampson engine leaked radiation. After talking to Tom's dad the girl now knew that the madman had never cared about the hyperplane at all. While he had built a copy of it to appease his Brungarian masters, his focus had been exclusively on the Swift reactor. He had simply not spent enough time testing the jet to realize the serious flaw in its design. *He probably assumed that whatever Tom Swift designed would work perfectly*, Irene thought wryly to herself. *I wonder if it even occurred to him that a Swift could be wrong. He just accepted the unfinished blueprints without question. Or maybe he just didn't care.*

When Irene finally reached the hyperplane in the lower level of the hangar she knew she would only have a few minutes before Tom and Bud joined her, and she used that time to check the plane's Sampson engine. Her hunch proved to be correct. Xanthus had indeed built the jet according to Tom's original specifications. The fix required an extensive redesign of the entire engine, and it was immediately obvious that Xanthus had not done that. At that moment Irene decided to take matters into her own hands and fly the jet herself.

As the plane left Brungarian airspace and headed east toward the United States she performed a few rapid calculations in her head. The cockpit did not have a Geiger counter, but since she had helped design the engine she could easily estimate the radiation dose she was receiving. At Mach 15 it would take less than 45 minutes to reach the great American city, but by then the damage would be done. *By the time I get to New York I'll have been exposed to at least 100,000 Rad*, she thought to herself. *I'll have 24 hours left at most. But the effects of radiation poisoning are going to set in soon and I may not be conscious long enough to land the plane. That leaves me with a problem. How can I drop*

the cargo if I'm not conscious?

The teenage girl tried to put all of that out of her mind and focus on the mission at hand. She was already thundering over Asia, and within a few minutes she would be over the Pacific. *If I'm not going to be awake when I reach New York I'll have to find some automatic way to drop the cargo*, she thought to herself. *I can't trust that I'll be able to do it. There's just too much at stake.*

Irene glanced at her current position. *I'll be in radio contact of the California Tomasite plant in just a few minutes. I can use them to reach Tom's father and tell him I'm coming. But first I've got to build an automatic timer to drop my package for me.*

She then set the plane on autopilot and walked back into the cargo area to do a little work.

* * * * *

Mr. Swift was still in the reactor control room of his New York City power plant. For the past hour he had fought valiantly to shut down the reaction, but all his efforts had been useless. Even his attempts at rewiring the control computer had come to nothing. *Xanthus simply did too good a job*, Tom thought to himself. He could feel the weight of the world bearing down upon him. Millions of lives were just minutes away from being vaporized by technology that he had invented. The stress was incredible. He had never felt so completely helpless.

As he vainly tried to think of a solution the plant manager rushed in. “You have an urgent phone call,” Tony Markos told him. “It's Irene Goddard! She's on her way here – and she says she can help!”

Tom leaped out of his chair and ran over to the phone. He picked it up with a trembling hand. “Hello?”

“Tom?” a voice said a moment later on the other end of the line. “This is Irene. Can you hear me?”

“There's a lot of static, but I can hear you,” Tom replied. Despite misgivings he started to feel a glimmer of hope. “Where are you?”

“I've just left Asia and am over the Pacific Ocean,” Irene said. “This message is being relayed through California. I wanted to let you know that I'm bringing you the spare parts you need to fix your reactor.”

Tom felt his pulse begin to quicken. “What kind of spare parts?”

“Xanthus built a duplicate reactor in Brungaria,” Irene explained. “He used it to figure out how to sabotage yours. I have his unsabotaged version of your electronic brain on board a jet and am flying your way. I should be there in less than half an hour.”

“Half an hour!” Tom exclaimed, surprised. “How can you possibly get here so quickly?”

“Xanthus had a hyperplane that I decided to borrow. Given everything that has happened I didn't think he would mind. After all, I've heard the authorities have him kind of tied up at the moment. He won't be missing it.”

Tom's heart started beating rapidly. He glanced at the controls and performed a few quick mental calculations. “If you can arrive in the next thirty minutes we may still have a chance of saving the city,” the middle-aged inventor said slowly. “I can't promise anything, but it's worth a try. It's the only hope we have.”

“I'll do my best,” Irene said.

“Are Tom and Bud with you?” he asked.

Irene hesitated. “They're on another flight,” she said at last. “Bud found another nuclear jet in Brungaria that he decided to liberate. They're flying a bit slower than me but they'll get to New York safe and sound.”

Tom breathed a sigh of relief. “I still can't believe you went to Brungaria. That was a very foolhardy thing to do, young lady.”

“Let's save that talk for later, ok? Besides, it was your son's idea. I'm going to go but I'll contact you again when I'm almost there. I'm planning on performing an air drop since there's no runway on the island.”

“We'll have a crew standing by to receive it,” Tom promised. “I can't thank you enough, Irene. You're giving us hope. We had

just about – ”

“Thanks,” Irene replied. She hung up.

* * * * *

Several hundred miles to the north, George Dilling, the chief radio officer at Swift Enterprises, received an urgent radio message from Irene Goddard.

“Irene!” George said, surprised. “Where are you?”

“I'm about 40,000 feet over the Pacific ocean,” the girl replied. “I've just talked with Tom Swift in New York. He should have his spare parts in time to save the day.”

“I'm glad to hear it,” George replied, with genuine relief in his voice. “You'll have to tell me all about it someday. But what can I do for you?”

“I want to leave Tom Jr. a message,” she said.

“Sure thing! Just let me grab a pencil.”

