TOM SWIFT

And His

Tectonic Interrupter

BY

Victor Appleton II

Made in The United States of America

THE NEW TOM SWIFT INVENTION SERIES

Tom Swift And His
Tectonic Interrupter

By Victor Appleton II

Earthquakes, from the insignificant and barely felt to the devastating and deadly, have been on the increase over the past decade. Particularly disastrous are those that plague the Pacific Rim.

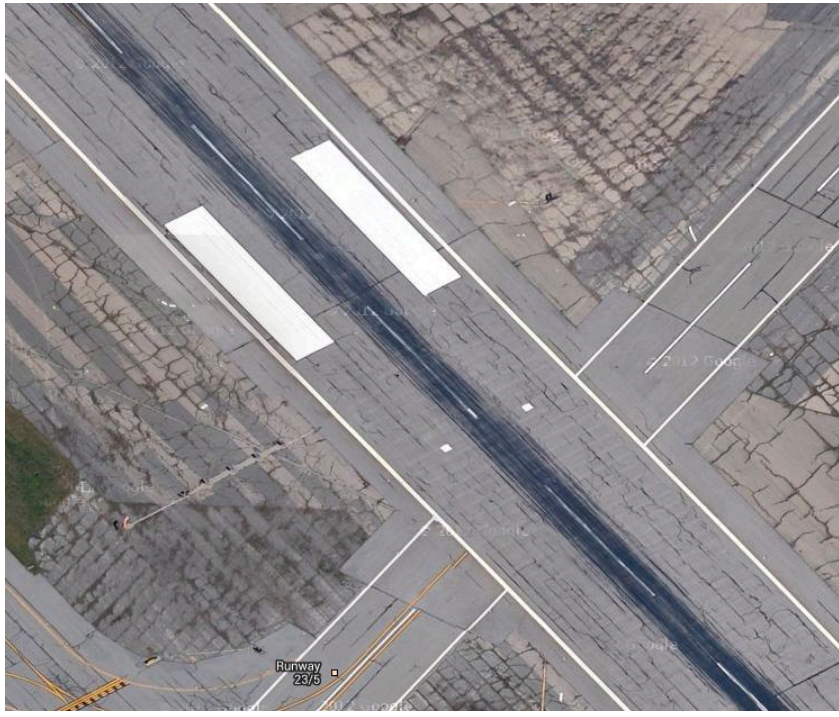
Volcanoes, dormant decades or centuries, spew forth lava, ash and death. In India, mudslides kill hundreds. In China, thousands.

As Tom Swift tackles one problem, he discovers that his solution may just be the genesis for finding the cause of all this devastation. With each advancement come more ways the planet seems to be striking back at everyone.

An unexpected discovery points the way to solve many of the problems, but attempting to figure how it can be fixed almost claims the lives of three very close friends.

So Tom must devise a way to heal the very earth under our feet but to do it without endangering anyone's life, because his final solution must work or it could mean a one-way ride to eventual destruction.

This book is dedicated to Jules Verne. He of the marvelous book, *Voyage au Centre de la Terre*. He took many of us for a wondrous trip straight down and it was fascinating to imagine what he "saw" as he wrote it, as well as it later becoming a visually-stunning movie experience (Pat Boone notwithstanding). But, it is equally dedicated to James Duncan Lawrence for taking our Tom deep under the ground in his Subocean Geotron.



“Take a look at that runway, skipper. It’s got to be more patch than paving,” Bud exclaimed. **PAGE 34**

TABLE OF CONTENTS

AUTHOR'S NOTE:

The Internet is a wonderful and wondrous thing. With a few key clicks—and proper spelling—it is possible to travel far from your desk, armchair or that smallest room in the house often referred to as "the library," to just about anywhere in the world. It can be a boon companion to any author wishing to provide some level of accuracy in what they write.

And, so it has been with this book.

I needed to know more about a couple of my locations, and with the use of my favorite map site (it rhymes with "laps.foogle.bom") I was magically transported to Alaska, India and Rhode Island. The details with which I have been able to view the areas, cities and even individual buildings used in this story have been incredible.

But, not as incredible as when I recently visited one of my locations and was flooded with that *deja vu* feeling of having been there many, many times before.

It has given me a new perspective and desire to "look and see" places mentioned in books written by others.

Of course, you are bound for disappointment if you try to find places like Utopia or Shangri La or Hogwarts or even Gotham City in this manner.

But, that doesn't mean you shouldn't look anyway.

Tom Swift and His Tectonic Interrupter

FOREWORD

This isn't Tom's first voyage under the ground, and it may not be his last. When "people" say that there are no new frontiers to explore, they usually forget that we know very little about even one percent of our oceans. Very few studies have been made into most lakes and rivers as well.

And, even when it is admitted that our waters are greatly unexplored, it is practically never said that we need to explore what exists just a few feet under our own feet.

This is a shame because there are huge areas that are affected by the very things that exist down there. The Pacific Rim is surrounded by plates of earth and stone that shift all the time, causing earthquakes. It is not the only place. It is possible that shifting tectonic plates are under everywhere we might step.

And, when they slip not-so-gently past each other, buildings tumble, streets crumble, people are injured and die, and because of the economic impact, people all the way around the world suffer as well.

So, it is a pleasure to bring you the following tale. Tom Swift comes to the decision that an impending disaster must be halted or minimized and sets forth to make that happen.

He may have major accomplishments in the air, on land and outer space, but it is possible that he will be longer remembered for his advances in this book.

Victor Appleton II

CHAPTER 1 /
A MYSTERIOUS INVITATION

"I NEED ADVICE, Dad," the young blond-haired man said to his father—someone who looked amazingly like an older version of him —sitting at the desk across the large office.

Damon Swift—father to the young man, Tom Swift, and head of Swift Enterprises—looked up. “Give me half a minute, please.” He turned back to the computer screen, highlighted a paragraph he had been reading, and then turned back. “Shoot.”

Tom had a determined look on his face and seemed as if he were struggling over how to word his request. “Uh, I’ve just read an email from a man in India named Singh who is a co-director for their Board for Industrial and Financial Reconstruction, whatever that means. He is requesting a face-to-face meeting. He says he can’t come here; he wants it at his office in New Delhi. It came in last night.”

Mr. Swift pursed his lips before asking, “Does he say what the meeting is about? As far as I recall, agencies like his generally concern themselves with bolstering up failing industries and companies. And,” he stroked his left cheek with his forefinger, “according to our own State Department, all requests for industrial assistance must go through them.”

Tom shook his head. “Well, he doesn’t say what he wants to discuss, but let me read you this one sentence.” Tom used his mouse to scroll down to the wording he wanted. “ ‘I am not capable of discussing the reasons for my request on an insecure connection, but I request that you revert to me at your soonest opportunity.’ What do you suppose he mean by revert?” he asked looking back up.

Now, his father laughed. “That, Tom, is a sure sign that this man is from India. Some of them mistakenly use the word ‘revert’ instead of a phrase like ‘get back to.’ It comes from the old colonial English they were forced to learn pre the Second World War. But, that aside, I think I had better see the entire message for myself.”

He got up and walked over to Tom’s desk and began reading over the younger man’s shoulder. He straightened up after he finished. “That is an odd request without very much information to back it up. I suppose that my suggestion is to write back and request more from him. Make it evident that you are not requesting anything confidential, but that you can make no decision without some hint

at the nature of his request."

Tom smiled and agreed. "Will you look over what I write before I send it, please?"

Damon nodded and patted his son on the shoulder before returning to his own desk.

Twenty minutes later Tom called him back over. Once Damon Swift had read the six paragraphs of the message, he made one suggestion and told Tom to send it. "Of course, they are at a plus eleven and a half hours from us, so it will be..." he checked his watch, "...about nine forty in their evening. You may not get anything back until late tonight our time."

Tom sent the email and returned to answering the few emails that their shared secretary, Munford Trent, daily passed through to either of them. The super efficient personal assistant sorted through an average of two hundred messages addressed to the two Swifts each day. Many were requests for funding for, "*the most important invention since the wheel*," along with invitations that generally began with, "I realize that your time is valuable, but I would like you to address our..."

Today's batch consisted of the message from India along with a personal request from one of Tom's favorite teachers from his Jr. High School days, Mrs. Trunbridge. She told him that she had decided to retire and a ceremony was taking place two weeks later to honor her for her fifty years of teaching. One student from each year was invited to attend to give a one-minute "favorite memory" speech.

He smiled to himself as he answered it, saying he would be pleased, as well as honored, to attend.

He was reading through the next one when a new email showed up. It was a returned message from Mr. Singh in India.

The contents of the email consisted of two paragraphs asserting that it was impossible to discuss the exact nature of the request over the Internet. As Tom read them, he shook his head and was about to just delete the message when the final four sentences caught his attention:

> I fully understand that you may have grave reservations as it imposes on my request, but I must assure you that it is imperative I speak with you at an earliest time. I have been ordered to undertake a very disgusting task in response to a series of natural disasters and only you and your business have the capability to assist. Your secrecy is most necessary. Please remit to me as soon as you receive this.

Tom pondered the meaning of the words. He realized that many natural disasters—and quite a number of man-made disasters as well—occurred all over the world, but India with its high population density and all of the rumored under-the-table payments made so that buildings designed to be just four or five stories often "magically" opened with six or seven or even more. Weight, stress and poor workmanship played heavily in their literal downfall.

Many such buildings lasted years. Some as little as a few hours. And far too many collapsed under the unplanned weight and occupancy and unfavorable weather, killing dozens, hundreds or thousands instantly and burying dozens or hundreds of others. Most of these survivors had a very brief window in which they might be found and rescued.

But, Tom understood that many people were also the victims of landslides, floods and other things beyond anyone's control.

Victims were victims no matter the cause. Evidently this Mr. Singh was a government official tasked with approaching Swift Enterprises for assistance. What that might entail was anyone's guess. When he brought the new response up to his father the older inventor scowled.

"I've been searching the Internet for information about the governmental group he mentions. Nothing much and that isn't very good. Of course as with any large body like the government of India and its different states, you are going to hear more of the bad than the good. And, I've not run across this man's name. Many Guptas and Kumars and Patels. What is your take on the subtext of his message?"

Tom told his father that all of the disasters over there had immediately come to mind. "But, I have to admit I am hesitant about traveling all the way to Asia on the basis of a brief note like this. Should we see if anyone in our State Department might be able to shed some light on this?"

"An excellent idea and one that I would normally suggest, but that final line of his, the one about secrecy, tells me that this might not be the right approach. Tell you what. We have at least a dozen people here at Enterprises who either came from India or their parents came here a generation or two ago. Let's get in contact with Personnel and see if we can speak with a couple of them. It might do to have them read this and give us their interpretation of the wording. Until then send him an acknowledgement of receipt."

Tom agreed and an hour later three men and a young woman were ushered into the office by Munford Trent.

All four appeared to be uneasy about being summoned to "the big office," but Damon Swift put them at easy by warmly shaking their hands and greeting them with "Namaste," a verbal honoring in Hindi.

He briefly explained the requirement for confidentiality to them and received their agreement that what they heard or saw in the office remained there.

"Good. Without going into any details or making any guesses, we have received a message from a gentleman in New Delhi that I would like each of you to read and then give me your opinions."

"Opinion on what, Mr. Swift?" the woman asked.

He smiled. "Now, that is the difficult thing. I'm not exactly certain. We have nothing more than his words to go on. With the understanding that English is just one of the languages used in India, we also recognize that over the years the use of some words and phrases may have changed, or have subtle, alternate meanings that neither Tom nor I can pick up on."

He handed the message first to the most senior of the group, a man about thirty who had been with Enterprises for more than four years, working in the Structural Engineering department. He read it over several times, his lips moving as he did, and with a frown on his face.

He handed it along to the next man, and so on until they had all read it.

"With respect, may we converse in Hindi? I think it will facilitate our coming to some idea that might be a little difficult using English terms."

Damon nodded. The foursome went into a huddle and spoke for several minutes. At times it sounded like they were in agreement and at others they might be close to an argument. In the end, the woman took the piece of paper and handed it back.

"As nearly as we can tell, this Mr. Singh is not who he says he is. No government official uses this lower caste language. When he says 'remit,' he means for you to get back to him. Remit is a hang over from colonial days. Educated people and the upper classes never use that word." She laughed and added, "If you ever are speaking with a customer service person and they tell you they will remit to you, it means they are very uneducated and working in a low quality call center over there."

Both Damon and Tom grinned. But Tom asked, "Can you figure

out what he is asking for? Other than our assistance, that is."

The older man answered. "When he states that he is tasked with a disgusting job seemingly the result of disasters, I would think he is talking about corpse removal. Or, at least, locating the dead and recovering the remains so that families can claim and have a death ceremony over them. Both are terrible jobs and too often required."

Damon nodded. "That was what we thought as well. But you say that this man isn't who he says. Does that mean he isn't a Mr. Singh, or he isn't an official with this department or even the government?"

"Yes and probably no," came back the cryptic answer. "Singh is a relatively common name, but the fact he didn't include his first name says that he is hiding something and doesn't wish to be implicated should people above him deem his attempts to contact you to be improper. I would advise great caution until he comes clean."

"How direct can we be?" Tom asked.

"Because he has opened the door to discussion, it is completely proper for you to request additional information from him before discussing his needs. You can certainly ask for his full name, email, phone number and physical location. Things you might want to be careful of are asking about his chain of command and anything to do with finances. At least for now."

They all spoke for another half hour before Tom and his father thanked them and let them go back to work.

"Since I have the email address this message came from, I think I'll send him that request for more information. But, I want to run what I come up with past you again, if that's okay," Tom suggested.

"We have a couple hours before quitting time, so either before that or tomorrow morning. And, remember, they are eleven and a half hours ahead of us."

Tom knew about the strange time shift; it made no sense to him, but it was what it was.

An hour later he finished the draft of his response message and passed by his father. Mr. Swift had suggested that the Legal department ought to take a look at it before it was sent out, and Tom was now walking up one flight of stairs and to the far end of the hall from their shared office.

Jackson Rimmer, one of three senior attorneys in the department, greeted Tom at the main door and ushered him back to his office.

"Okay, Tom. You've intrigued me greatly with that phone call, so

let me see the incoming messages first, and then we'll take a look see at your answer." He reached over the desk and took the first page from Tom's hand. He nodded several times as he read it over before reaching out to take the response page. This, too, he scanned and nodded over. He then read the second message from Mr. Singh. Finally, he looked up.

"It is just six here and five-thirty a.m. there, but I believe this individual may be reachable right now."

Tom, puzzled, asked how that could be.

"Easy. The date and time stamp on that first message was almost exactly twenty-four hours ago. Whoever our Mr. Singh is, he seems to be on this computer at a time when everyone else in the office is probably still asleep. Let's give this a try." He reached for his wireless keyboard. After glancing at the email address he began to type.

Five minutes later he sat back. "Unless I am totally off base here, we ought to see something coming back in the next five minutes or so."

They only had to wait three minutes.

"Ah, and here we are," Mr. Rimmer said leaning forward and clicking the button on his mouse. "Let me read what our mystery person has just sent. 'To Mr. Tom Swift of the Swift Enterprises Company. I do not comprehend why you have remitted with questions for me. I am not free to discuss anything about my opportunity over the Internet. I beg you to please come to Delhi and meet with me as soon as you are capable.' and it is signed simply 'Mr. Singh.' I would say that is a most suspicious response. If I were Harlan Ames—and I strongly suggest that you bring all of this to his attention—I would be warning you about any such travel based on this sort of response." He raised his eyebrows and looked meaningfully at the young inventor.

"Could we send one more message, please? I would like to try a little stronger tact."

Jackson nodded. "Of course, Tom. I agree with your first response and believe you have every right to send a more strongly worded message now. Do you want the keyboard or would you like to dictate. I'm pretty fast, and once we have it in the computer, we can both edit it."

Tom nodded. "Sure. How is this? Mr. Singh. Swift Enterprises receives dozens of requests of our time each and every day. Usually these requests include information sufficient for us to understand

the nature of the request. You have not provided such information, in fact you seem to refuse to do so. You have also not had the courtesy to give me your first name, the actual reason for your requested meeting, or anything that would differentiate a serious request from an attempt at setting up a trap."

Tom looked at the lawyer to see if this was going too far. Jackson pursed his lips several times but finally tilted his head to the left and nodded. "I'm changing 'differentiate' to 'separate,' but go on," he prompted.

"I find it suspicious that you are communicating with me several hours before any government office ought to be open. And so, I will give you one more opportunity to provide me answers to my questions and a reason to even consider coming to India. Yours, Tom Swift." He sighed. "I think that does it."

Three minutes later and with only one other change, the email went out. This time a full ten minutes passed. Tom was about to suggest they call it an evening when the lawyer raised one finger. "Got the response!"

Tom stood up and came around to the side of the desk so they could both read the message together.

Mr. Tom Swift,

My position may be in danger providing the information you demand, but I see no way other than to do so. My name is Raj Singh and I am a minor functionary in this department. My position is about to be eliminated unless I can find a way to solve a problem we have that nobody else wishes to approach. Every year we have many buildings that collapse due to poor construction and overcrowding. We can eventually recover most of the dead as they remain in a small area. But, in our northern states we have so much rain that entire hillsides soften to the degree where they slide down and often travel distances. No matter what the government tells the people there, they always build on hillsides so that the safer lower land may be used for agriculture and livestock. In the low lands, these rains bring floods. Many thousands of people are buried or swept away each year.

The people are afraid that the government will take their lands and so they do not trust us when we arrive with heavy machinery to dig out the dead. And so, to keep my employment I have told my superiors that I will be able to have the great Tom Swift build a machine for us to use to find all of the bodies.

My communication with you must be in secret for now, and any such machine you build must be created and delivered in secret so that our government and my department may claim responsibility to gain trust.

I must go now and will email tomorrow at this time.

R Singh

"Does his answer help you, Tom?"

He nodded. "Yes, Mr. Rimmer, it does. Now, I will let you head home while I call my wife to beg for her forgiveness in being what will end up as two hours late for dinner. I'll leave a message for Harlan and follow that up tomorrow. Oh, and thank you for your help." He shook the man's hand, picked up his papers plus printouts of the two emails that Jackson Rimmer had sent to his printer, and left the office.

When he arrived home, his young wife, Bashalli—Pakistani born but raised in the U.S. since the age of ten—greeted him with her customary hug and multiple kisses. More than three years earlier she had, warily at first, begun dating Tom. Her traditional parents held hopes that they might arrange a wedding between their only daughter and a nice Pakistani man, but had quickly seen how devoted she was to the inventor, almost two years her junior. Their romance had flourished and Bashalli's parents had given into the inevitable, now fully embracing Tom as their son.

"Sorry I am late," he told her as they walked upstairs, hand in hand, so that he could change into shorts and a t-shirt. He explained the odd message exchange and was finishing when they got back to the kitchen.

"I wish I knew how much of this to believe," he told her. "If this is in earnest, then I believe that I can do a lot of good for them, and pretty easily."

"Do you have an idea of a new wonder device?" she asked him, knowing that Tom *always* had some sort of wonder device or revolutionary machine stirring in his mind.

He smiled and kissed her on the tip of her nose. "Actually, I do. We have the sniffer equipment I first built for the Aquatomic Tracker. If you recall I updated that when we went after all those sunken nuclear submarines. All I have to do is adapt it to sniff air samples and check for the signatures of dead animals and human remains."

She looked at him quite seriously before asking, "Do you really believe you can program even that amazing device to pick up on the

scent of a person covered in mud?"

Now, Tom sadly shook his head. "Yes and no. Not a live human. By the time anyone could get what I have in mind to a site, particularly the mud slides and flood areas, it would be too late to find anyone alive. But, I can have it set to sense cadaverine and putrescine, the two main gases let off by decomposing flesh."