“Oh no no no no,” Irene replied quickly. “I want to leave an *audio* message. A recording. And I want it delivered to him when he reaches the plant later today.”

“Oh,” George said, surprised.

“And it's highly confidential,” Irene added. “Top-secret. For his ears only. Not even *you* have sufficient clearance to listen in. It's just one of the things. Can you help me?”

“Um, sure. Not a problem. Just give me a moment to set up a secure recording system and patch you in. That's not something I get asked to do very often.”

“Maybe one day they'll have an easier way to do it,” Irene remarked. “I can see a huge future in audio messages! It could be big.”

When George came back on the line he heard Irene coughing. “Are you ok?” he asked.

“I'll be fine in a few minutes,” Irene said weakly. “Is it ready?”

“I'm connecting you now,” George replied. “And I will personally make sure that the young Tom gets it when he returns.

That is, I'm assuming he *is* returning."

"He is. And thanks."

After George dropped off the line Irene took a deep breath and began talking.

* * * * *

About twenty minutes later the phone rang at the Swift nuclear plant. Mr. Swift immediately grabbed the phone and shouted into the receiver. "Hello?"

"Hey there Dad!" Tom said. "You certainly seem excited. Is everything ok?"

"Son!" he said, surprised. He calmed down a bit. "Things are pretty tense around here, but at least we have hope now. Where are you?"

"High over Asia at the moment. Bud and I have stolen a nuclear jet from Brungaria and are on our way to Shopton. We should be there in about four hours or so. Bud's doing the flying."

"I'm so glad you're safe," Mr. Swift said with relief in his voice. "Irene had assured me that you were all ok but it's good to hear your voice."

"So you've been in touch with her?" his son asked.

"She called a while ago and explained what was going on," his father said. "We're expecting her to arrive in a few minutes. We're not going to have much time. Everything I know about my reactor tells me that it's just moments away from destroying itself. It could go at any time. I'm sure I don't have to tell you that we are sweating bullets here."

"Did Irene tell you what she did?" Tom asked.

His father hesitated. "She told us that she stole a hyperplane and a computer from Brungaria and was flying here as fast as the jet could carry her. Is that what you're talking about?"

"Did she tell you anything about the hyperplane?"

"Not really," Tom's father said. "The conversation was kept pretty short. Why?"

"The version of the hyperplane that she is flying is based on

my earliest design," Tom said with a strained voice. "The design that I drew up before I discovered the radiation problem."

Tom's father gasped. "Are you certain?"

"I could be wrong, but I'm pretty sure. When she calls back can you ask her? I mean, it is barely possible that Xanthus found the problem and fixed it, but I think the odds are against it."

"I sure hope you're wrong, Son, but I'll ask."

"Thanks," his son replied. He disconnected the line.

His father put the phone back on the receiver. A new fear crept over him. *Oh, Irene, what have you done?*

* * * * *

Irene awoke with a start. She struggled to open her eyes and glanced down at her position. The girl gasped when she realized that she was now soaring over the United States. *I must have passed out*, she thought to herself. The girl struggled to breathe. *I feel so sick.*

The early symptoms of radiation sickness were already taking their toll on her small frame. She felt severe nausea and was having trouble staying conscious. Her thoughts were erratic and she found it almost impossible to focus on flying the plane. *My head is killing me. I feel so weak and disoriented.*

Irene looked at the controls in her hands and forced herself to concentrate. With all of her remaining energy she corrected her course and began to cut her speed. *There's no way I can drop the package at Mach 15. I've got to slow way down if the computer is going to have any hope of surviving the drop. But slowing down means taking more time, and we don't have any time to spare.*

After she made the final adjustments to her course and speed she activated the timer. The cargo bay doors would open after a set number of minutes. If she calculated everything correctly the package should drop close to the nuclear plant. *I wish I could double-check my figures but I just can't think anymore*, she thought sadly. *But there is one more thing I have to do.*

* * * * *

Once again the phone rang in the reactor control room, and Mr. Swift picked it up. “Hello?” he said in a nervous voice.

“Hey,” Irene replied. Her voice was weak and broken. Tom knew immediately that something was wrong.

“Irene? How are you feeling?”

“I'm almost there,” Irene said, ignoring his question. It took her a surprising amount of effort to talk. Her voice came out slow and slurred. “I've set up a timed drop. You should be able to track the package on radar after it leaves the plane. It should land near you.”

“We'll be watching for it,” Tom replied. He hesitated. “My son called. He wanted to know if there were any problems with your hyperplane.”

“So he figured it out,” Irene said. Tom heard her cough for a minute, and then regain control. “He's a smart kid. Yeah, the jet has some problems. I think this will be its final flight.”

“Where are you going to land?” Tom asked quietly.

There was silence for a few minutes. “I won't be conscious that long,” Irene said quietly. “Sorry.”

“Can you eject?” Tom asked. There was no answer. He could hear the roar of the nuclear engines over the connection, but the girl did not make a sound. A few minutes later he tried again. His voice shook as he spoke. “Irene? Irene, please – ”

A voice at his elbow interrupted him. “Sir, I just picked up an object on radar! It looks like it's our package.”

“The plane must be right over us!” another voice called out.

Still holding onto the phone, Tom rushed to the window and looked outside. Far overhead he could see the hyperplane streaking by into the distance. With a heavy heart the inventor stood still and watched as the jet rapidly lost altitude. As it approached the horizon a thunderous sonic boom shook the entire building. *What am I going to tell your parents?* he though to himself, as he realized what was going on. *What am I going to tell my son?*

Then it happened. At the far edge of his vision he saw the jet spin out of control and slam into the ocean. A huge plume of water and flame immediately shot into the air. It looked almost like an atom bomb had gone off. At the same moment the phone went dead. Seconds later the thunderous sound of an explosion reached them.

A feeling of coldness gripped him as he watched his son's world come to an end. All hope and joy left him. He felt as if he would never care about anything again. A deep despair he never knew existed suddenly overwhelmed him.

There was silence in the control room. “The package has landed,” the plant manager told him. “It almost missed us entirely, but it came down at the extreme western edge of the shoreline. Men are out there now picking it up.”

“Thanks,” Tom replied. He forced himself to tear his gaze away from the ocean to the business at hand. But the man could not take his mind off of that final image of the jet crashing into the ocean. *It looks like you got your revenge after all, Xanthus*, Tom thought bitterly.

CHAPTER XXII

THE RED PICKUP TRUCK

TOM SWIFT JR. was sitting quietly in his private laboratory at Swift Enterprises in Shopton, New York. It had been more than a week since Irene's funeral but he still could not bring himself to do anything. He just sat in his laboratory, stared out the window, and thought about the last message she had left for him.

Irene's funeral had been attended by the largest crowd Tom had ever seen. Not only were her friends and family there, but thousands of people from all over the world came to pay their respects to the person that saved their planet from nuclear destruction. Her remains could not be found but that did not surprise anyone. While the plane hit the ocean at a far slower speed than Mark Spring's jet, it was still completely vaporized on impact. An extensive search was made but very few pieces of it were ever found.

Tom was interrupted by a soft knock on his door. He hesitated, and then sighed. “Come in,” he said at last.

The door opened and his father walked into the room. *He looks like he's aged ten years*, Tom thought.

His father took a seat beside him. For a few moments he didn't say anything. “I had a feeling I'd find you here.”

“Yup,” was all Tom said.

“I just wanted to take a moment to talk with you,” his father continued. “I haven't really had the chance to do that.”

“You've been out of town for the past three days,” Tom pointed out. “I've been right here.”

His father winced. “I know, Son, and I apologize. I had some business to wrap up, and now that it's all over I want to bring you up to speed.”

“Ok,” his son replied.

His father could tell that Tom was deeply depressed. His son had been badly shaken by the loss of Irene and was far from recovering. He longed to tell his son something – anything – to make him feel better, but he knew that it would take more than words to heal his son's heart.

“I've started dismantling the Swift reactor in New York,” he began. “As you know we were able to shut it down in time, but the Tomasite is still poisoned and it is a safety hazard. Even though I can fix that problem the public has decided they don't want a nuclear plant that close to them, which I suppose I understand.”

Tom managed a faint grin. “So this time they've turned against you.”

His father shrugged. “It's only natural. If there was something near my house that almost killed me I'd want to be rid of it too. The reactor should be safely dismantled by the end of the month. At some point we'll revisit this technology but that is still a few years away. The world may not be ready for commercial nuclear power. Not yet, anyway.”

“At least we're in the same boat,” his son said. “You can file the plans for your reactor next to my plans for Project Arcturus.”

“Not quite,” his father corrected. “It turns out that the Air Force is very interested in your hyperplane. The evidence you brought back from Brungaria proved beyond a doubt that your plane only crashed because it had been sabotaged. I've given them the blueprints for your jet and have every reason to believe that they're going to start building copies of it in secret. The public

will never hear about it but your hyperplane will exist and will be on the front line of our nation's defenses."

Tom shook his head. "That isn't quite what I had in mind, Dad. I was hoping to revolutionize the air industry, not provide the world with new weapons they can use to kill us all."

"Building aircraft for the government is a Swift tradition," his father pointed out. "I've built quite a few weapons in my day – not only aircraft but even tanks and cannons."

"Yeah, I know. But I'm afraid I'm not going to join you. That's not what I do."

"What you do with your future is up to you. You're a hero, Son, and you're famous. The world knows that your hyperplane saved them all. They know it works and that it's the product of a true genius. Everyone has now heard of the famous inventor Tom Swift Jr."

"It was Irene that saved them," Tom said bitterly. "Not me. She's the one that infiltrated the base while I was lying unconscious on the ground. If I'd had my way we would have left as soon as I got the evidence back and no one would have been able to stop Xanthus. New York City would have been destroyed and the resulting nuclear war would have destroyed civilization. No, Irene is the hero of this story. In fact, the reason she died is because of my stupidity. The radiation leak was my design flaw."

"No, Son, it wasn't your fault," his father said quietly. "It was mine. This whole affair started because I overthrew the government of Haargoland years before you were born. Had I minded my own business Xanthus would not have been motivated to exact his revenge against me. It was my arrogance and foolishness that killed her."

"So what happened to Xanthus, anyway?" Tom asked.

"The government has him in their custody. He nearly destroyed the entire world, and the government is not very forgiving in cases like that. I don't think we're ever going to hear from him again. The Brungarians are apologizing, of course. This whole episode has been a huge embarrassment to them. They've promised to dismantle his base and have turned over the

information we needed to arrest his network of spies. I don't think we'll hear from the Brungarians again for a long time."

"So what am I supposed to do now?" Tom asked bitterly. He pointed to the wall safe in his office. "I've still got the engagement ring I made for her, Dad. What am I supposed to do with it? Do you realize I was going to give it to her the day I tested the *Eagle*? I was this close to marrying her, Dad. This close! And now it's all gone. I don't have a future anymore. It died with her."