Bashalli wrinkled her nose. "Ick! But, will that not also find dead animals?"

Tom considered the question. "Yes, it will but I believe that I can divide the results. Of course, I'll have to find a way to get samples of several types of decomposing flesh, and even at different stages of…" His voice trailed off as he sought to recall a piece of information. Moments later he shook his head and snapped his fingers. "Got it!"

"You certainly do, my wonderful husband, and I love you for it, but I suggest that we stop this discussion and have dinner. If you need to, please go to your little office and make a few notes, silently. I, for one, wish to keep my appetite." Now, she went up on tiptoe, pulled his head down a little, and kissed *his* nose.

"Give me three minutes," he requested.

"I will give you five because I know you have no such things as a three-minute internal timer!"

CHAPTER 2 /
THE ELUSIVE MR. SINGH'S CADAVERCAR

THE FOLLOWING afternoon Tom was prepared for his next exchange with the somewhat elusive Mr. Singh. At three-thirty the expected email arrived. In it, Raj Singh explained the nature of his request again. This time he added information that helped the inventor see that the request might be a very serious one. This included statistics related to illnesses that ran rampant in areas where unrecovered bodies often came to the surface with the next rains bringing cholera and other diseases.

Tom emailed back asking if there would be any way to set up a video link. It might be more easily detected by anyone watching for suspicious communications, but he knew that he couldn't trust the sincerity of the man at the India end of these exchanges until he could see him, and heading to India for such a meeting was not going to be allowed. Harlan Ames and Tom's own father had forbade it for safety reasons.

A brief message came back just before five:

> I must travel south to another state to do this, but can take a train tomorrow on my interval off. I will provide connection details at this time tomorrow. Thank you and blessings for help you might give us. And me. R.S.

When Tom passed this by his father and Security manager, both asked to be allowed to sit to the side during any such communication. He readily agreed, and the next afternoon after receiving a short and cryptic message, Tom, Damon and Harlan sat in one of the small video-conference rooms in George Dilling's Communications building.

It required several minutes of adjustments to get a clear picture, but finally a dark-skinned Asian man appeared on their monitor.

"Mr. Singh. It is nice to see you, finally."

"And I you, Mr. Swift. May I say that I sincerely hope that you have good news for me. Something that may give me some hope that the dead and missing may be located and finally recovered. We have far too many cases of illness and death caused by their decomposing bodies." He looked almost beseechingly at the inventor.

"I have a clear idea of what I might be able to provide, and I hope

we can do that for you, but there are so many details to work out. For one, your messages stated a need for secrecy, so how do you intend to get anything into India?"

Raj Singh gave Tom a sad look. "The same way in which we get anything done in this country. We will provide ample funds to certain people who will have never observed anything."

Tom also looked sad, but he nodded is understanding. "Okay. Let's put that aside for now. I hope you understand that we cannot break the law in either our own country or in yours. And, I also hope you understand that while yours may be an honorable request and one based on you wishing to provide a humane way to handle your disasters, we can not do this without payment."

Singh nodded and a small smile played around his lips. "Yes. I and my superiors fully understand that. As to breaking laws, rest assured that this is to be fully sanctioned within the government of India. I trust that your own country can find that it is within your laws as well. I must leave that part to you. However, before I go— and I must be off of this connection in—" he glanced down, presumably at a watch— "two minutes, I must ask if you have any knowledge as to when you might be able to provide details of your device necessary for the funding to occur, and also when you might be capable of making delivery on this machinery?"

Tom glanced at his father briefly for confirmation on what they had talked about just an hour before. "Mr. Singh. I have a device that can be repurposed in well under one month, perhaps as little as a few weeks, and made mobile so it might travel to your sites under its own power. There are a few details I must work out, but as soon as you can provide at least half of the funds we will get started."

He named a price that the man appeared to consider high, but they watched as he pulled a calculator out and did an equation. He raised his eyes and smiled. "My mental arithmetics were incorrect. That is within what I am certain we can fund. I will email you in three days with our agreement after you are able to provide a description of the device and how it will operate. I understand that you cannot give technology details and do not ask for those… Oh, I must go! Thank you."

With that, the connection was cut and their monitor went black.

* * * * * *

Bud Barclay walked across the floor of the underground hangar and under the nose of the giant *Sky Queen* super jet, one of Tom's early major inventions and his very first once he had turned eighteen. Out of pilot's habit he tapped the underside with affection

for luck before walking into Tom's underground office, lab and small apartment.

"Hey, skipper!" he called out coming through the first door. When he received no answer he walked through and into the laboratory area. Still no Tom, so he knocked on the door to the small bedroom/bathroom Tom sometimes stayed in when he needed to work late at night. Such stays had greatly decreased once Tom and Bashalli were married, but that didn't mean the inventor might not be taking a little nap.

After peeking inside and still finding no blond inventor, Bud—a former high school football star, Tom's best friend and the man engaged to Tom's sister, Sandy—left the hangar a little bewildered. But, he stopped and smiled on leaving the elevator at ground level and finding Tom waiting for him twenty feet away.

"I wondered when you'd come back up. Evidently you were so engrossed in thinking about your upcoming marriage to Sandy that you didn't hear me calling out to you." Tom told him. "I tried using the TeleVoc but remembered that the repeater for the *Queen's* hangar is being replaced. So, first you tell me why you came to see me and then I'll tell you where we're going today!"

"Well," Bud said with a noncommittal shrug, "I came over to see if you wanted to go grab some Italian food in town for lunch."

Tom had an odd grin on his face. "Uh, you might want to not have much in your stomach, flyboy. We're heading down south and to the body farm at the University of Tennessee down there."

"Body farm?"

Tom nodded. "Yes, as in the school's Anthropology department's decomposition facility. I need their advice and also want to take some air samples." He explained the basic human remains device Raj Singh was hoping to have Enterprises build.

"Ick!"

"Yeah. That's what Bash said when I told her about all this. If your delicate stomach can stand it, I'm going to need a little help."

"Can I wear nose plugs?" Bud asked.

"I believe it is almost mandatory for visitors. They can't have all sorts of emptied stomach contents messing up their experiments."

"Well, thanks for that visual, Tom. And, double ick! So, what can these folks tell you about or give you samples of?" Bud stopped walking, seeing that they were back at the small stairs and elevator building leading down to the underground hangar. "Uh, aren't we

going to take the Toad?"

So named for its similarity to an amphibian when viewed from the front, it was designed to be a nine-to-thirteen person commercial and corporate jet, but Tom had retained the original test model as his personal jet.

"Nope. We're taking the *Sky Queen*. She's faster and already has all of the equipment I need to perform tests and samplings." Although he could easily press a few buttons and have the Flying Lab raised to ground level while he and Bud waited, Tom preferred to be in the jet when she came up. The fairly slow 30-second trip gave him time to turn the ship on and begin the systems checks. By the time the robotic tug pulled her off the elevator platform and over to the special takeoff pad—one made of alumi-steel to which the jet's repelatrons were already programmed to repel—the *Queen* was ready to go.

"Tom to tower," he radioed.

"Tower, skipper. Looks like you're off on a little trip. I've filed your flight plan with the FAA. The temperature is eighty on the dot; barometric pressure at two-nine point nine-five and steady; winds from due east at three. I have a TransCon heavy entering the area in three minutes at three-five thousand. Next closest won't traverse the area for eleven minutes. No local traffic. You are cleared for takeoff to two-eight thousand. Contact all the proper authorities once you pass ten thousand, and you know the rest. Happy flying!"

It was an uneventful flight to Tennessee where a rental delivery van met them. The driver, a local man, helped them bring three large cases out of the jet's hangar and load them into the van. His company had briefed him on the destination. Wrinkling he nose, he asked Tom, "You sure you want to go out to corpse-ville? Pretty disgusting place."

"Yes. I need some of their research and a little of their local air."

With a shrug the driver set off. It was a beautiful drive if a little humid for the time of year. When they pulled up at the gate, the man pulled three packs of foam earplugs out of his shirt pocket. Tearing one open, we squished the plugs into thin sticks and inserted them into his nostrils, holding them until they expanded again. He gave the other packs to Tom and Bud and suggested they do the same.

"These work a lot better than the paper masks they hand out. But, I'd use those too if I were you. Catches anything that comes up." This caused him to laugh.

They got out and Tom walked up to a woman in a white lab coat. She wasn't wearing any nose or mouth protection but didn't seem to mind. "Welcome, Mr. Swift… Mr. uhhh?"

Bud leaned forward and shook her hand. "Bud Barclay, ma'am."

"Right. Well, it's Kathy and not ma'am, and nice to meet you. I see your driver gave you the local version of sinus protection. Before we go into the yard I'll give you R-95 masks, but I suggest you keep those in. Until you've worked here a month or more, and your nose gets used to the smell, it's never a good idea to get even a tiny whiff."

The four people unloaded Tom's cases and carried them into the small office building. Since Tom knew he only had about one hour of Kathy's time—Dr. Katherine Gladstone was a very busy woman—he requested that their driver be allowed to staying the office.

After slipping on disposable paper jumpsuits, Tom and Bud hauled out a miniature version of his Aquatomic Tracker—the multi-tubed "nose" unit and the box with the "brains,"—and followed the doctor out the door.

Beginning with the most recently added bodies—donated human as well as animal—Tom let the machine get a good close-up smell of each of the twenty locations around the half-acre yard. As he was making notes on his tablet computer, Bud activated vacuum bottles to collect samples for further use. Each one took three seconds to fill and then automatically sealed. Finally, they took samples of the soil from each of the grid zones and sealed them in glass jars.

Tom went back to the office and brought out a portable gas chromatograph and repeated sampling the air around each of the decomposition sites. He repacked everything and they returned to the office. The paper suits were wadded up and placed in plastic garbage bags.

Dr. Gladstone gave Tom a thick binder filled with each area's "installation" data, plus all of the center's chemical analysis data based on many years of research. She also sprayed them down with a mist she claimed would keep the smell in their clothing and hair at a tolerable level. Before they departed she offered a word of advice.

"Have your driver take you anywhere along the river where there's a little beach. Get in the water, fully dressed, and stay there for at least five minutes. I hope you brought a change of clothes because if not, your airplane is going to stink for weeks!"

Tom and Bud laughed off the notion and were very surprised when the got back to Enterprises only to find out that they smelled

as bad as Kathy had hinted they would, the odor had pervaded the entire three decks of the *Queen*, and that the jet had to be aired out on the tarmac for five days. And the boys had to take several showers.

But, to Tom it was all worth it. He had what he needed both from a data standpoint and a practical one.

Good to his word, Raj Singh was able to convince his superiors that he had, indeed, spoken with the great Tom Swift and that the inventor could help. His superior, Mr. Ashran Kapoor, made a personal phone call to Enterprises just three days after the videoconference.

"I must first check to see if my underling has lied to me about you and your company. You will understand. You will tell me what he has told you and what you have told him."

Tom was bothered by the man's tone of voice. So much so that he replied, "I do not take kindly to people I have never met ordering me around, Mr. Kapoor. If you wish to verify anything, ask politely or not at all."

There was silence from the line for long enough that Tom was about to inquire if the connection were still active, when the other man's voice came back on. "I do not understand your hesitance to tell me what I wish. I may make a strongly worded complaint to your embassy—"

Tom heard nothing more as his father, who had been listening from his own desk, had just walked over and pushed down on the disconnect button.

"I believe that is just about enough of that," he said before returning to his desk. There, he picked up his phone and pressed the button for their secretary.

"Yes, Mr. Swift?"

"Trent, please find out who in the State Department is responsible for business relations with the government of India. We've had a rather unpleasant exchange with someone I believe may be a bit full of his own perceived power."

By an hour later several things had happened. Mr. Kapoor had been removed from the project and his former underling, Raj Singh, had been elevated into that position. The Undersecretary for Business Affairs for South-East Asian Nations (Arabic/Hindi/Muslim) made it clear to the Indian government that if Swift Enterprises or any other U.S. company were to be involved in the

project that everything had to be above board. Finally, Raj Singh called both to thank Tom and to request the international monetary transfer information so that funds could be sent to Enterprises the next business day.

For three days Tom worked furiously converting a brand new atomicar—fresh off the line at the old Swift Construction Company—for use with his new body decomposition sniffer. On seeing the almost complete vehicle Bud grinned, tapped the nose of the car with his cup of soda and said, "I proclaim thee, *CorpseMobile*. Long may you sniff!"

Tom let out a groan and came around in time to wipe off a few droplets of water that had transferred to the hood near the short array of tubes that were the "nose" part of the tracker. "Sorry, flyboy, but you can't do that. I came up with *CadaverCar* last night, but her actual designation is the Swift AMDS-One. And, before you ask that's Atomicar Mounted Decomposition Sniffer."

"A nose full *and* a mouth full!" Bud quipped.

The incredibly detailed data Dr. Gladstone had provided was so accurate that when Tom tested the car that afternoon—using two small pieces of cloth that had been exposed to the cadaverine gas from a human and from a pig, both buried under three feet of damp dirt—the sniffer detected and properly registered the type of decomposing flesh within five seconds of the car floating a few feet over the ground.

The day came just a week later when Tom, Bud, Hank Sterling and Red Jones—one of Enterprises senior pilots—took off in the completely aired and deodorized *Sky Queen*, heading for the other side of the world. Traveling at sixty thousand feet and Mach-2.2, the *Queen* and crew arrived over the airport at Delhi in a little over ten hours.

A tired but happy man met them as they walked toward the terminal at Indira Gandhi International Airport.

He bowed in front of Tom and swept his right hand over the toes of Tom's shoes. Tom had been briefed about this form of honor and secretly smiled as he watched the other three become uncomfortable. Finally, the man stood up straight and held out a hand. Tom shook it. He recognized the man from their videoconference.

"Mr. Singh? It is a pleasure to meet you face to face. This is my best friend and test pilot for my company, Bud Barclay, and this is Hank Sterling, the man responsible for patterns and molds and

other items necessary to mass produce many of our products, and finally may I present Red Jones, one of our senior transportation pilots."

Everyone shook hands but Tom could see the nervous eagerness in the man's face.

"Since we are going to need to get the device off the airport land, I suppose we need to go through customs."

Raj Singh made a slight shake of his head. Quietly he muttered, "It will not be necessary. Everything has been… arranged for us to simply leave."

Now Tom shook his head. "Remember. We do everything above board. And, that includes following rules. Of course we won't mind getting a bit of front of the line privileges to speed thing up, but we won't just sneak into India."

I took only ten minutes and they all had stamped passports. The atomicar was soon rolled down the ramp and stood waiting. Tom gave Mr. Singh a tour of the vehicle that brought a huge smile to his lips.

"This is even more magnificent than we had hoped. There are many dozens of local wealthy merchants who drive such vehicles and so this one will only gain slight notice."

All five men climbed into the car and drove out of a nearby gate. The facility where tests and the demonstration would happen was just ten minutes away. When they got there Tom and Bud set up eleven samples around the large parking lot while Mr. Singh went to get the officials to view the demo. A worker helped them by using a tractor to drop thick piles of dirt on each one. Tom had a word with him and there were soon five additional piles with nothing underneath.

Raj Singh and a delegation of more than twenty men, and a single woman, appeared minutes later. Tom went through all of the details of how the equipment worked—mostly automatic—and the things it could determine.

"It can detect human remains as well as those of other animals such as cows, oxen, goats and sheep. Beyond that, the computer will, in most cases, be able to tell the operator how long the body has been there. We added a thermal sensor just in case you can get this to places where people might still be alive but trapped under something, as in the case of a collapsed building."

The more he spoke the broader everyone's smiles became. At one

point he noticed that the woman had walked several dozen meters away and was speaking into a cell phone, but he thought nothing of it.

With five of the officials riding in the sniffer car, Tom successfully identified each and every one of the samples.

In all he had to repeat the demonstration enough times so that everyone outside could sit in the atomicar and see the system in action.

With handshakes and words of gratitude—except for the woman who had disappeared earlier—the demo concluded and the officials went back inside, talking excitedly.

The most excited was Raj Singh. He was on top of the world!

As they headed back to the airport, this time in a government limo, the Enterprises men were happy. Everything had been a great success and a promise of an order for several more had been discussed.

"Stop the car!" Tom ordered as they came around one of the airport's buildings and the *Sky Queen* came into view. Leaning up against the jet in at least five locations they could immediately see were men with heavy backpacks standing on ladders apparently trying to break into the jet through various windows with picks!

CHAPTER 3 /
"I THOUGHT QUONSET WAS A HUT?"

TOM WAS speechless. The driver turned around, wide-eyed, not understanding what was going on. All he knew was that Tom and his team now jumped from the limo and ran for the jet, screaming at the tops of their lungs.

"What are you doing? Get away from there! I said—"

But Tom stopped short. He held his arms out to keep the others from continuing on. What he now saw caused him to break out laughing.

The "men," who he could now see were teenaged boys, were not wearing heavy and dangerous backpacks. The tools in their hands were not designed to break into an aircraft's portholes.

What they had were window-washing fluid tanks and squeegees.

Somebody had arranged for them to wash the *Sky Queen's* windows. Tom recalled the phone call the female observer had made and laughed. Now it made sense.

Soon, they were all laughing… except the driver who had jumped from the car to come after them. "Sir? Sir? They are employees of the airport and it was arranged by Minister Gupta that they should clean your aircraft. Please, I beg of you most humbly, do not be angered by this." He looked at Tom with such a worried look that the inventor was almost brought to tears.

"Oh, no. I am not angry. It was unexpected, and we have had troubles at other airports, and I assumed—. I was too hasty to react. It is I who humbly ask for forgiveness."

The exchange, indeed all of Tom's yelling, had gone unnoticed by the young people who—like their peers the world over—wore earphones connected to inexpensive audio players. They had heard nothing and were finishing the work and coming down their ladders. This fascinated Bud as most of them appeared to just step backwards, letting go of the rungs and clamping their feet against the outside of the ladder, sliding down to the ground.

"I am definitely gonna have to get myself on of those ladders and practice that!" he declared.

"Presumably for when you elope with Sandy," Tom said jokingly, knowing that Bud was still a bit overwhelmed at the prospect of

getting married.

Tom tipped their driver who stood there, looking at the money in his hand, for a full minute before shaking his head and walking back to the limo. The Swift men unlocked the *Queen's* port side hatch and climbed aboard. Five minutes later they received clearance and were soon streaking for home.

Tom and Bud had done most of the flying on the trip over while Hank and Red relaxed back in the lounge. Now, their positions were reversed, although the inventor requested that they be called just as the *Queen* passed over the West Coast of the United States.

"Will do. Nighty, night, you two."

Tom and Bud spelled the now-weary pilots for the final two-plus hours, but they were still very tired from the whirlwind delivery trip.

So much so that Tom suggested that Bud use his underground apartment while Bashalli drove to work to take her exhausted husband home. On seeing his face, Bashalli demanded that Tom promise to take the next two days—the entire weekend—off.

"See you on Monday, flyboy. If Sandy calls I'll tell her to meet you in the bunker!"

On Saturday morning a call came from a woman reminding Tom about Mrs. Trunbridge's retirement ceremony that evening. Mentally he groaned. It had slipped his mind, but he promised he would be there.

Bashalli ironed a white shirt for him and he pulled out the tie he infrequently wore. It took two tries but he managed to tie a good knot.

"I approve, Tom. You look very nice!" she complimented him. "I will be most proud of you tonight."

When they arrived at the ballroom of the Hotel Shopton where the event was taking place, Mrs. Trunbridge spotted Tom and came to give him a hug and a chaste kiss on the cheek.

"I am so pleased you could come, Tom," she told him. "And this devastatingly beautiful woman I recognize as your wife. Hello, Mrs. Swift."

Tom's turn to speak came about ninety minutes later. He stood at the podium and surveyed the audience. In all, more that three hundred of her former students had come, many from out of town. He gave his best memory of her and the time she had called for him to remain after class, telling him, "I know that your mind is a million miles away, Tom Swift, but I need to have you come back to

class at least a few times a day. If you do that for me I won't mind that you are inventing robots and spaceships and who knows what else in that head of yours!" And, as he pointed out to the attendees, she had been right. He praised her for seeing that and for championing the cause of getting him passed up several grades beginning the very next year.

Bashalli's smile of pride lasted until long after they got back home.

By the time Monday arrived everyone was refreshed, so Tom spent some time with Hank discussing a few body changes that would need to be made to rapidly produce a few more of the sniffer atomicars. After that he visited Arv Hanson, the man responsible for making all scale and intricate models of the many inventions to come out of Enterprises.

"Sure I can make a model. I've still got the CAD files for the car, so all I need to do is add the fifteen tubes in the sniffer array and work up a computer station in the other front seat. Uhhh, that is unless you want this one to work."

"No. Just one of your usual beautiful models, Arv. I want something tangible to inspire me. Thanks!"

Tom left the man's workshop and office heading back to the shared office in the Administration building. He sat down and went through the small group of emails that Trent hadn't already weeded out. The secretary had done his usual job of keeping both Swifts from receiving a bunch of begging letters and the occasional crackpot threat. People begging—usually worded with phrases like, "You have so much money…" and "We do such incredible work but must have your financial support…"—mostly received a personalized regrets letter, while a few received a letter suggesting that they apply through the Swift Charities Foundation for a grant.

Threats were redirected to Security. But a few personal appearance requests and inquiries about projects that seemed legitimate and interesting went to right Tom or Damon.

The younger man was reading a very intriguing letter when his father came in.

"What have you got? Your face says it is important."

Tom handed the letter over. "It's from a fairly small airport that hosts a military air reserve unit. They need some help with their runways and I was thinking that it might be a great chance to try out the two surface repair machines we now have."

"Oh. So you've finished the concrete one as well? Hmmmm? Says here they have funding and even gives a Federal project number. Have Sales follow up on this. It does seem tailor made for your tests."

The following morning the Sales manager called to tell Tom it was definitely a legitimate project. "They have the requisite three bids that all are evidently sky high and call for lengthy closures they can't afford. They are really interested to see with Enterprises can quote. I told them you'd call to make an appointment.

Tom did and by Thursday he had an appointment to speak with the Airport Manager four days hence.

"Ready for a trip?" Tom asked as he walked into Bud's small office on one side of Hangar 6 the next Monday.

"Sure? Ready and curious. Where to and did you already tell me about this and I'm having an early onset senior moment?"

Tom made a 'follow me' motion and they walked out to a waiting electric mini-car, one of many kept for employee use. As they drove back toward the main cluster of buildings, Tom explained. "I need to go meet with a man at the Quonset Field in Rhode Island."

"Field? As in airport? I thought a Quonset was a building of some sort. Kinda round top? Corrugated metal? World War Two? Gomer Pyle?"

"Well, you are right about that, but in this case it is a small airport that sticks out into the bay about eighteen miles south of Providence. Maybe a hundred and eighty miles from Shopton. Still interested?"

Bud grinned and his head bobbed up and down. "Yep!"

They climbed into Tom's personal version of the Toad. As the original test build it was frequently used to assess new technologies for the popular commuter jet. At the present time it still sported the super low-profile engine cowlings and mounts from tests performed when Tom was building a three-winged jet for the U.S. military. Bud had asked Tom to leave it like that because it made the jet even quicker and looked very sleek and futuristic.

"Makes the Toad look like it's squinting!"

Tom only briefly mentioned the reason for the flight before the subject had turned to Bud's recent engagement and forthcoming marriage to Tom's sister, Sandy. Though Bud was hopelessly in love and devoted to her, talking about their relationship always made him uneasy and so he was glad when the time came to prepare for

landing.

The jet swung around to the south of the bay and was flying north over the water and a series of islands.

As they came lower over the water, Bad radioed, “Swift Two coming in to landing at Quonset. Over.”

A man in the tower radioed back, “Roger. In about a minute you’ll cross over a small island shaped like a pork chop. Just north of that is the I-138 bridge over the bay. A mile and seven eighths north of that is Gould Island. Shaped kinda like a thumb. Used to have a torpedo test rig at the northern tip that you can still see. As soon as you get over that turn right to three-zero-zero and our main runway three-oh will be dead ahead four point five miles. I have to warn you that the runway is a bit rough so I hope you can hit it flat and slow.”

Tom looked at Bud who was piloting. The flyer had a nonplussed look on his face. Keying his mic, he answered, “This is Swift Two. We’re in a corporate jet, Swift model SE-eleven, and we can land as slow as eighty-two knots. I hope that isn’t too fast.”

There came a slight chuckle from the tower. “Barclay? Is that you? It’s Deke Bodack.”

“Hey, Deke, Good to hear you’re employed again. We’ll catch up after we set down, but what’s the real skinny about your field?”

Deke had been a member of the Coast Guard months earlier when Bud was assigned to fly with them during a large-scale exercise. A young sailor almost lost his life during a man overboard drill and Bud had driven himself to exhaustion trying to locate him using a tiny prototype Swift helicopter. Deke had been the ASAC, the anti-submarine air controller, on the largest of the Coast Guard ships and had remained on duty the entire time Bud insisted on flying. In the end, the sailor was rescued when Bud spotting his small life raft in spite of a terrible storm. After landing on the cutter, Deke had come down to the flight deck to meet the man he had been directing for more than twenty hours. The two became friends, although Bodack left the service only a month later when his twenty years were up.

“Yeah, it’s a doozy. If you picture how bad flight ops were on the cutter in that storm… well our deck isn’t moving but it’s just about as tricky to find a good landing spot. We’ve got a few Army National Guard C-130s here, and even they complain about the rough surface. Oh, hey! I think I see you out there. You in a strange jet with top-mounted engines and a fat belly fuselage?”

“Yeah, that’s us,” Bud radioed back as Tom tried to stifle a laugh.

"I'm seeing your pork chop ahead. If you can, come on down once we park we can catch up. Uh-h-h, by the way, where *do* we park?"

"Once you pick up your teeth, taxi back toward the new taller tower and park anywhere in the spaces to my northeast. There's a bunch of Cessnas and even a few of those Swift *Pigeons* out there right now. See you in about ten."

Tom had heard all about Deke and the numerous beers he had plied the just turned twenty-one-year-old Bud with once the ship returned to port. Bud was a hero, but he felt bad for having taken so long to find the nineteen-year-old. In the end he had convinced Tom to develop his Digital BigEyes system, a hand-held version of Tom's SuperSight system combining a very strong telephoto lens with computer enhancement and special alternate light detection making it possible to bring an object several miles away appear to be just yards away, even when clouds and bad weather were between them.

As the Toad swung to the left on its final heading both young men could finally see their destination. From this distance it appeared that the runway started right at the water's edge. Quonset State Airport was built on a small tract of land that jutted out into the bay, and had required that some landfill be added to give it enough area for its outer taxiway and original runways.

They quickly passed over the end of the island where the town of Jamestown sat, and then the last stretch of open water before Bud made their final radio call.

"Quonset, this is Swift Two. We have visual on the runway. Approximately one mile out, two hundred feet up and speed of one-one-five. Ready or not…"

"Yeah. Come on down. You'll want to pass over the threshold at under thirty feet, and at your chosen landing speed. Winds are negligible from three-oh-five at under one knot."

"Roger. Thanks." Bud brought their speed down a little, lowered their landing gear, went to full flaps to provide lift to counteract their lessening speed, and allowed the jet to drop until it was just fifty feet above the calm waters. Looking ahead he let out an exclamation. "Rat bags! Take a look at that runway, skipper. It's got to be more patch than paving."

"Which is exactly why we've been asked to come here," Tom responded. "The National Guard and their active Army folks want to make greater use of this facility, but it's a little—" He paused as Bud brought the jet down onto the runway just two hundred feet down from the threshold markings. As they rolled and bounced a little,

and engines reversed to slow them, he continued, "—rough for their likings. We really made a hit with them in Florida when we repaved the runways at Homestead Air Force base."

"Sure, but if you will recall, you almost got killed building that infernal tarmac machine. And this isn't even asphalt. It's got lots of asphalt patches," he commented as he swung the jet off the runway and headed back on the inside taxiway, "but it seems to be primarily concrete."

Tom's original paving revitalizer was designed to chop up, grind down, remix and lay back out asphalt in a single process. And, Bud was right. While building the machine it had toppled off of its stands partially crushing and puncturing the inventor. But, it had been in operation ever since both at Enterprises—where it was used to revitalize every foot of every runway, taxiway and road inside the complex—and on at least three highway projects in the northeastern states.

"True, but I survived. Besides, I plan on bringing down two machines. The asphalt revitalizer and a new one we built that will do pretty much the same thing with concrete paving." He stopped because Bud had just brought them to a halt in a parking slot in front of five small hangar buildings.

Striding across the concrete area was a man who appeared to be about Damon Swift's age accompanied by a young woman who was struggling to keep up. The man was over six-and-a-half feet tall with very long legs while the woman looked to be under five feet.

Bud shut everything down and popped the canopy open. It swung upward and he and Tom stepped out just as the odd pair arrived.

"Welcome! Welcome, Tom Swift… uh, and friend," the man practically gushed. "Quonset State Airport awaits your help." He dramatically swung his right are around in an arc indicating all of the airfield behind them. "I am Alan Digby and this is my daughter, and right-hand girl, Darla." He stuck his right hand out and gave an enthusiastic nod.

Shaking the man's hand, Tom introduced Bud. As he did so he could see that Darla Digby wasn't paying any attention to either him or her father, having locked an adoring gaze onto Bud.

Digby gave his daughter a withering look, rolled his eyes and looked at Tom as if to say, 'What can you do?' He ushered everyone to the north and they walked toward the small administration building. Along the way, Tom explained what his machines would be doing for the airport.

“To start with, we will need to shut down the main runway for about eleven days,” he said watching Digby’s astonished look at the extremely brief timetable. “Our machine will start at one end grinding and tearing out the concrete and rebar underneath. The rebar will be loaded into trucks that you will need to supply. It can be sent for recycling as our system doesn’t use it, yet the runway will end up about thirty percent stronger.”

He explained how the concrete would be pulverized, practically to dust, mixed with a Durastress mesh, infused with a strong binding agent, slightly moistened and then laid back down in a smooth, compacted strip exactly ten feet wide.

“We use a precision laser guidance system that keeps us to within one millimeter per three-hundred foot length, and that lets us bump the next strip over so tightly against the first that you almost can’t see the separation. A special sealant makes certain nothing grows in the crack. Everything dries to the point where it may be walked on in one day, driven on by cars on day two, and then fully set, cured and ready for air traffic on day six. The reason we say closed for eleven days is that it will take about five days to do the complete runway.”

The asphalt taxiways and aprons, he explained, would be done next, but had to wait for the finished runway work.

“Why can’t they be done at the same time? I mean,” Digby almost stammered, “I am grateful that we won’t be down for very long at all, but I am curious.”

Tom laughed. “Well, we use the same power head unit for both of the machines. We can’t run both of them at one time. Plus, we need to have both sides of the concrete slabs completely set to work against.”

While Tom and Mr. Digby spent the following hour laying out plans and coordinating possible dates, Bud was struggling to find a good way to handle the young Miss Digby. She turned out to be just seventeen, a bit boy crazy, and totally in awe of the handsome flyer, asking him a constant stream of questions about flying and how much weight could he lift and what it was like to be famous and did he have a girlfriend…

It was when he paused and answered here truthfully about Sandy Swift that all talking stopped. Darla, like many girls, immediately saw Sandy Swift as her sworn enemy—the “other woman” who had her clutches on Darla’s new man. She even pouted a little at the news.

He was never so relieved as when Tom and Alan Digby stepped back out shaking hands.

"That is tremendous news," Digby was saying. "So, three weeks from tomorrow your jet touches down with the equipment and the men to operate it?" Tom nodded. "Wonderful. I've already filed with the FAA for temporary closure, I just have to run over to Providence to borrow a couple of their 'runway closed' signs."

"Uh, what about your diagonal runway?" Tom inquired. "That will need to be closed as well. We can't have anyone crossing the main runway."

It was obvious that Mr. Digby hadn't considered that, but he rallied. "Oh, we'll shut that one down as well. Only a few light aircraft use that anyway. I guess the pilots will have to either use another field, or just put up with the inconvenience. Uh… I don't suppose that you will be able to repair that runway as well—" he said, looking hopefully.

Tom shook his head. "It isn't that it's not in your current budget, but our equipment has another commitment after we do your main runway. However, since we will be coming back a month later to do all of the concrete parking apron areas we can arrange to do the cross runway at that time. You won't have to close the main one as we will work on either side and not right through it."

Mr. Digby had to beg off walking back to the Toad and Darla had disappeared in a little snit, so Tom and Bud went back to the jet. There, they were met by a trim man in his late thirties. Tom recognized him from Bud's descriptions.

"Deke!" the flyer exclaimed rushing forward to give the man a bear hug.

"Barclay, you son of a gun," he responded. "How ya doing, kid?"

The three men walked into the nearby hangar where a small coffee room took up a back corner. After pulling three bottles of cola from the refrigerator, Deke sat down with Tom and Bud.

Bud and Deke entertained Tom with their memories of the Coast Guard exercise and how Bud had talked Tom into the Digital BigEyes.

"Yeah, I know all about those. You know I was only in for another month or so after that, but we took delivery of about twenty pair of those the day before I retired. Too bad I couldn't hang around another two months. I understand you've just started shipping those Wasp helicopters. I love the one you brought down to demo.

Just wish I could have flown it. I have my fixed wing and helo licenses, but since flying wasn't part of my Coast Guard rating there was no way I could get permission—even if you could have let me have a go at it," he added looking at Tom.

The inventor nodded. "Deke? I don't know if you've heard but we're going to be repairing your main runway in about three weeks and this place will be closed for nearly two weeks. If you have the time off, why don't you come over to Shopton and spend that time at Enterprises. We've got some visitor apartments and all the food you can eat. Plus, once we check you out you can try out any of the four helicopters we build. Fixed wings as well."

By the time Tom and Bud had to leave a half hour later, Deke was still beaming at the idea, and promised to call and set things up the next day.

On the way back to Shopton Bud asked about the sniffer project. "It's kind of morbid, when you think about it, but it sure will make a difference all around the world, won't it?"

"That's what I'm aiming for. In the few days they've been using it, the *CadaverCar* has made a complete sweep of a landslide from about five months ago."

"Did they locate anything?"

Tom nodded. "Yes, they did. About thirty bodies nobody previously had been able to find."

"Well, at least the families will have some sort of closure."

Tom was silent for a moment.

"What is it, Tom?"

"They may never know who they located. The previous attempts involved heavy machinery and things were a little… mixed together."

Bud gulped and said nothing the rest of the way back to Shopton.

CHAPTER 4 /
TEST IN THE DISASTER ZONE

TOM SPENT the next week making refinements to his sniffer system. He believed efforts at making *major* enhancements beyond its current capabilities would be doomed to failure but wondered if it might at least be possible to differentiate remains from multiple people. It was going to take a much higher degree of separation of the scent gases than ever before, but he had a notion he wanted to follow up on.

His work was interrupted on Friday by the arrival of Bud along with the flyer's fiancé—Tom's sister Sandy—and Tom's wife Bashalli.

"Time to set aside the tools and gizmos, skipper," Bud declared. "If you will check your datebook, *date* being the operative word, you will see that we are due to take our ladies out to dinner down in Albany tonight."

Tom's face revealed his temporary cluelessness before it came to him. "Oh. Right. A new restaurant. Australian? No, wait. Goats, cheese and echoing Alps?"

Bashalli crossed the room and kissed her husband. "Will it help you to remember if I begin to do that voice thing? Yokeling?"

Tom, Bud and Sandy broke into gales of laughter. Bashalli might have spent the past dozen years in America, but every once in awhile a term or name eluded her.

As she placed her fists on her hips and narrowed her eyes, Tom told her, "It's yodeling, Bash. You were very close and we shouldn't have laughed. Forgive me?"

Her resolve melted and her hands dropped to her sides. "Fine. But only as long as the two of you treat us to a very nice dinner there. At the new *Austrian* restaurant. And, your choice of a movie or bowling after that."

Tom looked at his sister. During his most recent project on Mars, Tom and Bud had been away for weeks at a time. Sandy had introduced Bashalli to the sport while on a shopping trip to the nearby town of Thessaly, and Bashalli was hooked. And, to Sandy's chagrin, the beautiful Pakistani was instantly at ease and knocking seven, eight or even all ten pins down at a time.

"I think Bash would like to go bowling," Tom replied. "So would I. It's been half a year at least. If you can give me ten minutes to

finish a few notes then we can head out straight from here."

The short flight down to Albany was made in a prototype of the new version of the venerable *Pigeon Special*. The final model in the series, the *Pigeon Commander*, looked more like a scaled down version of Tom's Toad than the original over-wing plane. Like the Toad it sported a pair of engines mounted to the wings, but these were built so that they seemed to be part of the wing itself. The cockpit hung underneath but was smaller, accommodating six or even seven people. The other main difference was that the single tail boom featured a completely vertical stabilizer instead of the V-tail.

Sandy piloted them down with Bud as her copilot. When they climbed out at the Albany airport, her face was flush with excitement.

"Tomonomo? I absolutely *love* what you've done with the *Pigeon*! Those fanpellers of yours are phenomenal! We must have beaten my old record getting here by fifteen minutes. Wow!"

The original plane had a two-blade prop and could manage just about one-hundred ten knots. The enhanced *Racing Pigeon* had a tri-blade prop, a larger engine and a top speed of one-eighty. But the fanpellers—looking more like turbine fans than traditional propellers—and extra engine gave the new model a top speed of two hundred thirty knots.

Dinner went well with lively conversation happening between the foursome. Sandy regaled them with all of the most recent wedding planning she and Munford Trent had been working on.

The short taxi ride to the bowling lanes was interrupted when the driver pulled over to listen to a news report. He took out a large handkerchief and blew his nose, muttering, "Damn!"

When Tom asked why the stop, the man turned around, eyes brimming with tears, and told them, "That news thing was about a volcano erupting up in Alaska. Mt. Spurr up by Anchorage. My little girl lives up there. I gotta drop you folks off pronto and get home to see if she's okay." With that, he turned around and the cab raced off.

He screeched to a halt in front of the bowling lanes. The foursome got out and Tom was reaching for his wallet when the man took off, tires smoking and spinning, without being paid. The inventor had just enough time to register the cab's ID number.

"I guess I'll have to send a check for the ride," he told the others.

They went inside and rented shoes, found their assigned lane and picked out balls. An overhead TV was showing video of the volcano with closed captioning giving a running commentary. It didn't look

good. The volcano, inactive for only a few decades, had explosively blown out on the side facing the city of Anchorage. As the others warmed up, Tom sat reading the reporter's words.

"Ash, volcanic rock and smoke have enveloped the city. Air traffic was immediately closed and all in-the-air traffic rerouted. There are a few sketchy reports of deaths but no official word. I think I will let these pictures speak for themselves. Daniel Leopold, KASK eleven."

With nothing he could do, Tom joined the others and they had an enjoyable evening of bowling. Bashalli excelled averaging nearly 140 for the four games they played. Tom and Bud scored a little higher and Sandy, distracted by her upcoming wedding to Bud, lagged behind them all by more than twenty pins.

By the time Tom and Bashalli arrived home it was well past midnight so they both tumbled into bed.

The next morning the news was filled with reports of the volcano. It might have been much worse. Only five people were unaccounted for, and had lived in a cabin forty miles outside of the city, but in the direction of the volcano.