Tom's father was silent for a moment. Tears started running down his face. "I'm sorry, Son. I really am. I didn't mean for any of this to happen. But despite all this, you do have a future. You have a choice to make, and that choice will determine your future and the future of our world."

Tom just looked at his father without saying anything, so his dad continued. "I know you are going through a lot of pain and grief right now. I am too. Mourning her loss is just something you will have to go through. There's no way to shorten it or skip it. But grief does not last forever. And when that day finally comes you will be faced with a choice. If you want, you can choose to look back and grieve over everything you've lost. You can focus on what you never got to have and let that despair destroy you. Or you can look back and be thankful for all the years you did get to share with her. Then you can look ahead to a bright future that hasn't been written yet."

Mr. Swift was quiet for a moment. "Irene saved your life so you could live it, Tom. She believed in you and what you could do."

"She always told me that if I wanted to I could invent the future," Tom replied.

"I believe it too, Son, although I know I have not acted like it recently. I should never have canceled Project Arcturus – I acted foolishly. You have a marvelous talent. Whether or not you use it is up to you."

"Thanks, Dad," Tom said warmly. "I do have a question, though."

“What?” Tom's father asked.

“It's a little strange,” Tom began. “What were you doing in California the day before you went live with your commercial reactor?”

Tom's father looked at him in surprise. “But I wasn't in California, Son. I was in New York – I'd been there all day.”

“Are you sure? I mean, are you completely sure that you didn't stop over at the Tomasite plant for a few minutes that afternoon?”

His father laughed. “Son, we didn't have your hyperplane to fly around in. It takes hours to travel across the country! Besides, I'm quite sure we never left New York. Why do you ask?”

“Oh, it's nothing,” his son replied. “I was just wondering.”

“Is there anything else I can do?” his father asked.

“No, but thanks. I really appreciate it, Dad.”

His father left his son's laboratory, leaving Tom alone with his thoughts.

* * * * *

Tom was interrupted a few hours later by another knock on the door. This time it was his friend Bud Barclay.

“Bud!” Tom exclaimed in surprise. “What are you doing here?”

Bud pulled up a chair and sat down beside Tom. “I'm moving to Shopton, skipper. I've decided that this is where I want to be.”

“You are?” Tom said in surprise. “But what about your job in California?”

“Eh, they can find someone else,” Bud said confidently. “It's not like they have any more planes to test, anyway. Besides, I have it on good authority that things are a lot more exciting here at Swift Enterprises. I have a feeling that if I really want to see adventure the best place to be is at your side.”

Tom grinned. “Are you sure you know what you're getting into? There's no telling what might happen! We could end up on the Moon before it's all said and done.”

“So much the better!” Bud said enthusiastically. “Count me in.”

“Then welcome aboard, pal. I'll talk to Miss Trent later today about transferring your employment. Consider yourself hired.”

“Great! So what have you been doing?”

Tom hesitated. “Honestly, I've spent the past few days doing nothing but listening to Irene's last message over and over and over.”

“She left you a message?” Bud asked.

“She did,” Tom replied. “Would you like to hear it?”

“If you don't mind. I don't want to horn in on anything, though.”

“It's not a problem,” Tom said. He stood up and walked over to his workbench. “After all, you were there with us in Brungaria! If it hadn't been for you and her I would have died in the fire that night. You saved my life.”

“Don't mention it,” Bud said. “It was nothing.”

Tom pressed a button on a large machine on his workbench. A moment later Irene's voice filled the room.

“Hey there Tom,” she began. The girl coughed, and then she continued. “Do you remember months ago, when we had dinner by the lake? It was before you ever started the hyperplane project, right after your father perfected Tomasite. You were depressed that evening because the press made much of your father and treated you like a little kid. Do you remember that?”

Irene paused. “I told you that you could prove them all wrong. That you were a genius and had the rare ability to make your dreams come true. If you wanted to build rockets and explore outer space then you could do it.”

There was silence for a moment. Irene's voice wavered, but then she regained control. “I still believe that, Tom. I know right now you're really upset. I know you think your life has ended, but it hasn't. I'm sorry I won't be there to share that future with you. I really am. It breaks my heart. But that doesn't mean the future doesn't have to happen. You are still surrounded by people who love you and care a great deal about you. I don't want you to

throw away all that talent and spend the rest of your life sitting there, doing nothing."

Irene paused for a moment. Bud thought the tape had ended, but as he started to speak the voice continued again. "I love you, Tom. I've enjoyed spending my life with you. Thanks for being there for me. Take care of yourself."

Tom stopped the recording machine and looked at Bud. "That's it."

Bud nodded slowly. "Thanks. It was good to hear her voice again. I didn't know her for very long but I could tell she was a really special girl."

"She was," Tom said simply.

"There is one thing I don't understand, though," Bud said.

"What's that?" Tom asked.

"That red pickup truck we saw out in California. It's bothered me ever since. I can't get it out of my mind."

Tom smiled. "So it's been bothering you too!" He took a folder off of his workbench, removed a photo, and tossed it to his friend. Bud looked at the photo in surprise. "Hey, that's it! Where did you get this?"

"Security camera footage. Since the plant was dealing with nuclear technology the government made Ned install all kinds of cameras, and they caught the whole thing. You can see me in the picture talking to the guy in the truck."

"So have you figured it out?" Bud asked.