"How soon do you think you can have another of your sniffer atomicars built, Son?" his father inquired when Tom arrived at work. "It would not only be a wonderful goodwill gesture but a humanitarian one as well if you could get up there fairly soon."

Tom gave his father a rueful grin. "If I ask the various departments, they can do it in less than two days. But I have a few refinements that will need an extra day, unless you think I need to rush up there."

Mr. Swift shook his head. "I'm not sure. I'll make a few calls but I think that with the possibility of that thing going off again, everyone will be demanding that we stay well clear at least that long. Go ahead and get your changes incorporated. I'll see when you can go."

Tom made several phone calls to the departments involved in building the sniffer mechanism, the computer, and the Construction Company who would need to pull another atomicar off the line for him.

Everyone had heard and seen the news and were anxious to assist.

Because he was deeply involved in the design work on the actual vehicle, Tom decided to go see Hank Sterling in person.

"It's pretty bad, isn't it, skipper?" the big man asked.

"Yes, Hank. It is. I'm going to build another *CadaverCar* and

take it up there but need your help fitting my enhanced system under the hood. The first one just had the fifteen sniffer tubes of between three and five inches out from the front of the car. This new system uses nearly twice the number of tubes and they range from about five inches out to three feet."

"Why the extras and why push them so far out?"

Tom explained that his new system relied on a higher level of intake that also needed to sample at greater intervals from one another.

"The faster I go the farther out the first tubes need to be. With this setup I can go five miles per hour instead of two. I'm trying to detect subtle differences that might indicate how many bodies are there. Eventually I want to try to sniff out anything that might lead to personal identification."

"Well, with the new vacuu-press over at the Construction Company I can have the newly-designed hood ready tonight. But, I suppose I ought to ask if you need more room under the hood." He looked questioningly at Tom.

"We are doubling the sniffer tubes and so the receptor array will double as well. I don't want to have to route the gases around any corners so we need a straight shot down the tubes. What's your opinion?"

Hank thought a moment before walking to his desk and calling up the design plans for the atomicar on his computer. He tapped his chin several times as he moved the mouse around. After more that three minutes he looked up.

"We'll have to move the power pod's intercooler. The only spot we can use without a large-scale design change is under the front seats. And," he looked at Tom, "if you don't want to raise the frame to accommodate it, then the only way to fit it in and still give standard road clearance is to pull out some of the floor insulation."

"That's going to raise the temperature inside the cabin, isn't it?"

"More like raising the temperature under the driver's backside. But," he paused again and consulted a different screen on his computer, "as long as you don't mind a little less padding there, I can sub out to a different, and thermally-resistant, seat."

Tom agreed. "If it comes right down to it, since this one will be used up in Alaska, I can always stick my backside out of the window to cool it off!"

"*Tom Swift and His Incredible Air-Cooled Posterior!*" declared Hank. "Make a great title for a book."

The inventor looked askance at his friend and employee. “I’d expect that from Bud, but *you*, Hank?”

Tom excused himself telling the pattern maker and engineer that he had just a few hours left to get his equipment designs to the two departments building the enhanced unit.

He hurried to his underground lab, TeleVoc-ing Trent as he walked asking to only be disturbed if it was a call from Hank, the two departments or his father. “Of course, use your best judgment,” he added. “I really need three hours of no interruptions if it can be arranged.”

His computer still had the design and schematics for the cadaver sniffer unit on its screen. Glancing at his notes, Tom began by multiplying the total number of receptors and repositioning the existing ones. Each one would be individually programmed for a certain type and level of the decomposition gases. As he looked the system over he decided he had the room to add one more compound to the analysis system. Sulfur seemed to be a good candidate. Earlier, he considered testing for bacteria but realized that all soil has a certain level of many types of bacteria, and anything breaking down was more likely to give off gases rather than showing an increase in bacteriological colonies on the surface of the ground.

The final list included some thirty-seven gases including increased levels of CO2, methane, nitrogen and hydrogen sulfide.

He located the exact makeup of the gases he and Bud collected at the cadaver farm in Tennessee. To enhance this data he also took small samples of the soil from several areas from the cadaver farm and ran them through a spectrometer.

“Now, to see if the computer simulation can tell the difference between a pig corpse and a goat.” He fed all of the data into the computer and started the program. Unlike the actual system that would work on a five-second delay—the time necessary to evaluate each sampling taken at six-inch intervals of travel—the computer simulation required about seventeen seconds.

He looked at the results and scowled. While they indicated multiple possible sources, the program was unable to determine what might be what. In fact, it seemed to show at least eleven different possible “donors” for the gases.

Tom was perplexed, but he was also running out of time. He picked up his phone, checked his tablet computer and dialed a long-distance number.

“Cadaver Farm. Steve the digger here.”

Tom chuckled at the relaxed nature of someone who was most likely a doctoral candidate doing his mandatory time on the farm.

"This is Tom Swift. May I please speak with Dr. Gladstone?"

There was silence for a few seconds followed by, "Is that you, Jerry? This isn't funny. Ya got to stop calling with these pranks. Tom Swift my—"

"I can assure you that I really *am* Tom Swift and not your friend Jerry. This is very important. I was down there the other week working with Kathy and I need some information. As in pronto. So, please may I speak with her?"

"No kidding? This is really *the* Tom Swift. Well, I'll be. Uhhh, the good doctor isn't here. Had to run home to take care of her sick kid. Can I help you?"

"Well, you may be able, but I can't use guesses. If you don't have the actual answer then please tell me so I don't waste any time." He briefly described his equipment and his intent to separate various samples, and how he was getting indications of many, many more corpses than he anticipated.

"Oh. That's easy, Mr. Swift. You saw the roped off grid when you were here that delineates each zone? The thing is, we don't scoop out any burial area once the subject is… uh, gone… we turn the soil over and let it sit empty for a month and then recharge the zone. It's no wonder you're getting multiples. As far as I know each zone has hosted at least twenty subjects over the years. I'm amazed that your equipment can detect more than just the overall gas load. Wow. I'd love to see that thing in action some day. Did that help you any?"

"Steve? It helped me enormously and I promise that as soon as I get this thing fully operational I'll come back down there. But, I have to go. And, thanks!"

So, that was it. Now it made sense to him. And, given that each corpse added its own mixture of gases it wasn't a wonder that his simulation registered multiple sources for his data.

The trouble was that they overlapped so much in some areas and to a lesser degree in others that he now knew he had more work to do than the few days ahead of him would allow. For this test version he would have to be satisfied with just determining that more than one person was in a location.

He called Bashalli at her job with the small advertising agency in Shopton. After describing what he was up against, she gave him a little chuckle.

"Well, of course this work is going to mean nights away from the

woman you love and cherish. And so, like any good wife I will bring you fresh clothing and make certain that Mr. Winkler feeds you well. And, if you think that I would not be too great a distraction, I could come there to sleep with you at night."

He could hear the almost plea in her voice. Even though it *would* mean a distraction, he told her, "That's great, Bash. The clothing, the food and you. Uhhh, tonight may be pretty late for me. Do you think you could keep yourself occupied until I slip into bed around two or so?"

"I might be asleep by then, but I would rather sleep in the room next to you that two miles away in our empty house. I will call Mr. Winkler right now and arrange for your dinner and perhaps a little snack that will keep until midnight. For two. The snack that is. I will not come and be a nuisance until after eleven. I love you!"

"I love you, too, Bash." The line went dead and Tom returned to the work he now believed could be, and needed to be, completed quickly.

It was a three-day flurry of activity that ended with Tom receiving an okay from the U.S. Department of Forestry to come into the area near the volcano.

He, Bud, Hank and several Enterprises employees from the two departments involved in creating the enhanced sniffer arrived with the *CadaverCar 2* in the hangar of the *Sky Queen*.

"Now, you can't travel within thirty miles of the center point of the old cone," their escort told them. "That's still a danger zone. But, the spot where those people disappeared is a good five miles outside of that. About three miles back from the bay. Hey, and watch out with that bay. Right now there's a lot of floating junk in it that looks like solid land. You go driving that nice sports job into that and you'll sink faster that a bear'll eat a salmon! If you don't get it stuck out there in the muck, that is."

Tom didn't remind the ranger about the flying capabilities of the atomicar, but thanked the man for his words of warning. "We'll be extra careful," he promised.

Tom, Bud and Hank climbed into the atomicar and set out. Thankfully, because the *Sky Queen* didn't use traditional jet turbine engines that could get choked by the volcanic dust they had been granted landing clearance for the Anchorage International Airport.

The atomicar headed for the waters of the cluttered and dirty bay, sailing fifty feet above everything, heading west. Forty miles later and back over land he brought the vehicle down to about five feet above the top of the highest debris. It was a landscape of gray

mud intertwined with the gray, snapped and twisted remains of trees and vegetation. Bud called out the heading to the cabin and Tom adjusted their course.

"Okay, we're here," he declared three minutes later. Hank? If you will get the sniffer working, and you, Bud, keep an eye our both sides for any visual clues, I'll set up the search grid in the navicomp."

The next hour was spent combing an area of nearly one square mile.

"Nothing, skipper," Hank told them. "What now?"

"What I should have done in the first place. Figure out how far the land under that cabin must have moved or how far the mud might have pushed them and go search that spot."

Ten minutes later Tom had a new location identified. As they began to turn around Hank called out, "Wait! I'm getting a really strong reading of sulfur in both the dioxide and hydrogen versions, and it's coming from the direction of the volcano."

"Did that just start?" Tom asked sensing that this might be an important event.

"Well, with the current wind drift it started out there anywhere from five to thirty minutes ago, but it wasn't showing in these concentrations until just a moment ago. What do you think it means?"

"And, is there anything we can do about that smell?" Bud piped up. Even with the air filters the cabin was starting to reek with the smell of rotten eggs.

Tom reached out and set the cabin for underwater use. It immediately sealed out everything from outside and started the air purification system. Within a minute the smell was tolerable.

"Keep an eye on those readings, Hank. I'm heading to the new search area."

Five minutes later and against all hope or common sense, Tom cried out, "Look! I see somebody down there!" He was pointing to their left and out several hundred yards. He quickly swung the atomicar in that direction and brought it down almost to the point of touching the slowly oozing muck. Lying slumped over in a small boat was a human form. It didn't move on their approach and Tom feared they were far too late. He popped open the canopy.

"Sorry, guys. But we've got to see if that man or woman is alive." It was impossible to tell as the body had a filthy blanket around it and was facing away from them. Carefully, Tom maneuvered the

atomicar around until it was poised at the bow of what they now could see was a rowboat. No oars were visible.

Bud hopped over the edge and lowered himself into the boat. Crouching to keep it from tipping—even in the muck that was a possibility—he inched ahead until he could reach the body. He carefully lifted the edge of the blanket and then spun around to face Tom and Hank.

“It’s a girl and she’s alive!” he shouted with glee pushing the blanket off her shoulders. With great care he lifted the girl from her seat and moved back to the bow where he handed her over to Hank before clambering aboard.

Tom slammed the canopy shut, reset the underwater seals and turned the air scrubber to its highest setting all the while racing at top speed for the water and across to Anchorage.

CHAPTER 5 /
GETTING THE UNEXPECTED

THE ATOMICAR flew at low altitude over the city just north of the airport heading for the regional hospital. Bud spent part of the flight on the radio with, first, the airport to get clearance and then to the hospital to ensure their trauma team would be ready.

Hank, the only one of them who was a father, cradled the girl in his arms. She was pale and emaciated and filthy, but she was breathing. He guessed her to be around fifteen or sixteen years old and was not of native Inuit heritage. Her straggly red hair and pale skin attested to that.

As she shifted in his arms, he tutted and cooed at her that everything was okay and that she was going to be taken care of. She said nothing but calmed down.

The hospital was set between a housing development and what appeared to be two small airports—one deserted and decaying and one a bustling private airfield.

The hospital had no helicopter pad as most air transportation ended up at the active airport where an ambulance picked up patients, but Bud told them they were coming in with one of the victims of the volcano and received permission to set down in the middle of the parking lot in front of the hospital. A very surprised team of nurses and at least one doctor met them with a gurney as Tom opened the canopy.

Four of the five people took charge of the girl and with Hank's help got her on the gurney, covered and strapped down. They were efficient and fast. By the time the team had her inside the building's doors she already had an oxygen mask on and an IV in her painfully thin right wrist.

"Bud. You and Hank follow her in there and make sure everyone knows that Enterprises is footing the bill. I'm going to call the local Geological Survey people and report that increase in sulfur-laden gases."

When he reached him, the man on the phone thanked Tom but sounded very skeptical. "That's nice of you to tell us, sonny, but all of our equipment up there was destroyed. So, how did you get these readings?"

"I will explain this once again. My name is Tom Swift as in Swift

Enterprises. I am here in Anchorage testing a new search mechanism that uses gas chromatograph and other analysis capabilities to search for human remains. It was my equipment that detected the hydrogen sulfide and sulfur-dioxide gases. Both are in abundance and heading in this general direction. I am sure that someone in your office is well be aware that a very large and nasty volcano has exploded in your back yard. And, if I sound a little testy right now it is because I have pretty much been awake for four days straight, have just located a survivor and am trying to pass along some information that is *important*. As in the escape of these gases often accompanies another eruption. Now do you get it?"

"Listen, kid. There's no need to be all snotty. You're not down south in your warm and comfy corporate offices. You're in Alaska."

Tom counted to ten before shrugging and hanging up. His next call was to the office of the Governor of the state. After explaining why he was calling he was put through to the man's executive aide. It took only half a minute to get to the governor after that.

On hearing a full recitation of Tom's mission and recent findings the governor agreed that it was very important information and apologized for the G.S. man's rudeness.

"The problem is that I don't really understand what it all means so I am at a loss for what to do," he confessed.

"Well," Tom said trying to be patient, "for starters since this might signal an upcoming eruption you may want to send out some sort of warning. You could also contact the appropriate people in Washington D.C. to tell them you urgently need FEMA up here to help your citizens, and you should also contact the real USGS and tell them what an obstinate fool they have up here. Other than that I suppose we can all just wait around to see if I'm right or wrong. And, believe me, I would much rather be wrong about this, sir."

It took five minutes for Mother Nature to demonstrate that his assumptions had been right. With an explosive boom and an earthquake-worthy 5.8 magnitude shake, the volcano sent another five hundred thousand tons of rock, soot and ash skyward.

* * * * * *

The next day the young girl, Becca Carter, was awake and well enough to receive visitors. She had been cleaned up and several wounds patched and bandaged. Her hair had been so singed and the ash had melted into it that most of it had to be cut off, so she now sported a lopsided crew cut.

On seeing her, Tom could barely speak. If it weren't for the color

of her hair and the bruises, she was the spitting image of his sister Sandy at the girl's age.

"Are you the man who saved me?" she asked in a somewhat timid voice.

"I'm one of three. Actually, the man who picked you up is waiting outside with the other man who held onto you while we flew over here. I'm Tom Swift, by the way. And, how old are you?"

"I'm Becca Carter, and I'm fifteen. I've heard of you, haven't I? In school I think. You're the man who just went to Mars. Is that right?" Her face brightened.

"I am," he answered. "How do you feel?"

"I hurt all over, I'm thirsty and can't get water because they say it has to come from that stupid bag up there," she said pointing at the IV, "and I think I am an orphan." A tear ran down her left cheek.

The statement hit Tom like a punch in the gut.

"I watched my parents and aunt and uncle disappear in the cabin. I was playing in the boat when the volcano blew up and about fifteen seconds later it was picked up by a lake of mud that went right over our cabin." She sighed. "I would pray that you will just tell me I'm being stupid and that they are okay, but I watched the news this morning. There's nothing left out there. Is there?" Tears welled up in her eyes.

Tom sat down on the side of the bed and took her hand in his. "What you saw is what we saw except for you and the boat. Everything else is just mud. I'm fairly sure I know how you might feel, and that's pretty awful, but you are alive and to me *that* is a miracle."

Bud and Hank poked their faced around the corner before coming in.

Becca talked to them another minute and then thanked them all before she asked if she could take a nap.

They left, heading for the larger airport and the *Sky Queen* in the atomicar.

"We have a five hour window to go back out for one final search," Tom told everyone as they ate lunch. "I'd like to see if we can spot Becca's family. It won't be a lot, but maybe it'll help her move on."

Their search period was almost over when Tom flew them above what appeared to be a raised straight line in the mud.

"Got something, skipper," Bud called out, now taking his turn at

the readout screen. “Can you go back over that little ridge? The machine is giving off a bunch of stuff.”

Tom did and they were soon circling around the area. The equipment was showing multiple readings.

“That must be them,” Hank declared.

“Yes. And unless I am totally wrong, that ridge might be the top of the cabin roof. See how straight and even it is?”

He radioed to the newly arrived search and rescue team from British Columbia. Trained to recover bodies from avalanches, they were the best-equipped group anywhere on the western half of North America for the job. After giving them the GPS location, Tom noted that their search time was up and headed back to Anchorage.

It was the next afternoon and the team had returned to Enterprises when word came through that four adults had been located inside the partially collapsed cabin. The news was sad, but inevitable, and made Tom think of Becca Carter. He made a note to check up on her progress in the next day or so.

Now that the search mission was over, Tom sat down and worked on the refinements he had been unable to complete before undertaking the recent trip. He had a list with more than fifty items and decided to prioritize them by both plausibility and by existing technologies that might go toward helping any of them come to fruition.

His list soon narrowed down to just thirteen items he felt had potential to improve the capabilities of the sniffer device. The more he studied the list the more he ticked items off as being either physically difficult or impossible or outright impractical. In the end he had five items he wanted to work on.

The most readily developed item was one to provide a greater degree of separation of the scents so that an exact number of bodies could be determined. This meant a change in the way his sniffer tubes operated. Each one had to be divided into dozens of individual receptor zones capable of detecting as many signatures as possible. Then, when the data was processed by the computer a new program would tally every potential signature from each receptor, compare that list against the lists from all other receptors in all of the sniffer tubes and finally calculate all of the matching data to give them a body count.

It took two days but Tom sat back as he watched the eighteenth simulation of the afternoon, a satisfied smile on his face. No mater how he attempted to fool the receptors the end results were the

same. Whatever number of samples he put in, the computer could discern the actual number of people and animals that made up the mix.

He hadn't needed to increase the number of sniffer tubes from the current twenty-eight, but the receptor equipment behind it all had increased by over fifty percent. It was going to be difficult to get all that in an off-the-shelf atomicar.

At lunch in the office Tom told his father about his success. Chow was just coming in with their dessert when Damon commented, "You say that it is sensitive enough to tell how long someone has been dead? That's incredible. Think of the advancement in law enforcement if you can create a portable unit that can be placed next to a body and tell the operator how long ago they died."

Chow stopped short with their apple cobbler plates in mid air in front of their faces. "What's all this 'bout?" He pulled the plates back up to in front of his chest.

"Tom has been working on a device to find people who have died in natural disasters and are buried under dirt or mud, and now he has found a way to tell not only how many people might be in a single location, but also how long each one has been deceased."

Chow, plates hovering, pondered the meaning of this. With a small shrug he started to set them down, but stopped short as another question hit him. He straightened back up taking the plates with him.

Tom looked at his father, stood up and relieved the western chef of the plates and set them on the table.

"I 'preciate that, Tom," Chow said absently sitting in Tom's seat and picking up the fork. As he sat there pondering the situation he took a bite of the cobbler and began chewing on it.

Tom and Damon were fighting back laughter.

"So, ya can tell if'n some person bit the dust, so to speak, a day ago or even a year ago?" He took another bite, looked at the fork, and nodded appreciatively at the great taste.

Tom set a hand on Chow's shoulder. "Yep. But better than that, I can tell you if several people all ended up in the same spot, and how long ago, to probably within thirty minutes, each one died. I'm hoping next to be able to get that down to ten or even five minutes."

Scraping the last of the dessert into his mouth, Chow patted his stomach and stood up. "That's perty amazin', Tom. By the way, ya make a mighty fine cobbl—" He stopped, turned beet red on

realizing what he had just done, and almost started choking as he tried to get an apology out.

Tom laughed and slapped him playfully on the back. “It’s okay, Chow. Really. I hope you have another scoop of that for me, but it was a pleasure watching you enjoy your own cooking.”

Three minutes later Tom had his own bowl of the cobbler and an extra large scoop of vanilla ice cream next to it. He and Mr. Swift talked about a couple of the other refinements as he ate it.

“I honestly don’t see how you will ever be able to tell specifically who any individual is, Son. Unless you have a tissue sample to decompose and reference, my guess is that capability is too far out. For now, if I were you I’d be satisfied with what you have. At least enough to give it a field try. Perhaps your Mr. Singh in India might be willing to let you bring a second *CadaverCar* over. You ought to give him a call… or an email,” he added looking at his watch.

Twenty minutes later Tom sent off an email letting their Indian contact know that he had made improvements and would have a second atomicar outfitted in about six days, and would appreciate being able to bring it over for a two- or three-day test… at Enterprises’ expense.

He glanced at the calendar and saw that it was already the second day the dual asphalt and concrete resurfacing equipment would have been at the Quonset airport. He TeleVoc’d Bud.

“Hey. I need an hour to get some things over to a couple of the departments, but after that I thought I’d head down to the Quonset airfield to see how things are coming along. Want to come?”

“Sure, but can it wait an extra half hour? Deke arrives in about ten minutes and it’ll take him a bit to get his security clearance and temporary badge. It might be cruel, but we may turn him right around and have him come with us. Okay?”

Tom laughed. “Sure. Or, once you get him settled he can stay here and tag along with the afternoon new hire tour to get the feel for Enterprises. Either is fine with me.”

When they met in the parking lot of the Administration building, Bud was mildly surprised to see Tom sitting in the atomicar they had taken up to Alaska.

As he climbed in and buckled up, he inquired about it.

“Well,” Tom replied, “the foreman of the repaving team says he has located a crack in the soil near the end of the runway. Out by the water, that is. We’re taking this down because it is the only atomicar

we have right now, and I want to go down into the bay to see if the crack is more than just a little shift in the landfill. That's probably all it is, but this way we'll get a better look. Is Deke coming?"

"No. He drove over here and got stuck in a little extra traffic, so he's begged off. But he did like the notion of taking the new hire tour. So it's just you and me. Let's go!"

After receiving clearance, Tom started the atomicar down the auxiliary taxiway paralleling the front wall of Enterprises and lifted into the air. He crossed the northern runways and made a right turn over the lake before heading on a direct route to Rhode Island. By remaining under five hundred feet, all Tom had to do was to radio ahead to the three regional airports they would pass close to and notify them when they would be in their area. After that it was visual flight rules, augmented—of course—by the sophisticated RADAR and collision avoidance systems in the atomicar.

They cruised along at one hundred fifty knots and reached the control area for the Quonset airport little more than an hour later.

There was no live response to their radio call, but an automated message repeated on the local channel that the airfield was closed for major repairs and only in "*extreme emergencies"* could small aircraft pilots use the concrete apron in front of the terminal for an "*emergency"* landing.

That was where Tom wanted to set the atomicar down. He pointed to the runway, now just under halfway resurfaced from end to end. Three full-length ribbons of gleaming light gray concrete were complete with number four about one-third of the way finished. That would leave just four more strips to lay down.

Shortly after the atomicar touched down, he and Bud walked out to the runway and the small project coordinator's trailer that stood nearby.

"Hey, Brian," Tom greeted the project manager.

"Well, hey right back at you, skipper. What brings you and the future Mr. Sandra Swift over here today?"

Bud reddened but took the kidding with good grace.

"We," Tom began, "are here to see how things are going and to check out that crack you reported. How far does it extend?"

"You see that orange flag we planted at the far side of the landing threshold?" Tom looked and nodded. "Well, it comes up out of the bay at that point and heads about due west for sixty feet that we've found. The visible crack is still a couple yards from the runway, but

it must extend at least through the runway because there are signs it has cracked the concrete before. I've programmed an extra helping of the Durastress reinforcing fibers for five yards either side of the crack. Funny thing is you can't see evidence under the runway. Not sure what else we might hit once we get around to doing all of the apron area by the buildings."

"That's why we brought an atomicar. Well, that plus Tom pointed out that anything else other than a helo wouldn't be able to land." Bud smiled. "It's why he gets the big bucks and I just get to fly around in big circles and marry the boss' daughter."

Brian described how the work had been progressing. They were, in his estimation, about three hours behind schedule, mostly due to the crack and time spent investigating it.

"I'm a little worried about that. It looks like it's been there for some time because there have been at least three patch jobs. Each one cracked open and was repaired over. That Digby fellow says it's been over the past year or so. Hey, Bud. Have you met Digby's daughter? Cute girl."

Now, Bud turned very red and had to walk out of the trailer.

"What's with him?"

Tom laughed. "Oh, he's met Darla Digby. Believe me, he's met her."

Ten minutes later Tom and Bud, the atomicar now fully sealed and ready for the water, lifted back off and traversed the airport. Tom set back down and made a quick check of the visible crack near the flag before getting back in and heading out over the water. It was a couple inches wide and a foot or so deep. He let the atomicar settle to the surface and then sink until it almost touched the bottom of the fairly clear water.

"See that? There's the crack. That slightly sunken line in the silt," Tom said pointing ahead of them. Checking his instruments he added, "And it is heading east. If it goes very far we may find it comes back out on dry land over on the other side of the bay. But, let's see what we have right now."

They moved forward and down. Soon, Tom turned on the special underwater lights that illuminated ahead of them. The atomicar's canopy had been treated so that wherever they looked it was practically as bright as day.

Within a thousand yards from shore the visual evidence of the crack began to soften, and it completely disappeared another eighty

or ninety yards farther out. Although the atomicar wasn't outfitted with a sophisticated SONAR, it did have the ability to echo locate at short distances and so Tom used that system to probe the floor of the bay below them, hoping to detect changes around the crack.

"Well, not much to see here," he told Bud. "I expected to see it go right along for miles. Let's go back to the airport."

They surfaced just in time for a radio call to come in.

"Enterprises to Swift Two. Please come in."

"Tom here. What's going on?"

"Skipper, your dad needs you to get back here pronto. There's been a major earthquake in India and it is feared that more than a thousand people might be trapped in mud slides!"

CHAPTER 6 /
THE RHODE ISLAND CONNECTION

TOM AND BUD stopped only long enough to explain their hasty departure to Brian and to tell him about their findings regarding the crack. “Why don’t I send down an earth blaster, sink about a half dozen holes on either side of that gap, before it gets to the runway, drop in Durastress poles and connect them with high-tension cabling?” Tom suggested. “If it is just casual movement that ought to hold it stable enough so the end of the runway doesn’t need to be repaired again.”

With that to arrange during their flight back to Shopton, the boys departed, flying as fast as the atomicar could manage. An hour later they set down at Enterprises right in the parking lot of the Administration building. A pair of men met them and offered to take the atomicar over and load it into the *Sky Queen*.

Tom thanked them, asked Bud to ensure that the giant jet was ready and stocked for a mission of at least a week beginning in one hour, and headed up to meet with his father.

“I’ll catch up on the repaving project later. Have a seat, Son,” Mr. Swift directed. When Tom took the chair across his father’s desk, the older inventor began filling him in on the India situation.

“Raj Singh called at what would have been three a.m. his time to tell me about a series of small earthquakes—probably ranging from about three-point-eight up to four-point-seven—that hit in the northernmost state of India, called Jammy and Kashmir. A very mountainous region bumping against the Himalayas and with a relatively small population. But, many important shrines and a fair amount of tourism. And, when I say small population I mean that the city of Jammu downhill from the scene only has one-and-a-half million people in and around it!”

Tom let out a low whistle of surprise. “Do they have any realistic idea how many people may have been caught in the landslides?”

Damon Swift shook his head. “The ground in the hills is wet and loose and prone to liquefaction. Information is sketchy at best, but our Mr. Singh thinks the numbers could go as high as a thousand in the hilly areas going up into the mountains. He’s flying his *CadaverCar* up there as we speak and should be on site in about…” he paused to look at the clock on his computer monitor, “—maybe another fifteen minutes. In the mean time I have assured him that we will fly over with another car plus a range of medical supplies

and a team of doctors. They all arrive in an hour from the Washington area. I take it from Hank that the third car isn't going to be available for another two days, so we will fly that over in a cargo jet with more mercy mission supplies and a couple portable water treatment plants."

"Then, I should get the *Queen* in the air right away," Tom stated. "Is there anything else I ought to know?" he asked.

Now, his father nodded. "Raj Singh is very worried about the safety of foreigners. Although the area is heavily Hindu and peaceful, there are several radical religious groups that believe all problems stem from involvement with the U.S. Because of that I am authorizing something I never thought I would. Each member of your team will carry an e-gun at all times, plus I've asked to rush through some basic body armor shirts for you all to wear under your regular clothes. A thin mesh of Kevlar and graphene heat-fused to some of that SpiderSilk fabric you used in your Mars habitat. They will be delivered from Uniforms in an hour, so you'll have to wait for those as well as the Washington contingent."

"That should keep just about anything that hits us from penetrating, but is it going to be too hot to work in?" he asked.

"No. Marjorie Morning-Eagle in Uniforms is finishing up the work but assures me that the under-shirt will replace a normal t-shirt and be about half the weight yet still breathes. The issue is going to be that the bullet stops, but the energy isn't deadened, so if anyone gets hit it will not penetrate, but it could easily break skin and even bone. It's the best we can do and still make your work possible. Promise me that you will be careful."

The young inventor rose and shook his father's hand. "I promise. Now all I have to do in not let Bash find out this is going to be a dangerous mission." Tom took a deep breath and let it out slowly.

"About that," Damon said. "She is going along. Now before you object, hear me out. She swears she will remain inside the *Sky Queen* at any time things look to be iffy. She speaks a variant of the local language and can listen in on radio traffic and conversations and alert you if there is trouble brewing. Of course, you have the final say—"

"But I would hope that you will allow me to come with you and be of some use," a female voice spoke from the office doorway.

"Bash!" Tom exclaimed hurrying over to give his wife a hug. "Are you sure about this?"

She looked deep into his eyes and he could tell that she understood the dangers and was willing to accept them. "Yes."

When the group from Washington arrived it consisted of six doctors—all surgeons with many years of trauma experience—plus a team of twelve nurses and Physician Assistants who were all ex-military medical corpsmen and women. With them came ten crates of medical supplies that could be loaded into the hangar of the Flying Lab around the *CadaverCar*.

Their leader, Dr. Larry Stevens, had explained to Damon earlier that a trio of cargo jets would be following them directly to India but would be landing in Delhi as no secure base of operations would be available to them farther north.

"They will bring along a Chinook helicopter to transport things up to where we are going," he said. "And to evacuate the dead and injured."

Along with the medical team, Tom was bringing along fifteen Enterprises people. Everyone from Bud to Zimby Cox would be crowded into the giant jet.

On schedule they rose and headed as quickly as possible toward India. The jet arrived over the city of Jammu just ten hours later, much to the surprise, and delight, of their medical passengers who had expected to be airborne for the best part of an entire day and night.

A physically and emotionally exhausted Raj Singh met them at the small but serviceable Jammu Airport where the *Queen* had been granted exclusive use of a large concrete pad near the south end of the only runway.

"I am torn between joy at you arriving and a sense that I should be up near the three towns that have suffered the most devastation."

"We're a little sketchy on the geography, Mr. Singh," Tom explained. "Can you point the general direction?"

"They are that direction," he replied pointing to the east. "Please. This is no time for formality, so call me Raj. I hope I may call you Tom."

"Absolutely. So what is the nature of the damage? Landslides? Anything else?"

"We have many very small earthquakes each year, but these have been magnitudes greater. Up from perhaps a maximum of two-point-eight—barely felt by anyone—but the latest one five hours ago was four-point-three."

"If you don't mind me commenting," one of the doctors asked stepping closer, "I come from California where almost nobody feels anything under a four-point-five. A few jars of mayonnaise may fall

of a shelf and the occasional bottle of bourbon, but that's about it."

Tom answered for their Indian host, "With the global warming that's been going on, places in mountainous areas that used to remain frozen all year long are thawing out and the ground is getting super-saturated with water. Something like a single tremor probably won't do anything, but give the ground a series of increasingly more violet shakes—"

"Oh, liquefaction, right?" the doctor finished. "It spontaneously turns to mud and then heads downhill."

"This is correct," Raj stated. "The three towns are Kishtwar and two of its small neighbors, Sangrambhatta and Sheikhpora. The hills to the east came sliding down two nights ago. People had no chance to escape as it occurred in the middle of the night. That is where I have been for nearly thirty-six hours."

A look of weariness passed across the man's face, his eyes rolled upward, and he slowly crumpled to the ground.

The doctor checked his pulse and breathing and told the others, "He's passed out. Somebody help me get him into Tom's jet. I'll start an IV and get him comfortable. He will probably be out of commission for a day," he said directly to Tom.

Tom and Bud oversaw the offloading of the supplies and the *CadaverCar*. Bashalli suggested that she could take care of Raj and that Tom and Bud could each pilot a *CadaverCar* with a small rescue and medical team. A nurse showed her how to change the IV bag when the first one emptied.

Kissing her on the forehead, Tom proclaimed, "You just earned your reason to be here. Great idea!"

Within twenty minutes each *CadaverCar* had been stocked with some basic medical supplies, radio-locator beacons to set down wherever remains were discovered, one doctor and nurse, and a supply of thin and light body bags in case they came across anyone on or near the surface.

There were hundreds of survivors in Kishtwar who were all actively searching for family and friends. Most were hungry and getting dehydrated, but refused to abandon their search when Tom offered to ferry them back down to safer ground. Instead, several who spoke excellent English asked if food and water could be brought to them.

Tom had to make a difficult decision, but the medical men and women helped make it for him. "Leave us here to tend to some of the injuries and you and Bud go back and stuff as much of the

emergency food and water packs into those flying cars of yours."

The boys did just that and were back within the hour. Almost reluctantly the mud-caked men and women of the town halted their work and came to accept one or more of the packets. As quickly as they finished eating the high-energy bars and drinking the electrolyte-enhanced water, they politely set the empty wrappers in a single pile and went back to their duties. During this time the *CadaverCars* made another trip each bringing up the rest of the medical staff.

For the next five hours before darkness put a halt to things, Tom and Bud ran continuous search flights over the area. As each body or group of them were located, the second man—Red Jones with Tom and Zimby Cox with Bud—dropped a small buoy that consisted of a GPS transmitter with antenna, and a bright orange streamer at the top.

Several times Tom noticed some of the townsfolk finding a buoy and apparently understanding what it meant, as they would set the marker aside and begin digging.

Tired yet determined to not lose time, Tom and Bud finally brought the last of the medical supplies up as the sun disappeared from the sky. An area almost a full acre in size that was raised perhaps ten feet above the rest of the town served as a base for them to tend to more of the injured, feed all of the townspeople, and to begin stacking the body bags for transport the next day back to Jammu.

Bashalli reported that Raj Singh had woken up after just six hours and wanted to return to his work, but she convinced him to allow Tom to cover for him until the following morning.

She did insist that Tom, Bud and their copilots come back and have a good meal, a shower, and some rest. "None of you will end up exhausted like poor Mr. Singh," she told them in a determined voice.

The next day three U.S. Air Force cargo jets touched down in Jammu. It had been decided that Delhi was just too far away so they had commandeered the entire airfield. Many of the citizens, now fully understanding that the Americans were there to help, rushed to the airfield to assist in off-loading the supplies. And, in spite of dire warnings from Raj Singh, not a single box or packet disappeared into opportunistic hands.

The helicopter took several hours to prepare for flight but was carrying large loads of supplies to Kishtwar later that day and brought back five loads of bodies by sundown.

The third CadaverCar arrived by Swift cargo jet the following morning and was put to use searching the two other small towns hit by mud.

Five days after that, and with a little over nine hundred bodies found and all but fifteen people accounted for, Raj Singh thanked Tom and all of his team.

"Now that things have settled down, and all of the people have gotten over their initial burst of pride at being part of this great undertaking, we are hearing news of at least one radical group saying they plan to attack your aircraft, possibly as early as tonight. So, I must suggest most strongly that you depart. If at all possible I would like to keep one additional of your search cars for a week or more."

Tom agreed, but also suggested that he and Bud go up into the mountains where the fifteen missing people had most likely been living. "Just one final trip," he promised.

As the *Sky Queen* and cargo jets were being loaded, they flew up into the mountains toward the probable site of half the missing people, Mount Brammah.

An hour later Bud glanced down at the readout monitor and sucked in a breath.

"Uh, Tom? You remember all that sulfur dioxide and hydrogen sulfide Hank spotted a few hours before that Alaska volcano blew?"

A cold chill ran down the inventor's spine. "Uh-huh."

"Well, as we passed over the top of that mountain the readings popped up really high. Now that we've gone on a thousand feet or so they are dropping back down. Could that spell trouble coming?"

Tom swung the atomicar around and retraced their route. When they came back over a sharp crest—one side of a long-defunct volcanic cone—the reading again rose sharply. Looking down, they both knew why.

Curling up from a fissure in the bottom of what once was the caldera they could see a wisp of grayish-white rising.

"Is that steam?" Bud asked.

"No. It isn't immediately dispersing like water vapor would. That's smoke. I think this is something that needs careful study and watching. Let's get back and report this and ask if Raj wants us to stay after all."

Their host was interested but told them that it wasn't a rare occurrence. "Climbers see steam escaping perhaps ten times each

year," he told them.

When Tom tried to make him understand that it didn't appear to be steam, the Indian shook his head, thanked them all for their excellent work, but told Tom, "Do not worry, my friend Tom. I assure you that it is normal and nothing to worry about."

Sixty minutes later, just two hours before nightfall, the two Swift jets lifted off and headed back to the U.S., leaving the newest CadaverCar. The military jets followed an hour after that.

Bashalli joined Tom and Zimby in the cockpit as they took the first four-hour shift. It had been decided to not let any of the pilots fly longer than that. Even with the incredible autopilot that could fly the ship with no human intervention to any point around the globe, land and take off again, Tom's policy was that pilots had hands and hands were meant to control an aircraft.

"When we get home can we stop somewhere and get a very greasy cheeseburger with piles of bacon on it?" she asked "I have been missing the taste of pork for many days."

They laughed and realized that being in a country with certain dietary restrictions had meant that they were denied some of their favorites.

"I promise, Bash. By the way, you were stellar back there. Not only did you take care of Raj when he passed out, you kept all of us ready for action. Thanks!"

"Mr. Zimby? Will you please close your eyes for one minute?" she asked politely.

Zimby kept one hand on the controls and put the other over his eyes. Bashalli bent down and curled around the seat back and wrapped her arms around Tom's neck, giving him a long kiss. "Thank you. You may look again."

Two days later Tom was back at Enterprises. All reports from India told that no additional bodies had been discovered and the earthquakes were diminishing causing little new damage.

It took a few more days to get back into the swing of things but this was interrupted after the weekend when Tom received a phone call.

"Tom? Tom Swift? This is Alan Digby at the Quonset Airport. Listen. We've been back in action for several days now and the Guard pilots are very happy with the runway. We can all hardly wait until you come back and do all the taxiways and our apron areas."

"That's great, Mr. Digby. Thanks for letting me know."

“That’s not actually the reason for my call. You know about that crack at the southwest end of the property.”

“Yes. I do.”