"I think so," Tom replied. "At first I couldn't make heads or tails out of it, and then it all came together. Think about it this way. We know for a fact that Dad was *not* in California that day. I asked him myself this morning just to make sure, but I already had all the proof I needed. He was not anywhere near California. There is no doubt of that."

Bud frowned. "So are you saying the guy you talked to wasn't your Dad?"

Tom shook his head. "Oh no. He was my father, but he knew things he shouldn't have. First, he wanted to talk to both of us – and I got the feeling he thought that you and I were friends. We

are now, of course, but we weren't then. Second, Dad was shocked that I was still thinking about the hyperplane project, even though it had just failed catastrophically a few days earlier and ruined my life. To him it was old news. It wasn't even on his mind."

"That *is* weird," Bud said. "And didn't he say that you were putting the whole universe in danger?"

"Yes, he did. Even though my Dad knew at the time that he had just canceled my project and I wasn't working on anything at all. It was a completely bizarre thing to say. Then he realized something was wrong and he said something very interesting. He said that I would understand what was going on *in time*."

"Sorry, genius boy, but I don't get it," Bud confessed. "Where are you going with this?"

Tom grinned. "The person I talked to in California was my Dad, but he was my Dad *from the future*. A future where you and I have known each other for a long time. A future where the hyperplane is old news and I've moved on to other things. A future where, more specifically, I have access to time travel technology."

Bud's eyes widened. He glanced at the photo. "And you think that this truck might be the time machine?"

Tom shrugged. "It's entirely possible. It's a very futuristic design that is clearly not from this era. And the license plate number doesn't match anything registered in the state of California. In fact, the number format isn't even right. I don't even know what the number 'TANC' is supposed to mean."

Bud whistled. "So you think that at some point in the future you're going to go back in time to rescue Irene?"

"I don't know," Tom said. "That explanation makes the most sense to me. But there are some problems with it."

"Such as?" Bud asked.

"Well, for starters, I'm not sure how I would rescue her. I could stop her from ever going to Brungaria, I guess, but that would change the timeline and put millions of lives in danger. I wouldn't want to do that. The safest thing to do would be to

somehow get her off the jet right before it crashed, but I can't imagine how you would grab someone off of a plane while it was still in the air."

"Maybe a little Swift magic could take care of that," Bud quipped.

"And then there's the radiation problem. Irene received many, many times the lethal dose of radiation. There's no cure for radiation poisoning. If I did manage to get her off the plane she would die in a couple hours – if she lived that long."

"But if you went back in time to get her you must have solved those problems," Bud pointed out.

"I just don't see how," Tom confessed. "And I don't know that the rescue attempt worked. The guy in the truck didn't say anything about a successful rescue of Irene. My father didn't either. He was just upset with me for putting the universe in danger."

"So time travel might be really dangerous?"

Tom sighed. "My Dad said something about knowing the numbers as well as I did. That could have been what he was talking about. But I just don't know."

"Now wait just a minute," Bud said. "You're saying that the guy in the pickup truck was involved in this, right?"

"Well, of course," Tom said.

"So that means you and I were introduced by a *time-traveler from the future*?"

Tom laughed. "I guess we were. But we would have met anyway. I would have needed someone to fly a nuclear jet to Brungaria, and you were the only person around who could have done it. The time-traveler just short-circuited the process."

Bud shook his head. "Still, I don't think I'm going to mention that to anyone. Ever. No one would believe us!"

"Probably not," Tom said, grinning.

"So what are you going to do now?"

"I guess I'll just wait and see what happens," Tom said slowly. "At least now I know there's a chance I might be able to get her back. That's something to work toward."

“And if you ever do get the opportunity?”

“I'll take it,” Tom said firmly.

“Even if it puts the whole universe in danger?” Bud asked.

Tom hesitated. “There's got to be a way to mitigate the risks. But until I know what it takes I won't be able to address that issue. Time travel isn't going to happen tomorrow, Bud.”

“Exactly,” Bud agreed. He paused for a moment. “You know, this might not be the best time to mention this, but I don't think Irene was the kind of girl who would want you to put your life on hold. I know you aren't interested right now, but there are other girls out there.”

“Please tell me you're not thinking of Phyl,” Tom pleaded.

“Now Tom, Phyl is a nice girl,” Bud protested. “She likes you and she cares about you. And she's intelligent, if you would just give her a chance.”

“She's a wallflower, Bud! She has zero personality.”

“Look. Next week Sandy and I are going out on a date. Why–”

“You are?” Tom said. “Seriously? You're dating my sister?”

Bud grinned. “She's pretty cool, Tom. But as I was saying, why don't you and Phyl come with us? I mean, you've got to do *something* other than just sit here. You heard what Irene thought about that.”

Tom put the picture of the truck back into the folder and placed it on the shelf. “All right, Bud. But I have to tell you that Irene still has my heart. Phyl is nothing like her at all.”

“Fair enough,” Bud agreed. “So what are we going to do now?”

Tom looked off into the distance thoughtfully. “I've been thinking about building a flying laboratory. Something that I could use to explore remote areas of the globe.”

“Sounds good!” Bud exclaimed. “Where do we start?”

CHAPTER XXIII

QUEEN OF THE SKIES

EIGHTEEN-YEAR-OLD Tom Swift Jr. was hard at work in his private office when he heard a knock on the door. The young inventor looked up from the invoices that were scattered all over his desk. “Come in!”

The door opened and the burly figure of Arvid Hanson walked into the room. The chief model-maker of Swift Enterprises was carrying a large cardboard box.