Digby could be heard taking a deep breath before continuing. “Well, it’s getting bigger and longer. Your team came here and put those long poles into the ground and winched them all together with that heavy cable, but the farthest strand of that stretched and then broke with an almost explosive noise an hour ago. I’m afraid to send anyone out there for fear they might get cut in half. I just don’t know what to do.” He sounded near to tears.

Mr. Digby,” Tom said trying to sound calm, “You are doing the right thing by not going out there. I can have a team on site tomorrow morning to assess how much of a shift things are undergoing and restring that first connection. We’ll also bring down some devices to accurately measure any further motion.”

“Well, I suppose that is the logical next step. But can you do something else for me?

“What is that?”

“Can you bring something here to get rid of the awful smell? It’s beginning to smell like rotten eggs out there!”

Tom’s heart began to pound in his chest!

“Mr. Digby? Do you mean like the smell of sulfur?”

“Yes. That’s it. I recall that smell from chemistry class at college. It is a horrible smell and only started after that cable snapped today. Can you do anything about it?”

Tom wasn’t sure what to tell the man. In Alaska that smell had preceded the explosive eruption of the volcano, and yet in India the same gases hadn’t led, so far, to anything.

“Why don’t you let me make a few calls and see if I can get some folks over there today to take a look. In the meantime, keep unauthorized people away from that crack.”

He hung up and dialed Munford Trent’s desk.

“Trent? Can you find out who or what organization is closest to Providence, Rhode Island that deals with earthquakes? If it has to be the Geological Survey people I guess we’ll have to go that route, but I had a really trying experience with one of their people in Alaska.”

“I don’t know anyone who fits the bill off-hand, Tom, but I do know the person who can tell me who to call. It shouldn’t be more than ten minutes.”

Nine minutes later the phone buzzed. Expecting it to be Trent, Tom put the receiver to his ear and said, “Yeah, Trent?”

“Umm, is this Tom Swift?” a woman at the other end asked.

Straightening up in his chair, Tom looked at the phone and then replied, “Oh, yes it is. I’m sorry. I was expecting a call from our secretary. What can I do for you, uhh-h-h…”

“Stefanie Brooks. With an f and no p-h. When I tell that to scientists they generally reply, ‘oh, that means you are neutral.’ I never laugh even though I think it is actually clever. I received a call from the USGS people who tell me that I may be the person you have a need for.”

“Well, Stefanie, as you know Swift Enterprises makes a variety of devices and vehicles, and recently we made a special-purpose cadaver-sniffing vehicle. During testing in Alaska we registered high levels of sulfur-laden gasses shortly before a nearby volcano exploded. Now, we may be seeing those same gases in the vicinity of Rhode Island.”

“Where?” When he told her she responded with, “Damn! It’s grown. I was afraid of that!”

CHAPTER 7 /

TROUBLED WATERS

TOM COULDN'T think of anything to say for a moment. When he did, all he could ask was, "*What* is growing?"

"We don't have empirical data to support anything other that a working theory, but as you may have noticed over the past decade or two, there have been increasing incidents of volcanic activity in the Atlantic. Particularly in Iceland."

Tom knew about that and told her so.

"Good. And as a scientist you know about the tectonic plates that make up the surface of our planet. Of course everyone knows about the Pacific plate and how it rubs and shifts against several other plates causing all sorts of problems in California and up in Japan."

"Certainly. Earthquakes, and probably the volcano in Alaska, tsunamis, and all that. I understand, but I thought that the closest plates to the east coast were the African and the Eurasian plates where they meet the North American plate. Aren't those a couple thousand miles away?"

"Yes, but a few of my broader thinking colleagues and I believe that as those two plates have been rubbing against our North American plate, they may have started a little tear. A small rift at the point where they all meet. The good thing is that we think it started many millennia ago. Perhaps ten thousand years or more. The bad thing is there is no way for us to find out if we are right or to find out the extent of it. At least not accurately."

"And you believe the Rhode Island crack could be part of that? Even that far away?" Tom asked. He was fascinated by the idea and terrified of the potential for disasters.

"That tri-point is almost due east of the New England area, Tom. And, it is closer than you might think. Just about fourteen hundred miles. This new crack might be part of that. If it is… golly. I haven't a clue what to say to express the horror I feel about that." She paused for a moment. "I have to get over there. As in today, but I'm in Mexico studying the small Coscos plate and how it seems to be getting overrun by the four surrounding plates. It'll take me two days at least to get there."

Tom laughed. "If you are within range of an airport I can have one of our jets pick you up in about four hours and have you back to

Rhode island in eight. But, I need to tell you a few things."

He told her about the recent paving project and the one dozen eighty-foot poles and cables that had been installed.

"I see. Well, that would be like toothpicks and thread in the global sense, but if you can have a full compliment of measuring instruments for me to use I might have some helpful thoughts on how to keep things together a little better. Unless, oh and please don't tell me this, that airport is built on landfill." Hearing Tom's loud silence she sighed. "As Eyeore would say, 'Oh, bother!' Well, first steps first. I can be at the airport in Mazatlán in less than three hours. Will that do?"

He told her it would be fine.

"Two men, named Bud Barclay and Red Jones, will be there in a bright white jet with Swift Enterprises markings. Have them radio your exact equipment needs and I will try to have everything ready by the time you get to this side of the country."

Shortly after Bud, Red and Stefanie Brooks took to the air, Bud radioed her list of requested items. Tom already had nine of the eleven on hand and made a few phone calls to secure the other two. The portable seismometer would be hand delivered to the site from MIT the following morning. A gravitometer capable of being used outside could not be located. It was one of her optional items that she told Tom she might like to have in case there was a minute gravity shift associated with the possible tectonic crack.

To save time it had been decided to have Bud land the cargo jet directly at Quonset and to have Tom meet them there. He arrived about a half hour before the large jet touched down and spent the time with Alan Digby calming the now overwrought man's nerves.

"This airport is my life!" he declared. "If it all breaks up and falls into the Bay I will be devastated beyond belief."

"Well, firstly, until we have an idea what is actually happening, and then understand what that means I would suggest that you not go into panic mode," Tom told him, a little annoyed at the man's dramatics. "Secondly, you have your daughter who should be more of your life than this little square of land. And, thirdly, this airfield was scheduled to be closed a couple years ago. You managed to get an extension on that and the National Guard helped, but it isn't a forever thing. Of course, now that the runway is in tip top condition you should get many more years out of it, but come on. Neither it nor either of us will go on forever."

At that point the tower, with Deke in charge again, called to say

that the Swift jet was just five minutes out.

Alan Digby fell silent and remained that way as Tom left the office to walk out to where the jet would touch down on its repelatron lifters.

Stefanie Brooks turned out to be entirely different than Tom's mind had pictured. Born with dwarfism, her upper body was perfectly proportioned, if fairly petite, while her legs were only as long as his shins. But, her face was pretty and all smiles as she reached up to shake his hand.

"Not only cute, but I'll bet she can buy her pants from the toddlers department," she said with a smile that told Tom she was very comfortable with her height. "Oh, and shorts on most girls are mid-shin pants for me. But, what are you gonna do. I tried hanging from a bar with ankle weights, and stopped smoking cigars at the age of six. Nothing. And, you may not believe this but I went through that process where they break your femur every day and stretch you a tiny bit, let it heal a little and break and stretch again. Got me a full one-point-two inches, but they had to stop. I hope I'm reading your face correctly and am answering more questions than I am bringing up."

Now recovered, Tom grinned. "Do I call you Stretch, or Doctor or what?"

"As long as it isn't Munchkin or Little Missy we'll do fine. And, by the way, I am not a doctor. I suppose I could be but I never wanted to do the dissertation. The sad thing is I don't get to charge the really big bucks because I don't have the sheepskin, but I'm one of the best and have those kind of credentials. Can I call you Tom?"

Someone slapped Tom on the shoulder. Turning, he saw it was Bud.

"Is she giving you the once over, skipper? She made me put her in my lap and let her fly a little. It was great until she called me Booster. So, Steff, where do you want your things?"

She looked at Tom. "Where are the different instruments going to be and where is this fissure?"

He pointed across the airport toward the corner where the crack was, telling her, "I've got most of what you want in my jet over there, and yes it does look like a toad." He told her about the other two instruments. "We can either taxi the jet over to the old north-south runway that's used as an extra taxiway, or I have permission from the airport manager to borrow one of the old baggage tugs and a couple of the trailers."

Looking down she told him, “With these gams I’m not in for a big hike, so if you’ve got room for me in your jet I’ll accept the ride. Plus, we won’t have to transfer things more than once.”

Bud and Red decided to hike over so Tom helped Stefanie into the right seat and started up one of the turbines.

“If I come on too strong to strangers it’s because of a lifetime spent fully understanding that this isn’t my fault, it just happened, but still being pointed at or looked at until I see someone doing it and they turn away. It’s a self-defense mechanism.”

Tom now laughed. “Believe me, Stefanie, when I tell you that you are actually a breath of fresh air. We had a girl in my junior high with a birth defect that only made one of her arms half as long as normal, and she was verbally abusive toward anyone who looked at her. Even a friendly smile got you yelled at and called pretty bad names. Her parents eventually moved away complaining that their girl had no friends and people in Shopton were unfair and cruel. Here we are.”

He shut the turbine off and popped the canopy open.

Standing up on her seat she looked at him. “I am not above having a man pick me up and help me down from things like this jet.”

He hopped out, came around to her side and held out his arms. She practically jumped into them, throwing her arms around his neck.

After setting her down he held out his left hand and showed her his wedding band. “Perhaps the extra squeeze and blowing in my ear on the way out was a bit much,” he said with a hint of a smile.

“A girl’s got to try. Okay, if you can help me set things up we ought to be able to head for a motel for the evening. I need at least twelve hours of measurements to even begin to have an idea what might be going on.”

They got started and had two of the smaller measuring devices set up by the time Bud and Red joined them. Stefanie directed them where to set various sensors, laser reflectors, and the like. She also inspected the remaining cables strung between the embedded posts. Taking an electronic level from her shoulder bag she set it against the first post.

“Were these sunk to exact vertical?” she called over to Tom.

“They were set to within one half millimeter from bottom to top,” he replied.

She took out her phone, pressed the screen a few times and

began to dictate notes. Five minutes later and with notes taken on all of the posts on the near side of the rift she walked closer to the runway and crossed over to the other side where she repeated her measurements and verbal notes.

By the time she returned everything was ready for her inspection.

"Perfect. If you would all hit the various power switches and make certain we've got green lights we can go grab something to eat. One of you will have to pay because I'm a little short."

Tom and Red started to laugh and Bud dropped to the ground groaning. It took a minute but they collected themselves and got things powered up. After that, they all got into the Toad, taxied back to the apron near to the terminal and got out. Mr. Digby had arranged a car for them to use.

The following morning they met Randy Coleman at the airport. He was the technician with the seismograph and the one who would be responsible for its placement, operation and safety.

"That's a pretty nasty stench you've got going on. Reminds me of Kilauea in Hawaii. Smells like this just before and after an—" he stopped and smiled. "You don't mean there's an active volcano under here, do you?" he said in a hushed and awed voice. "That'd be great! Working with Tom Swift *and* getting the first seismic readings from an undiscovered volcano. Wow!"

"Slow down, Randy. You're right about the smell but it comes and goes. Yesterday I couldn't detect anything and today it's back. I've got a flying laboratory coming over late today and we'll get some real measurements. For now if we can help in any way to get you set up…"

The man from MIT shook his head. "Thanks, but no. I have to pour a quick hardening concrete pad for this, but I've got the form, the mix and the tools. In two hours I'll be ready to set the device up."

He pulled a circular form about eighteen inches across and three inches high from the back of the van he arrived in. He kicked the scrub grass away from a small area, set the form on the ground and then leveled it. Next came a five-gallon bucket with about one gallon of water in it into which he poured the contents of a heavy paper bag. After he gave it a quick mix, he poured it into the form, used a flat trowel to smooth it and even it with the top of the form, and inserted two bolts at precisely measured points. He then stood back.

"That will be where the instrument goes. Who do I talk to about security here? The seismograph is worth about fifty thousand bucks and I need to leave it here at least three days."

Tom told him about the airport manager and where to find the man's office, so Randy was soon driving away.

A few seconds later Tom's cell phone rang. It was Deke in the control tower asking him to keep people from just driving back of forth over the runway.

"I've got a Guard plane coming in on final and whoever it was in that van might have gotten clobbered half a minute later. Thanks, Tom!"

Ten seconds later a C-130 came in low and loud, touching down just a few dozen yards down the runway and immediately throwing its propellers into reverse. The noise was deafening, but the results were spectacular. Before it reached the halfway point of the runway the large plane had come to a complete halt.

Over the next day a constant stream of measurements were recorded. A few hours behind schedule, Damon Swift arrived in the brand new and greatly enhanced *CadaverCar,* now both airworthy as well as underwater capable. He told Tom he wanted to get out of the office and this seemed like a good excuse.

They talked over the preliminary findings with both Stefanie and Randy. From the standpoint of the ground moving, the news was fairly good. Only a movement of one-quarter millimeter had been detected in the past day. According to Stefanie this was considerably greater that the normal shift associated with tectonic plate movement, but it was inconclusive at best.

The seismograph had detected only the gentle background rumblings associated with the Earth at large. The five times daily arrival and takeoff of another C-130 landing or takeoff gave him a momentary jitter on the graph's paper, but that is all it was.

Even the sulfur smell had not been noticed in the past two days.

"Come on, Dad, Let's take the *CadaverCar* over the area and check things out. Then I want to take you and Stefanie—and Randy if he wants to come—under the bay to look at the traces of this rift."

It was decided that they would use the sniffer function for the start of their little trip. As he zigged and zagged across the open area Tom had his father keeping a close look at the readouts. When they passed over the rift on their way to the water, Mr. Swift called out, "High concentration of sulfur compounds and some methane, Son." He read out the numbers. "Is that anything like what you saw in Alaska?"

"Mostly. The same compounds but in much greater concentrations up there. Stefanie? Do you have any ideas?"

“I do but you’re not going to like them. Tectonic plates generally float over hot magma. When it cracks through and finds a way to get to the surface you get lava. Sometimes you get volcanoes and explosions, and other times only a gentle ground ooze. They all come after the release of gasses like those, but Tom’s correct. The concentrations are too low. I’m not sure what it means but I don’t believe we’re sitting on top of a volcano.”

The atomicar eased into the water and was soon scooting along a few feet above the silty floor. Tom pointed out the slight but regular indentation in the floor. “That comes out of the water as the crack in the airport land. When Bud and I were down here weeks ago it went out a little under a half mile and then we couldn’t see anything.” He looked at his instruments. “We’re coming up on that point in another minute.”

They traveled along until Tom indicated this was the spot.

“But, Tom, it keeps going,” his father said. “Look. It’s still going east and still about five or six inches deep.”

Stefanie let out a little gasp. “Did you feel that?” she asked as a faint rumble was heard.

They all had felt the slight vibration lasting about four seconds and heard the noise.

Tom looked above them so see if a ship was passing overhead. There was nothing but the blue sky hanging over the water.

The vibration repeated, this time lasting almost eight seconds.

“We have to get topside,” Tom told them. “I think those were earthquakes.” He set the controls to let them rise to the surface while he steered them back the way they came. Once on the surface he turned on their radio and had his father locate a local news station.

The report of a few possible earthquakes, something not felt in the area for over fifty years, came within another minute. So far nobody knew anything. Some callers said it might be an explosion, some said earthquake while one elderly woman posed the question of whether it was an underground nuclear test by the Canadians.

Tom brought the atomicar up off the water and sped back to the airport. Everyone got out and looked around. There was no immediate sign of damage. The tower still stood across the way. The old dry dock at a pier by the original shoreline was rocking a little but there were no massive waves building on the Bay.

Randy raced to his seismograph and began examining the roll of paper. He shouted out that it was three quakes in fairly rapid

succession.

"The first one was about one-point-two, the next one is the first we felt and that was two-point-nine, and that third one was only one magnitude larger at three-point-oh. This is incredible! I've got to set up camp and keep an eye on the 'graph for the next couple days. Anybody know where I can get a pup tent?"

Stefanie had been checking her readouts. "That rift opened another three inches," she said, pointing to it.

At that moment another tremor was felt, this one fairly weak and more like the rumbling of a large truck driving past a house.

Now Stefanie was even more excited. "Awesome!" she called out. "Come take a look." Everyone except Randy trotted over to her circle of instruments. "Take a look at that," she told them pointing to one of the laser measuring readouts. "A minute ago that showed the rift opening three inches and now it is back to only one inch. That, folks, is movement!"

"Skipper," Bud said tapping his friend on the shoulder. "Take a look. We've got trouble."

Tom turned to look where Bud was pointing. It was the end of the runway and he immediately saw what it was. The latest opening of the crack and the its closing had torn a rip right across the new runway a few feet in front of the white stripes marking the start of the landing surface. The concrete, even with the Durastress reinforcement, had buckled and crumbled.

He ran over to get a better look. It appeared to be patchable, but would that do any good? Wouldn't it just open back up with the next earthquake or widening of the rift?

Tom walked back to the group who were all still looking at the various instruments. He decided to take a closer look at the cable system, but remembered that one of the cables had already parted with explosive results. He called to Stefanie:

"Is the cable system going to hold or should we get clear of it?"

She took a close look at her readouts. "Right now," she called back to him, "the stresses are fine and being handled. Heck. It held an extra couple of inches of gap for a while. I wouldn't suggest standing right behind one of the posts, but it looks okay for the time being."

"Thanks!" He moved forward until he was a few feet away from the rift. Where it had been mostly filled with dirt and vegetation a foot or so down, he could now see that the crack went down at least four or five feet.

Tom felt the vibration in his feet before it registered in his mind that the ground was shaking again. A sharp jolt snapped one more of the cables that fortunately slapped hard into the ground on the other side of the rift. But the unexpected motion knocked the inventor off balance.

To his horror, the rift seemed to open four or five inches like mouth ready to chomp down on anything that fell inside.

And Tom *was* falling. The ground took a sideways jerk and his feet came out from under him. He was toppling forward and there was nothing he could do to keep from tumbling into the crack in the ground!

CHAPTER 8 /
DEEP DIVE, DEEPER SURVEY

TOM FELT a charging bull hit him in the side, knocking him all the way over the open crack and to the ground beyond. The impact and the landing hurt like the dickens and his breath was knocked out. As he lay trying to inhale normally he looked up into the worried face of Bud Barclay.

"You okay, Tom?" he asked. "I ask only because you're kinda pale and gasping. Did I hit you too hard?" He held out a hand to assist the inventor in standing.

Tom's lungs were straining to get enough air into them, but with each passing breath it was getting easier.

"*You* hit me?" he managed to get out. "Oh. Wait." He sucked in a deep breath. "Earthquake… large hole, me falling. Right?"

Now Bud slapped him softly on the shoulder. "I saw you lose your balance during that last shake and then tip forward. I didn't want you to go into the big crack so I charged over. Guess my football days came rushing back and I gave you a flying cross-body tackle. I hope I didn't break anything. Bash and Sandy would kill me!"

Tom was able to breathe normally by now. "Thanks. And, no. Nothing broken, but I bet I'm going to be pretty sore for a few days." He turned and looked into the rift he might have fallen into. It was almost completely closed. He gulped at the thought of possibly having any part of his body in there when it closed.

"You know, Bud? You are my absolutely best friend and I'm pretty sure you just saved my life. As your reward I will personally send you and Sandy on your two-week honeymoon with all expenses paid."

The flyer wrapped his arms around Tom and gave him a gentle bear hug. Stepping back he muttered, "You're the greatest, skipper. The absolute greatest."

By this time everyone had come over to see if Tom was okay. He told them about the near fall and how grateful he was that they all, and especially Bud, had been there.

"I think that we need to see if everyone has enough data and pack up as soon as is practical," he stated. Everyone except for Randy agreed.