“Arv!” Tom exclaimed. He rose from the desk and walked over to greet him. “Is that...?”

Arv nodded proudly as he set the open box down onto the floor. He carefully reached inside, pulled out a model, and set it on the desk. “There she is, Tom – the *Sky Queen*. I would have had it finished last week but we got behind.”

Tom gazed at the gleaming miniature, which was just over a foot long. As usual, the model-maker had done an outstanding job. Arv had faithfully reproduced every detail of Tom's giant triple-decker, nuclear-powered aircraft. “You even put in the jet lifters!” Tom said approvingly. “It's amazing. This will look great beside the other Swift inventions!”

“Thanks,” Arv said. “Your flying lab is quite an

accomplishment, boss. When she's finished she will be the largest plane in the skies."

"And we're almost there," Tom added. "The staff here at Enterprises has done an amazing job assembling the plane! It has taken us months to get to this point but we're nearly done. She should be ready in another two weeks."

"I heard Bud wants to be the test pilot," Arv commented.

Tom grinned. "Oh, he does, but he's been involved in another project. I think that honor is going to go to Ripcord Hulse. He's an ace pilot and will do a fine job."

"Where's Bud been, anyway? I haven't seen him around for a while."

"The government has had him tied up. I'm afraid I'm not allowed to go into any detail. He should be back later today, though."

"Say no more!" Arv begged. "I don't want to be shot at dawn for knowing too much." As the model-maker turned to leave he suddenly noticed the stack of boxes in the corner. "Hey, skipper, you're not moving, are you?"

"Dad and I are going to be sharing an office," Tom explained. "I'm almost never in here so it just made sense to combine things. I think Miss Trent is going to have everything moved tomorrow. That's actually why I'm here – I'm trying to make sure everything is in order. I'd hate to lose something important."

"Makes sense. Is there anything else you need before I go?"

Tom thought for a moment. "Come to think of it, there is one other thing. Do you know if Chow has arrived?"

Arv thought a moment. "Is he the Texan cook that wears those eye-popping shirts?"

Tom laughed. "That's the one! He's been in Texas for a while visiting some friends. I thought he was supposed to come back to Shopton sometime this week but I've been so busy I've lost track."

"I'm afraid I can't help you there, boss! I haven't seen him for quite a while. But when you see him be sure to tell him hello for me."

“I'll do that,” Tom said, grinning. After the model-maker left Tom finished his work in the office. Before leaving he stopped by to see Miss Trent, the Swift's personal secretary.

“Have you seen my father?” Tom asked. “I wanted to talk to him about my plane.”

Miss Trent checked the calendar. “I'm afraid Mr. Swift is not in the office this morning, Tom. He is currently attending a meeting with Ned Newton at the Swift Construction Company. He should be back this afternoon. Shall I tell him when he returns that you are looking for him?”

“If you don't mind. I have a few arrangements I need to go over with him.”

“Of course,” Miss Trent replied. She jotted down a note.

“And one other thing. Do you know when Chow is supposed to get back?”

“Charles Winkler is scheduled to arrive later today,” Miss Trent replied.

“Great!” Tom said enthusiastically. “Oh, and be sure that he gets an amulet when he arrives. The new patrolscope system was installed while he was on vacation.” Tom was referring to the alarm system he had installed at the Institute a year ago. Since the trials had been successful Tom's father had taken the system and installed it at Swift Enterprises as well.

Tom then left the office building and headed over to his laboratory. On the way there he heard two excited voices call out to him. “Hey Tom!”

The young inventor turned around and saw a red convertible in the road behind him. Inside the car were his sister Sandy and her best friend Phyl.

“Hey there!” Tom called out. He walked over to their car. “What brings you two girls to the plant?”

“We were actually just leaving,” Phyl explained.

“We just stopped by to check out the new Pigeon Specials,” Sandy added. “They're very nice. I'd love to fly one!” Like her brother, Sandy was an excellent pilot.

Tom nodded. “We'll have to take one up someday, sis. I'll be

sure to schedule some time to do that."

"Thanks," she said appreciatively.

"Are you two girls going to be home for dinner tonight?" Tom asked.

"Of course," Sandy replied. "Be sure to bring Bud with you."

Tom grinned. "I'll make sure he knows you invited him."

His sister glared at her brother and then drove away, shaking her head. Tom laughed at the two of them and then headed inside the building that housed his laboratory. As he was on his way to his lab he ran into his friend Bud Barclay.

"Bud!" Tom replied. "Man, you have great timing. I was just about to leave."

"I came back to New York as quickly as I could," Bud replied. Tom unlocked the laboratory door and the two teenagers stepped inside. Tom closed the door behind them and Bud continued. "But you know how the government is! Everything has to take forever. They have enough red tape to sink a battleship!"

Tom nodded sympathetically. "So how did it go?"

"Not bad, really. The Air Force has built three of your hyperplanes and I've flown all of them. They're amazing! I've gotta hand it to you, skipper – they're the last word in speed. Nothing else can touch them. Even the *Sky Queen* is a snail by comparison!"

"True, but keep in mind they're built for different purposes. The hyperplane was designed for speed and speed alone. All it needed to do was get from point A to point B as quickly as possible. There's really no reason to build that kind of speed into my flying lab – all it needs to do is carry a large amount of cargo and then provide a suitable base of operations for an extended period of time. Speed really isn't too important."

"Speed is awfully nice though," Bud replied. "The pilots I trained just couldn't believe the sheer power of that jet. Even after they flew it they still had trouble believing it!"