“I’d really like to remain here for another few days,” he said. “Perhaps even another week. You can’t begin to imagine how vitally important all these measurements are to the study of tectonic movement, even this far away from any plate edge.”

“I’m actually not certain the airport manager will allow you to stay after we leave,” Tom told him, understanding the man’s desire but wanting to temper it with possible reality.

“Then please have him come look at this,” he said turning back to his seismograph. “This field unit communicates over the air with all other such devices and even our permanent units. A moment ago the readings from all units within a thousand miles came in. Those earthquakes were all centered east from here and about three miles off the eastern shore of Massachusetts, due east from the southern tip of the bit that sticks out into the Atlantic. There is some wildlife preserve out there.”

“That, by the way,” Stefanie added, “is on a direct line out to where I believe we have that new fault line.”

“A week ago,” Randy told her, “I would have called you and anyone else who believes in a new fault line crazy, but now…”

“We need to follow that line,” Tom declared, “whatever it turns out to be. For now I want to fly along it to see if there is any visible sign or line of damage between here and the ocean, but I believe I’m going to have to go out into the Atlantic and head to the floor for a better look.”

“I have to come,” Stefanie stated un-categorically. The look on her face told everyone that she would lie, cheat, and even stow away to be in on any deep sea dive.

“As long as you don’t mind sharing a fairly enclosed space with a couple of men for between three and five days, how can I refuse a command like that!”

“You, Tom Swift, are a prince among men. As long as you don’t call me Princess, we’ll do just fine. Just so you know, I had a full physical last month and passed with flying colors, have my SCUBA certification all up to date, and only have an allergy to the lacquer they put in hair spray.” She looked at Bud who gave her a “What?” look. She sweetly smiled at him in return.

Damon Swift spoke up. “Tom, why don’t you and everyone else get your gear packed up over the next day. I’ll stop in and speak with our Mr. Digby and impress on him the vital need for Mr. Coleman to remain here for at least one more week, and additional time if there are further quakes, and then fly the atomicar back to

Shopton. You, Bud and the rest come along tomorrow in the Toad. By that time I will have arrangements made for you to take a seacopter to check out that undersea fault."

"Thanks, Dad. Can you also see if the Geotron is in good shape and ready for a dig if we need her?"

It was agreed, and Damon climbed into the nearby atomicar and flew it across the airfield to the airport's Administration building.

By the time Tom and everyone else arrived in Shopton the following noontime, all arrangements had been made. Fearing Island had one of Tom's newest generation of seacopters supplied and ready to go. This new model featured not one but two high-speed and counter-rotating turbine blades in what appeared from above or below to be a figure eight arrangement. This provided enhanced maneuverability and increased both the flight ceiling and airspeed by about thirty percent. And while neither half of the seacopter could fly without the other, underwater it was possible in an emergency—or if desired to double the area that could be covered—to divide the seacopter and still have full underwater capabilities for both halves.

At Mr. Swift's request it was decided that the three who would be going required a full day's rest and so the trip was put off by a day.

Tom thought about asking Stefanie to stay at his house that evening. It would give him the opportunity to talk over what they could and could not expect to do. He was about to call Bashalli to see if she had any issues about hosting a visitor—and to warn her about Stefanie's height—when she walked into the shared office.

Giving Tom a kiss first, she crossed and gave her father-in-law a chaste kiss on the cheek and then turned to their visitor.

"Hello. I'm Tom's wife, Bashalli. Father Swift told me your name is Stefanie with an f. Is that correct?"

"Yes, it is. Nice to meet the woman behind Tom Swift."

"Are you a mesomelic dwarf?" Bashalli inquired.

"Incredible. Not many people recognize the different types. Do you have any dwarfism in your family?" the scientist asked. "And, yes. I am mesomelic. By the way, you are one of the most beautiful Pakistani women I've ever encountered." She turned to Tom. "You, sir, are one lucky man!"

The two women hit it off with Bashalli insisting that Stefanie stay with them that night.

The next day she drove Tom and Stefanie to Enterprises on her

way to her office. After giving Tom a lengthy good-bye kiss she bid them bon voyage and drove back out the main gate.

They were joined by Bud at the Barn where Tom generally kept the Toad. It was a two-hour flight down and out to Fearing Island during which they talked about the sorts of things that might be encountered once they arrived at their destination.

Stefanie told them what she knew. A deep-sea robotic expedition about a dozen years ago had yielded dark yet recognizable photos and video of the ocean floor. While there was no overt visible indicator of what lay under the deep silt, the careful eye could see the faint traces of previous plate movement. It was subtle, but she assured them that once they got used to seeing it, they should both be able to trace it.

"There is an undersea mountain range that roughly follows the plate collision line north and south. We will see what looks like an indentation along the ridge, but that isn't always the actual fault line. What we want to look at is to the west of that ridge and almost directly west from the southern tip of Portugal. Of course, with the near total blackness down there, we'll only be able to see a little bit at a time," she told them.

Bud shook his head. "You are wrong there. Tom created this nifty light source and special filters for all our cameras and even the view screen that will make it about as bright as daylight down there. Wait till you see it."

"Is he joking?" she asked Tom.

"No. He might be playing the 'I know more than you do' card a bit, but he is essentially correct. We have had many occasions where we needed a lot of light very deep down."

She scowled a little. "Aren't you afraid you'll either scare or injure the sea life with the bright lights?"

"No. It's on a set of wavelengths that are not detectable by any known living thing. In fact, it really isn't light as we know it, but an electromagnetic wavelength we can broadcast out and then use reflection to see what it bumps up against. You could be looking right into one of the emitters and not see a thing. I mean, you can still see but you would not be aware of the other energy source."

Several hours later, and only after Stefanie had been checked out in both a Fat Man diving suit—where she could not use the legs as her feet came nowhere close to the operation pedals—as well as the newest self-conforming hydrolung suit, they climbed into the *Prince Dakkar*—christened for the "real" name of the character of Capt.

Nemo from the Jules Verne stories—and headed east. Though Tom could have pushed things and made the trip in about four hours he opted to go a little slower and give their guest a lesson on operating the seacopter.

She took to it easily, explaining, “My father used to fly. Had one of your original *Pigeon Specials*, in fact. Proud number fifty-six off the assembly line. Of course I couldn’t reach the pedals, but I am pretty normal from the waist up so I could see over the control panel. I never soloed but I probably put in over a hundred hours of flight time by my nineteenth birthday. Unfortunately he had to sell the plane to pay for some of my medical bills. I’ve had to content myself with flight simulator games on my various computers ever since.”

When they reached a point about five miles from the plate overlap Tom took back the controls and showed her how to settle on the water, fill the lowest ballast chamber enough to get the blades into the water, and then to reverse their pitch so they could pull the seacopter under the waves. The next twenty minutes were spent about fifty feet down with Stefanie learning how to maneuver in a liquid environment.

“Sort of like up in the air,” she commented, “except slower and with a lot more drag.”

Tom retook the controls and the seacopter was soon heading down in a wide spiral. At five hundred feet he turned on the active SONAR system and also the outside lights. As soon as she took a look out the viewscreen, Stefanie was completely speechless. Everything was as bright as Bud had said it would be, but it was incredibly more vivid than she could ever have expected.

“The spot we’re searching for is about forty-one hundred feet down,” she told them. “Not particularly deep, but I wouldn’t want to be out in it. Crush City!”

“Not in either the Fat Man or the hydrolung suits. Bud and I can use the Fat Man suits, but there is no way to properly operate one with your short legs. I guess I need to think about making the foot controls more adjustable. We’re about to start making the suits for sale to the general public. Anyway, the hydrolung suits may look clear and easily crushed, but they stiffen in all the right spots to resist pressures down to about six thousand feet. And they can adapt to your height.” Tom told her.

“You might even decide to be the first dwarf mermaid,” Bud said with a grin. She rolled her eyes at the idea.

As they got within a few hundred feet of the highest ridge Bud let out a little gasp. His true comfort zone was up in the air—in anything that flew—but his amazement was piqued by the stark beauty of the deep, undersea landscape.

"I never get tired of what's down here," he practically whispered. "Are we where we're supposed to see the fault lines?"

Stefanie consulted the instruments and then performed a calculation on a tablet computer she seemed to be constantly carrying.

"Yep! Straight down to the floor and then about two hundred feet due north." She slid a controller stick up, twisted the end and brought the camera view of the floor closer on the screen. "Look at that. If you know what you're looking for there's the little line. A little sunken line kinda like the one in the Rhode Island bay."

"I see it," Tom told her turning the nose of the *Dakkar* a dozen degrees to the right. Their destination was now just eighty feet below and fifty feet ahead. It was plainly visible in the bright lights of the craft. "Should we be seeing another crack heading west?"

She shrugged. "I don't know. We're the first to get down here in person and only the third expedition overall. After the first one a second robotic probe came down, but that was more than nine years ago. Can we get closer?"

"We can," Tom answered, "but any closer and we will start to suck up silt. Pretty soon we'd be seeing nothing. My suggestion is that Bud and I go out in hydrolung suits with a remote camera so you can see what we see."

Stefanie violently shook her head. "Nothing doing. I'm going to take one of my mythological chill pills, get over my half a case of nerves and come with you!"

Tom set the controls to keep the seacopter at its present position. While Stefanie went to the aft cabin to change into her suit, he and Bud shed their shorts and slipped into swimming trunks. After that, they pulled two suits from the locker next to the airlock and got in. Both left the foldable head cover draped back over their shoulders.

Bud had to stifle a laugh when Stefanie came waddling out of the aft cabin. Having no idea how to adjust the suit she looked like a little girl who had put on her father's diving gear. While it fit her fairly well from the waist up, the bottom half of the legs trailed behind her. One burning glare made Bud turn around and stop giggling.

Tom patiently showed her how to cause the incredible clear, yet armor-hard material to contract. It didn't come up all the way, but by pulling the loose material a little above her knees she could walk with her feet in the suit's feet.

Outside, they waited for the suits to equalize to the ambient pressure before pushing off and heading toward the crack. She took a constant stream of video with the helmet camera all the while keeping up a narrative of what she was seeing.

By the time they had been out for thirty minutes she was sounding discouraged. She stopped the camera and paddled her arms around to face Tom.

"I can see the north-south fissure but I'm darned if I can detect the new crack. It's got to be around here. Somewhere," she finished rather weakly.

"Could it be under the ground?" Bud asked.

She was about to dismiss his question when it struck her that he might have something. "Uh, normally I'd say that was just silly talk, Bud, but you could be right. The small plate I was studying in Mexico before you swooped out of the sky and took me away does disappear for miles at a time. It is so tightly pressed against the next plate that there is nothing to see. That's good, mostly, because the plate can't slip with any ease. But, if and when it does let go… whammo!"

She looked at Tom again. "Can that whirly-gig go below the floor?"

Shaking his head he told her that it wasn't designed for that, "but I have something that can. We'll have to head back and bring it out here in the *Super Queen*, but it will dig in and travel under the ground. Let's get back into the *Dakkar* and head home. Tomorrow we'll come back in my Geotron."

The following day Tom's *Super Queen*, nearly twice as long and half again as wide as his *Sky Queen*, came in for a hover over the same spot the seacopter had begun its dive. Built to carry interchangeable pods—one in front of the center lifter array and one behind it—the Geotron was snugly slung in the forward compartment. A series of winches lowered it to the surface as soon as the bomb-bay-style lower doors opened.

The rear compartment held one of Tom's jetmarine submarines. The inventor wanted a safety crew down there with them when they dug in. At least once in the past the Geotron had encountered such heavy side pressures that it had become stuck, almost stranding

Tom and Bud hundreds of feet underground in the process. Since then a special earth blaster had been added on top that could be released to burrow straight up leaving a bore hole just wide enough for a man, or woman, to use to escape.

This time one of Fearing Island's top operators of the Geotron, Keith Moss, would accompany them. Although Tom had designed the first Geotron, Keith was the man who knew the model best and would be a boon if they got into trouble.

He was already on board when Tom, Bud and Stefanie entered the hatch as the Geotron bobbed on the water. Moments later the lines were cast off and the large boat-prowed vehicle slipped under the waves.

Two minutes after that the jetmarine released its cables and sank out of sight.

Tom tested the communications link to the sub.

"Yes, skipper. I hear you loud and clear," came Hank Sterling's deep voice. With no current projects requiring his skills back in Shopton he had volunteered, along with Zimby Cox and Chow, to be the support sub's crew.

"I'm here, too, buckaroos," Chow's Texas drawl came from the speaker. "If'n ya look in yer storage locker you'll find a mess o' pre-made meals. I couldn't stand the thought o' you bein' down here without a good helpin' o' great food."

Tom laughed. "Thanks, Chow. Hank, as soon as we get to the bottom I'd like you to stand off a hundred feet or so while we move into a westerly-facing position and get dug in. I'll be leaving a Durastress-sheathed communications cable trailing behind. That way, I can let you know how fast we're traveling and you can shadow us from above."

"Roger that, Tom."

In less that an hour the nose of the Geotron began to push into the soft silty soil of the ocean floor. The treads on the underside dug in and flung up a lot of the muck, making it impossible to see the aft end within seconds.

The special-purpose geo-repelatrons—an offshoot of Tom's repelatron technology that constantly adjusted themselves to push aside all rock, dirt and other debris—let the Geotron nose its way into the seafloor and move into it. It didn't actually dig a hole; it moved things aside to create space for the Geotron to move through. If they had more time Tom could have arranged for a long, shape-

conforming conduit to be brought out and dragged into the hole. That would allow them to back out if need be. However, as they would be heading down the undersea slope and could potentially level off and come out at any time, he had opted to leave that behind.

Besides, this way the vehicle would travel at a considerably faster pace.

“I’m not seeing anything,” Stefanie said with a slightly defeated tone. “Is there any way to zig zag around here?”

“Well, yes and no. We have some steering capability, but once we get below this silt and into rock, it takes about a quarter mile of travel to turn one hundred eight degrees. Why don’t we go on for a mile or two perhaps fifty feet farther down, make a wide swing around, and head back but a little deeper still. Maybe a hundred feet into bedrock. At some point we could cross the fault line.”

After sending a message to Hank, Tom programmed the navigation computer to perform the search track he envisioned, and they all sat back and watched the viewscreen as the muck slid past, and the echo-location sensors that might give an indication of any fissure or rift.

Moments later, Tom poured on more power and the Geotron slid into the thicker and drier mud.

CHAPTER 9 /

"IT'S CHINA CALLING"

IT REQUIRED more than three hours of searching under the bed of the ocean before Tom believed they had located the underground fault. The nose of the Geotron pierced a narrow gap so quickly that had anyone blinked they might have missed it sliding by, but fortunately all three had been keeping attentive watch for anything out of the ordinary.

"That was it!" he declared as he halted their forward progress and reversed the treads to pull them back several yards. As the water-filled gap slid forward along the windows he stopped their motion.

"Holy crap!" declared Stefanie as she stood up on her seat and pressed her face as close to the thick window as possible. Her right arm waived in the air as she sought to find words for what she wanted to say.

"Thingie. I need… uh… oh… bright thing. Light! That's it. I need a light!" When none was forthcoming she turned around to look at them. It was then she noticed that she had been snapping her fingers like a rude customer at a fancy restaurant. "Sorry. I meant to ask if someone could hand me a bright light, please. I want to look into that gap."

Bud, grinning, handed her a rather strange-looking device, reminiscent of an old-fashioned Aldis hand-held signal light. It was, however, a portable version of the alternate energy light used in deep water.

The beam pierced the darkness that began just a few feet outside of the Geotron. The gap, ranging from a few inches to nearly a foot, traveled away from them at a right angle. It must have made a turn because they couldn't see anything beyond about thirty feet.

In a hushed tone, Stefanie told them, "That is both the most fantastic thing I have ever seen, and the most terrifying."

"Why terrifying?" Bud asked innocently.

She turned to face him, shutting the light off. As she slid down to sit on her chair, she told them, "It is terrifying because it bears out the theory of a new fault line. And, because of where it is and the direction if seems to be heading, it will most probably turn out to be the source of the crack running through Massachusetts, Rhode

Island, and possibly Connecticut. And," she held up a warning finger, "if that is indeed the case, then it will someday cross the middle zone of what is known as the Yosemite Super Volcano."

Tom paled. Bud was left turning his head back and forth as his best friend was starting to look very worried, and their guest was nodding her head as if answering the inventor's unasked questions.

"What? Is that the thing reporters were going on about a few months before we left for Mars?"

Tom turned to look at Bud. "It is. The super volcano is centered in Wyoming, and if it lets go it will most likely inundate an area stretching from near the Oregon coast in the Northwest, up through Edmonton, Alberta Canada to the north, most of North and South Dakota to the east and as far south as about the bottom of Utah." As Bud's mouth formed a surprised "Ohhhh," Tom continued. "There is supposed to be a giant magma bubble under Yellowstone. It's the reason for geysers. Ground water seeps down, gets super-heated and shoots back up and into the sky."

They sat there in silence for a few minutes.

"Is there anything you can invent to seal this up?" Stephanie asked. It was such an innocent question that Tom almost burst out laughing.

But, as he thought about it, he realized that it might well be exactly the sort of thing he needed to put his energies toward.

"Not today," he began slowly, "but it definitely needs to be addressed. Uhhhh, how soon do you think we'll be in trouble?"

She shook her head. "Days, weeks, months and years. Decades. Millennia. Heck. It's anybody's guess. If none of the other faults break free, it could be too far in the future to contemplate. I need to get samples from out there and then try to determine how long this fault has been around. Then, I need to dig down and see if this is a bedrock fault or just a crack in the silty layer. Can we go down?"

Tom nodded. "Bud, break out some of Chow's food and we'll eat before doing anything else. We'll call mealtime our break and then head on down following this rift."

Stefanie had just raised one hand.

"Yes?"

"Uh, I don't want to seem indelicate, but is there a ladies room on this incredible craft?" She looked around hopefully.

Bud's laugh told her the answer was going to be in the negative.

Keith looked at the ceiling and whistled.

"Fine. So, what do you boys do?" She had turned pink with embarrassment.

Tom put her out of her misery. "See that half-size door?" He pointed to what she had believed to be a storage compartment behind the seats on the right side of the cabin. "Open it and you'll find our little convenience. It isn't much, and not even large enough to go into and close the door fully, but it is all we can offer you."

She hopped off the seat and walked over to the door. Reaching up and opening it, she looked back at them. "One of the benefits of being a bit on the petite side is that this is a full-size facility to me. If you have any loud music you can play I would appreciate the additional privacy." Saying this, she stepped over the somewhat tall threshold and closed the door behind her.

A minute later she was back in her seat, her face still blushing.

Bud found packages of chicken noodle soup and heated them up in the small microwave. It was satisfying, nutritious and best of all, easy to eat. They were back on their way in twenty minutes with Keith taking the controls.

When the Geotron turned into the rift, Tom decided to travel along it for a few hundred yards before tilting downward. It had the same appearance as when they first discovered it as far as the eye could see. When the time came, the Geotron nosed downward into thicker and darker silt, dirt, layers of shells, fragments of what must be whale bones, rocks and larger stones and finally into the solid ground.

The farther they traveled, the more Stefanie took notes on what they saw. Several times she asked Keith to halt their progress, but he had to deny her after the third request.

"We're getting deep enough that I don't like to stop. It puts more of a strain on the geo-repelatrons and means we might get stuck." Tom agreed.

A few minutes later Bud moved over to glance at her notes. He made "hmmmm" and "ummmm" noises until she snapped her notebook shut.

"Okay. Do you three want to know the good or the bad?"

"If we only hear the good does the bad go away?" Bud asked with a mischievous grin.

It broke her mood and she smiled. "No, smart guy. However, if I give you the good bit first it may make the bad stuff sound less nasty."