Tom nodded. "I really wished Project Arcturus had turned out differently. It's such a pity we won't be able to commercialize it! That's probably the last we'll ever hear of my hyperplane."

“But it wasn't a total loss,” Bud pointed out. “Not only did the hyperplane save the world, but it's now one of the country's most top-secret aircraft. Plus, you were able to adapt the Sampson engine for use on board the *Sky Queen*. Without it you never could have powered an airplane that large.”

“That's true. And think of all the discoveries we'll make! Being able to fly an entire scientific laboratory to the remotest parts of the world will prove invaluable. I can only imagine what's out there!”

“And I'll be right there with you,” Bud replied.

“Except when it's my birthday,” Tom teased. “That's when my flying ace skips town and doesn't show up again for a whole week.”

“Hey now, it's not my fault I missed your eighteenth birthday! The Air Force needed someone to train their pilots on your new jet, and I was the only guy handy. I tried to get them to reschedule but they weren't interested. I promise you I will be there when you turn nineteen. Even Martians won't be able to stop me!”

“I'm sure you will!” Tom said, laughing. “Of course, a lot could happen between now and then!”

“I can't begin to imagine. Knowing you we could go to Saturn and back by then. But listen, skipper, I'm afraid I've got to head out. I'm scheduled to test a helicopter this afternoon and I don't want to be late.”

Tom snapped his fingers. “Oh, that's right! I'd almost forgotten. You're going to fly the *Skeeter*, aren't you?”

“You got it! Isn't it going to be on board the *Sky Queen*?”

Tom nodded. “It and a small jet named the *Kangaroo Kub*.”

“When I get back you need to give me the official tour of your plane,” Bud begged. “I've missed pretty much that entire project.”

“You and Chow both,” Tom needled. “By the way, I still need to introduce you to Chow.”

“Later!” Bud said. “I've got to go.”

Tom bade his friend goodbye. After Bud left the young inventor walked over to his workbench and picked up three pencils, which he put in his shirt pocket. He then left his

laboratory, got into his silver sports car, and drove off.

It took Tom about twenty minutes to reach his destination. After parking his car he walked through a clump of trees and up to the top of a small, grassy knoll. Off in the distance he could see Lake Carlopa glinting in the morning sun. The trees were covered in the fresh green leaves of spring, and flowers were starting to bloom. A soft breeze gently rustled the grass.

At the top of the hill was a small, private cemetery which belonged to the Goddard family. Several generations of Goddards had been buried there. Tom located the place where Irene's marker stood. He knew that there was nothing buried there, but there was still something about that spot that made him feel closer to her.

From his pocket he removed the red, green, and blue pencils. "I'm sorry it's taken so long," he apologized aloud. He thought back to the cold winter day more than a year ago when Irene first asked him to take those very pencils and modernize them. He smiled as he remembered her reaction to his first attempt. "And don't worry. I didn't put a nuclear reactor in any of them."

One by one he laid the pencils on her grave. "Here you are, Ace – just as I promised. The green one is a miniature radio. It can be used to both send and receive. The red one is a soldering iron that is powered by a small battery. And – as you requested – the blue one is an infrared snooperscope."

Tom stood up and looked around. He did not realize it, but the young inventor would soon be caught up in his next adventure, *Tom Swift and his Flying Lab*. For the moment, however, his thoughts were on the past.

"I'll see you later," he said at last. With that, he started walking back down the hill toward his sports car.

Thousands of miles away, a giant rock hurtled through space toward an unsuspecting Earth. It was now only a few hours away from landing on Swift Enterprises' grounds and changing the course of history...

EPILOGUE

THE RESCUE MISSION

BY THE TIME Tom Swift Jr. finished his tale the thunderstorm had long since ceased. The sky over the Citadel was still overcast, but rain had stopped falling and the thunder had gone silent. For a while afterward Tom and Bud said nothing and simply looked out the window at the desert landscape. They watched as fresh rainwater worked its way down old streambeds and flowed off into the distance. On the horizon they could see that the sun was beginning to set. It would not be long before night set in.

Bud was the first one to speak. “Man. It seems like such a long time ago, doesn't it? A lot has happened since you built your hyperplane.”

Tom nodded. “Irene would be amazed at all we've accomplished. She had hoped that one day we would reach the moon. I don't think she ever imagined we'd reach the stars.”

“Or meet aliens,” Bud added.

“True. You know, we didn't even receive the first message from our space friends until well after she died. The whole world has changed. I don't think she'd recognize it.”

“But I bet she'd know who was responsible for it! And I do see what you mean about your hyperplane. Not only was it a

terrible failure and a great success, but it led directly to the world we have today."

Tom picked up the Project Arcturus folder, flipped through it, and took out a photograph. He handed it to Bud. "Remember this?"

Bud glanced at the photo and smiled. "The red pickup truck! Yes, I do remember that. You know, your guess back then about its origin was almost dead on."

"It was the only explanation that fit the facts," Tom said modestly. "Of course, at that point we didn't know about the Negative Zone. I had no way of knowing that the person driving that truck was actually a Tom Swift from a different universe."

"And now we know what TANC stands for – the Transformable Ambulatory Nuclear-powered Craft," Bud added. "Which, by the way, is a terrible name. Why not just call it the Monster Machine and be done with it?"

"You and your penchant for renaming inventions!" Tom chided. "Is there anything you *don't* want to rename?"

Bud thought for a moment. "You know, 'nuclear hyperplane' really worked for me. It had a nice ring to it. Speaking of which, did you ever find out what happened to the hyperplanes that were built for the Air Force?"

"I'm afraid not, flyboy. As far as I know they still have them. Of course, the Transmittaton has kind of made them obsolete. But if they still exist they would be the fastest aircraft in the world."

Bud handed the picture back to Tom. "So where does that leave us, skipper?"

Tom took the photograph from his friend and looked at it. He then placed it back on the folder and put the folder back on the shelf. "Well, it looks like we finally have all the pieces we need. I've got a Transmittaton that can beam Irene right out of the plane. Plus, our space friends have told me that I can borrow their translator, which I can use to cure Irene of her radiation sickness."

"Just like it helped us out when we were in a tight spot," Bud added.

"If you could call *death* a tight spot," Tom quipped. "And, last

but not least, through the Negative Zone we have access to Tom Swift IV's time machine. The very machine that is in that picture."

"But what about the danger?" Bud asked soberly. "You remember what happened when the Black Dragon stole the time trigger. It really did almost destroy the entire universe. That's why Tom IV had the professor destroy his notes on time travel – the only way he could save the universe was to prevent time travel from ever being invented."

Tom smiled. "Didn't you ever wonder how Tom IV knew about the whole episode if he prevented it from happening in the first place?"

Bud blinked. "Hey, that's a good point. How is that possible?"

"Curiosity," Tom explained. "Tom IV had a lifelong interest in time travel. After his original time travel technology was destroyed he didn't realize he had ever invented time travel, so he continued his own research into the subject. He wasn't able to build a time machine but he did something almost as good – he found a way to *look back in time*. A chronoscope, so to speak."

"But how did that help him?"

"Well, before he invented his chronoscope he was asked to evaluate a rock. The rocked turned out to have a fossilized imprint of his own shoe – a shoe he had only owned for a short time. Tom decided to look back in time to see how someone got his footprint and fossilized it, and that's when he discovered what had happened. He discovered that time itself had been altered and that he was responsible for doing it."

Bud frowned. "But was he able to rebuild his time machine?"

"He hasn't tried," Tom explained. "After he found out what happened he dismantled his chronoscope and put it under lock and key. But I know that he's going to recover that technology, and I know that we're going to use it to go back in time. I have photographic proof. Plus, *I remember meeting him that day*."

"So what are you going to do?"

Tom paused for a few minutes. "We are going to go on a rescue mission," he said at last. "I'm going to recover the

Challenger and bring it back to Earth, and then I'm going to ask Tom IV to join us in an expedition into the past. One way or another I am going to rescue Irene and give her that engagement ring I made for her. I still have it, you know."

"But why do you need a spaceship to do that? I mean, when Tom IV went back in time he just used his monster machine. Can't you hitch a ride next to him?"

Tom smiled. "There's no way we could fit a Transmittaton into the back of his pickup truck. Even if we could, we *definitely* couldn't fit a translator on board as well. I'll work with him to modify the technology so that the time field can encompass the entire spaceship. Then the *Challenger* will be capable of traveling through space *and* time."

"Don't get me wrong," Bud said. "I don't want to be the voice of doom or anything. I've never objected to anything in all the years we've known each other. I went with you to Brungaria the day we met without voicing a single objection, and I also went with you to the extrasolar planet without a whimper – and I went along everywhere else in-between. But time travel is serious business, Tom. Don't you remember what Tom IV said on the night you turned nineteen?"

"I remember," Tom commented. "He said it was a can of worms that you don't want to open. That time travel will mess up your universe and you'll never be able to put your timestream back together again. But Bud, I have a chance to save Irene. I have all the tools I need to rescue her. And I'm going to go for it."

"But something about it is just *wrong*," Bud said. "I can't put my finger on it, but I don't like it. What were we doing at the Tomasite plant that day anyway? Irene didn't die until the next day. There was no need to be there at all."

"True," Tom said.

"And another thing. Why was your Dad there? He had clearly just found out what you had done and was hopping mad about it. But to be angry enough to go back in time himself and try to stop you – wow! Doesn't that worry you? Something must have gone really wrong, Tom."

“But I can save Irene! I can bring her back. Don't you see? I can show her the future we created! Can you imagine what her reaction will be?”

“You don't know that,” Bud replied. “From what you told me your Dad never said that your rescue attempt actually worked. But there is evidence that you put the whole universe in danger.” Bud paused for a moment. “Look, Tom, I'm sorry. I know you miss Irene and I know you want her back. But she's been gone for a while now. You know the risks of time travel as well as I do. Is saving the life of just one person – even if that person is Irene Goddard – really worth it?”

“The risk has already been taken,” Tom said simply. “You've seen the picture. We were there.”

“So you think it's just *fate*? That we somehow *have* to go?”

Tom shrugged. “It could be.”

Bud shook his head. “I'm not buying it, Tom. I mean, I'm not a genius or anything, but I refuse to believe that you just *have* to go back in time. That you just can't help it. I believe you have a choice. You always have a choice. All I'm saying is, are you sure that you're making the right choice? Are you absolutely sure?”

Tom nodded. “I am.”

Bud sighed. “All right. Then I'll go with you. But – I just wonder, Tom. What are we getting ourselves into?”

“I guess we'll find out,” Tom replied. He stood up and stretched. “Are you ready to go back to Shopton?”

Bud nodded. Tom walked over to the wall and pressed a few buttons on a small panel. A moment later the room was filled with a brief burst of white light. When it cleared the young inventor and his friend were gone.