"Dad always says to take 'the good with the bad,' so I guess it's good news first. What have you found?" Tom asked.

"Well, the good part is that the rift appears to be fairly stable out here. I am seeing very little evidence of it shifting wider, narrower, or up and down."

"So," Tom stated, "it's showing little sign of movement. Do you see anything that says this is going to change any time soon?"

"Nope. And, that's more good news. But I have to temper this with the bad. Well, perhaps not truly bad but certainly less than *good* news. You see, we are still getting great movement back on land. Either that means this isn't the source of our Rhode Island crack, or it means there might be something this runs into that keeps this from getting larger out here, but still allows the other end to move."

She shrugged. "Don't ask me what that might be. I don't know. All I do know is that we need to find that point if it exists, study it, and determine what we might do to make the other end more stable."

"The skipper here can do that with his eyes closed," Bud stated, having complete faith in the ability of his friend. "Right, Tom?"

Tom snorted. "If only I had all of the capabilities you seem to think I do, flyboy. But Stefanie is right. The only problem is that it could take a couple weeks to follow this rift and I am pretty certain I need to get a start on coming up with something to fix this sort of thing, even if we don't know what it is supposed to do."

They traveled in silence for another hour before Tom ejected a marker buoy and headed back upward. One end anchored itself while the built-in screw drive bored a small hole and drew the beacon transmitter upward and out of sight. It would eventually break through into the water and stop, the begin broadcasting a positioning signal.

It took two more hours to get the Geotron above the silt and into water and then an hour to come to the surface. The jetmarine was standing by several hundred yards away and shadowed the larger craft as it rose. Tom had sent radio call as soon as they cleared the silt so by the time the surfaced, the *Super Queen* was hovering above them, ready to take them on board.

On the flight back to Fearing Island it was decided to resupply the Geotron for a multi week excursion. Zimby Cox and Keith from Fearing would accompany the geologist as they tried to trace the entire fault.

Tom and Bud flew home that evening after wishing Stefanie Brooks good luck.

The following week was a blur of activity for Tom. With the assistance of Bud and several other employees he performed as much research as possible to understand the dynamics of the Earth's tectonic plates and plate motion. Everything they discovered pointed to forces far beyond anything humanly possible to manipulate. While that discouraged Bud, Tom found it fascinating. It was a challenge of a lifetime and he was more and more determined to face it.

A week after returning to Shopton he was sitting in the large, shared office when his phone buzzed.

"Yes, Trent?"

"Tom. I have a man from the China University of Geosciences on line three. They are in Beijing, which puts his time at just past seven tomorrow morning. They are plus fifteen from us."

Tom thanked the secretary and punched the line button. "Tom Swift here. Zǎo ān," he added hoping his memory was correct and he was wishing his caller a good morning.

"A good early evening to you, Mr. Swift," came a moderately deep voice with a slight British accent. "My name is Tsai Ri Wei." He spelled the name for Tom. "But at Cambridge my classmates called me R.W. Please, call me by those initials."

"Okay, and if you please, call me Tom. What may I do for you, R.W?"

"I trust that anything mentioned in this conversation will be kept most confidential, Tom. You, your father and your company are held in high regard for keeping what is said in secret, a secret."

"You have my word on it. So…?"

"So, without any small talk I will get to the point. While I cannot tell you our source, we have learned of your adventures in Alaska and India and of the amazing atomic body finding car you have been using. It has also come to our attention and the Geosciences Institute that you are investigating tectonic disturbances in several locations around the globe. I trust that this is correct?"

Cautiously, Tom replied, "It is mostly correct… but I am not certain I am in favor of anything that begins with 'I cannot reveal my sources.' I hope you can understand that, sir."

The man at the other end of the line cleared his throat. "I can and I do, but you must understand that this call is most probably being

monitored and so I must keep with Chinese political conventions. But, let me put that aside for now. The reason for my interest is that areas within China have been experiencing increased seismic activity over the past several decades. Much of this is never announced to the world as it is localized, but some of this activity is being questioned as possible underground testing of nuclear weapons. This is absolutely not the case. Of course."

"Yes… if you say so. I can see how that might be one interpretation. But, what do you think our research and, as you put it, *activity*, might do for you?"

"Simply this. There are fifteen tectonic scientists in my group and we all feel that— no, that is not correct. We all strongly *believe* that increases in our own tectonic activity may be linked with something you have been involved in for several years. It is a conclusion that we have recently come to and want to present it to you for consideration."

Tom was puzzled. While many people presenting the same statement might make it sound as if it were an accusation, R.W. Tsai almost made it sound like an urgent request for assistance.

"Go ahead, R.W. I am very interested in hearing what you and your team believe might be occurring." He could hear the man taking a deep breath.

"You famously launched a series of ozone-repairing aircraft over the Antarctic. These autonomous balloons have been rebuilding that protective layer for many months now, and our own measurements show that they are succeeding and the ice layer is slowly beginning to reform down there. Core samples taken at two of our stations show a thickening of the ice and snow pack. Our estimate is that five tons per fifty square meters of new weight has been added in this period of time. This is what we fear might be causing the Antarctic Plate to be forced downward."

"But, surely we are just helping nature to replace what used to be there."

"And that is also an excellent theory, but we hope that you can understand that we now believe this increased weight is forcing that plate down putting new pressures on the Pacific and Atlantic plates that might have moved into a slight overlap condition with the formerly lighter Antarctic Plate. If our theory is correct, the more ice that builds up, the more movement and the more and greater the seismic activity here in China!"

Now Tom was shocked into silence. He quickly considered whether the caller might be some sort of crackpot rather than an

actual scientist.

"I can hear the shouts of disbelief in your silence, Tom," the man told him. "If the situation were reversed I am not certain whether I would have remained on the phone this long."

Tom let out a small laugh. "You do have to admit this is a long shot, don't you?"

Tsai agreed. "I would propose a meeting, then. It is far easier for myself and several of my team to travel to a country such as France than to the United States, or for you to travel to here. Could we arrange a meeting?"

After much discussion it was decided to meet in France five days hence. The Chinese scientists would bring their notes and computations and Tom agreed to study them in detail.

When the evening before the trip arrived Bashalli begged Tom to take her with him.

"I have one full week of vacation saved and can easily get the time off," she told him.

Smiling, he asked, "But at this short notice, Bash? How? Or, have you already arranged it and are just waiting to tell me?"

She had the decency to blush as she nodded, kissed him soundly on the lips and jumped into his arms.

With Bud and Sandy along—Tom's sister evidently having had her bag packed the entire five days—they flew the *Sky Queen* to Paris. And, while the ladies decided to spend the day shopping, Tom, Bud and Gary Bradley from Security headed for the meeting at the Pasteur Institute of the University International.

The five-man delegation from China all spoke excellent English so there was no communication problem. Hour after hour were spent looking over their detailed findings. On the surface it made some level of sense, but Tom couldn't help but believe it was all grasping at straws.

Bud and Gary, knowing they both were out of their league, had moved to one side of the room and were deep in a discussion of their favorite football teams.

Finally, Tom spotted a flaw in their logic. It wasn't going to be easy to break it to them, but he hoped for their scientific nature to help ease the shock.

"What about this line of pressure?" he asked pointing to a series of arrows emanating from a point north of Australia. "That is the start of the Philippine Plate, isn't it?"

Tsai looked carefully at the large plate map spread out on the table.

"Yes, it is." He now sounded unsure of something.

Tom nodded. "All of the pressure on the Australia Plate pushes up—practically straight north in the Pacific east of mainland China—but it is the Pacific Plate that pushes to the northwest. And, as your measurements show, none of the forces through your country appear to be heading north." He stopped talking as the five scientists leaned in to look at the map and began speaking quickly and loudly in what Tom believed to be Mandarin. This went on for nearly half an hour varying from quiet whispers to outright shouting matches.

Finally, R.W. Tsai turned to Tom. "I must apologize to you, Tom. While we cannot agree of this point now, I and two others of my colleagues believe we have made a mistake. All I can ask is for you to keep an open mind about this and see if you can detect anything as you progress with your… activity."

After assuring all the Asian men that he would be looking for any clues and ways of controlling unwanted movements, Tom, Gary and Bud left the meeting.

The five people had a nice dinner at a rather fashionable restaurant—"overpriced and understaffed with gerbil-sized portions," as Bud put it—then they all spent the night sleeping in the *Sky Queen* before heading home the following morning.

"Do you think there is anything to what they believe?" Mr. Swift asked when Tom arrived in the office and gave the older inventor a rundown of the meeting.

"Not really, but I promised to keep an open mind. I hope I can give them some proof. In due time, that is."

"Fine, and keep me in that loop, please. Oh, new subject. I received word last evening that Zimby, Keith and your Stefanie woman would be traveling under Massachusetts during the night and early today and expect to come up in the bay in Rhode Island late this afternoon. You and Bud ought to go down to greet them."

Tom agreed, and called the flyer. "Meet me at the Barn," he requested. "We're off to see the mole people!"

As the Toad set back down in Rhode Island, Bud pointed over toward a pair of large, white buildings and one huge structure just off the airport premises. They had obviously seen better days but remained impressive, if a little worn.

"I meant to ask you about those," he mentioned to Tom. "Any idea

what they are? Or, were?"

"Well, according to what dad told me, those are a couple of historic buildings that have just been left to rot away. Too bad, because those are the old Electric Boat works where a lot of the U.S.'s nuclear submarines were built. He showed me a couple photos of when he visited them back when I was around eleven. Three giant almost finished submarines without their noses, sitting side-by-side, with dozens of men crawling all around in them."

"Why do they look so bad?"

Tom sadly shook his head. "From what I hear, they ended up just making tubes rather than whole subs and shipping them to another facility to be turned into finished boats. Then, about five years ago this facility was abandoned and all the work moved to Connecticut. They supposedly even left the last giant tube in one of the buildings. Too much bother to move it at first, then that series of subs was canceled."

Bud sighed as they taxied to a halt. "Why didn't someone make it a museum? I mean, I'd pay to see and hear about all of that."

"Me too, but some of what they did, even at the very end, was secret. Plus, this is kind of out of the way for most people, even in a small state like Rhode Island."

They stopped talking as the twin jet turbines whined down to a halt and they got out of the jet. Mr. Digby was stalking across the tarmac toward them with a look of grim determination on his face.

Out of the corner of his mouth, Bud said, "Looks like trouble heading our way, skipper."

Tom put a smile on his face and called out to the approaching man, "Hello, Mr. Digby. You look like you have something on your mind."

Marching up to stand in front of them, Digby put his hands on his hips and made a "harrumph" sound. "You might well say that, *Mr. Swift*. I will have you know that your people pulled out of here this morning without so much as a by your leave! What have you got to say about that? Well?"

"That, Mr. Digby, is because the Office of Procurement in Washington D.C. has pulled back on your purchase order pending a solution to that rather nasty crack out there in the runway." He pointed over his shoulder, looking Digby in the eyes. "We were led to believe that you had been contacted by that same office. Were you?"

Digby's apparent anger and bluster disappeared, and his hands

sagged to his sides. “Yes,” he said weakly. “But nobody told me exactly why.”

“Well,” Tom replied, his own voice softening, “It is because that crack out there may be part of something so vast and powerful that it might just split this side of the country into two. The priority is now on my finding a way to stop that!”

CHAPTER 10 /

LAVA SURFER

ALAN DIGBY nodded, turned away and trudged back the way he had come. Tom was about to follow when the radio in the Toad crackled to life.

"Enterprises calling Tom. Come in."

He brought his wireless headset back up from its resting place around his neck and tapped the transmitter button.

"Tom here. Go ahead."

"Skipper. Your father wants to have a word. Plus, he says the Geotron will be a couple hours late. I guess they found something interesting."

When his father came on the radio Tom could hear the excitement in his voice. "Zimby and crew stopped just long enough in a place called Buzzards Bay, south of Massachusetts to send up a radio beacon. Their message was prerecorded and didn't have a lot of detail, but evidently they have found what your Miss Brooks has been hoping to find. I'm not certain what that is, however."

Tom told his father of her theory there might be some sort of phenomena dividing the less active deep water fault from the recently more active local one.

"Well, as I said not much detail, but his voice sounded excited and I'm pretty certain I could hear her singing in the background. They estimate surfacing inside the bay where you are in… well, in about two hours. Call me and let me know what they are so happy about."

Tom promised to do so and cut the signal.

"Do you think it's more on the good news side of things, skipper?" Bud asked. "And, how do you think Zimby and Keith did cooped up with her for going on a week?"

Tom grinned and shrugged. Turning serious he suggested walking to Alan Digby's office. "I think we need to talk to him, Bud. He is so emotionally invested in this airfield, and for only he knows what reasons, that I'm feeling a little bad about letting the Government tell us to pull out as quickly as we did."

They closed and locked the Toad and headed for the main offices a few blocks away.

Digby was sitting, staring at the wall opposite his desk, when the arrived. He looked up and motioned them to take the two seats in front of his desk. Mustering as much energy as he could he asked, "To what do I owe— oh, hell. I'm getting to old for this. What happened? Why did our precious Feds pull the plug? Are we *that* unimportant?" He seemed to be close to tears.

Bud got up and brought back a cup of cold water. Digby stared at it.

"Mr. Digby, I can either hand this to you to drink, or I can toss it in your face to snap you out of this." He held the cup back out. With a sigh Alan took it and drained it in one go.

"Thanks." He sniffled and cleared his throat. "So, where do I... I mean *we*, stand?"

Tom looked at him. "In all honesty I have no idea. We have been paid sufficient funds to complete the work, even at no profit, and told the purchasing people that. They said they want to put the money into what they term, 'a solution to the bigger issue.' And, what that means is as good your guess as mine. Other than mentioning the crack in the runway we've told them nothing about the larger rift."

The three men sat in silence for a moment before Bud spoke. "Unless I'm not seeing something, the main runway and about half of your apron areas are finished. That means the field is operational. Right?"

Digby nodded and sighed again. "Yes, but the National Guard is suggesting that if we can't complete the repairs it might be time for them to find another airfield. If they go, this field is gone inside of a year."

Tom nodded and placed his hands on the desk, "Then, I'm calling our team and equipment back. I can have everything on site day after tomorrow."

Digby shook his head. "It won't do any good. Unless the FAA re-certifies the finished work we can't operate. And, they have as much as told me it's a no-go with that crack at the east end of runway three-four."

Bud's forehead scrunched up. "But, that crack runs across way before the touchdown spot. Just thirty feet from the very end." He turned to Tom. "Can't you just float that stupid end of the runway over the crack?"

The inventor began shaking his head but stopped. "Say that

again, Bud."

The flyer repeated his last question.

Now, Tom did a drum roll with his fingers on the very puzzled Alan Digby's desk. "And today's winner of 'It's so darned obvious', is Budworth Barclay! That is exactly what we can do."

He described his thoughts to them both. With the crack being at a known location it would be possible to span it with a portion of runway that simply let the ground underneath move back and forth as the crack opened and closed. He would have to demolish the first sixty to seventy feet of the current runway, and dig out the area closest to the end by about two feet to allow for a new subsurface to be installed below ground level. It would be divided on either side of the crack. The end of the runway would then be constructed as a long plank raised above this sub-level and rest on a series of rollers that would let the ground underneath move while keeping the runway surface stable and still.

With each passing moment in Tom's explanation Alan Digby's face went from resigned and sad to curious and hopeful, and finally to happy and eager.

"I suppose we'll have to do the same for the taxiway next to the runway and also to the smaller oh-five runway, but it is doable," Tom finished.

He asked for some paper and a pencil and drew out a preliminary design. By the time he and Bud left he had a solid idea of what he would do. All he needed to check on was how the FAA would take to the idea, but he figured that Mr. Swift, ever the politician in cases such as this, would be the perfect person to approach that agency.

An hour later the Geotron emerged from the water off the southeast corner of the airport property. As it lumbered up onto solid ground, the three occupants could be seen inside smiling and waiving at Tom and Bud.

Zimby pulled forward a few more yards and then shut the treads off. Within seconds the rear hatch had been opened and Stefanie and their third team member, Keith Moss, climbed down and stretched.

"Boy, I never knew how good non-recycled air could be!" Stefanie told Tom as she looked up into his inquisitive face. "Take me to a shower and a real bathroom first, and then I'll tell you all about what we found."

An hour later, now dressed in comfortable street clothes and with

still damp hair, she sat across a table from Tom and Bud. Keith and Zimby were cleaning the Geotron and prepping it for pickup later that afternoon by the *Super Queen*.

"We tracked that rift for more than fourteen hundred miles. It may be cracked, but from everything I've seen it must've been like that for centuries. Perhaps even tens of thousands of years."

"How can you tell?" Bud asked.

"From the distinct lack of any new exposed areas. It is all evenly covered in silt; just what you'd expect from something super stable. Anyway, it actually dead ends about two hundred miles off the coast." She paused to let that information sink in. When neither Tom nor Bud asked a question, she continued. "What we did find, and this is both exciting and a bit alarming, between that point and here is a small bubble of magma that is sitting within a thousand feet of the sea floor in something called Buzzards Bay."

Tom acknowledged that they had heard about the area and knew where it was.

"Good. Now, here's the thing. Our crack over here comes off of that bubble. Well, *finger* is more like it. From what I could tell it is barely eighty feet across but must go down as far as the middle of the planet!"

"Any ideas why it has never broken through?" Tom asked with a puzzled scowl on his face.

She shook her head, but replied, "No, and yes. It is super hot but not nearly as hot on the floor of the bay as I would expect from such a close source. My guess is the magma is easily a couple hundred degrees cooler down there. It probably explains why the bay is one or two degrees warmer than it ought to be."

She looked at Tom and he could tell she had something more to say. He nodded to her.

"Okay, here's the not good news. Our crack this direction has a friend on the other side of this magma finger. I'm afraid that if it grown significantly in the outbound direction it might meet up with the Atlantic tear and cause the now-stable fault to fracture."

Bud raised a hand. "A question about that. What would happen if that… uh… happens?"

"Earthquakes, tidal waves, and a lot of collateral destruction and death!"

Bud turned to Tom. "Looks like you've got an even bigger reason to come up with something, skipper."

Tom nodded, his mind already working away on it.

* * * * * *

Almost two weeks went by during which Bud barely got to see his friend. Tom had practically sequestered himself in his underground lab and office as he sought to create a new probe that could be delivered to the site of the underground lava dome under Buzzards Bay. It was the first step, Stefanie had assured them all, in understanding what they might be up against.

When the flyer finally received a summons to join Tom in the Structural Engineering lab he almost stumbled over his own feet. One look at what the team was working to complete practically rooted him to the spot.

When he found his voice, he exclaimed, "But you've already done that!"

Tom turned at the sound of his buddy's voice. "Yep. And after everything I tried in computer simulations, I came right back to this." he swept his right arm around toward the almost diving bell-like ball that sat on a stand in the middle of the room.

"Again, I say you've done that. Here I was expecting to see something really whizz-bang and you've been building a smaller version of the descent sphere we used way back in those nuclear fire caves in Africa. Of course, that one didn't have a tube dangling underneath like this one."

Bud was right. The greenish sphere looked incredibly like a one-third size model of the one the two young boys had been lowered inside of when exploring a cave with mysterious properties that seemed to be able to dissolve just about anything, except for the actual cave. During that expedition Tom had discovered a mineral he dubbed Intertite that had properties to protect anything coated with it from extreme heat, radiation, acid and anything else that might corrode or break down the sphere and its cables.

"That dangling tube as you put it is a wide-pattern earth blaster. This will be a probe I intend to send down to the magma bubble in the bay. Obviously I can't send anything like the Geotron. Whatever we send needs to be narrow enough that we can seal the hole above as it goes down, yet it must resist the incredible heat of the magma. In the end, this is a one-way trip so a passenger is out. And, as I mentioned, once I did all the math, everything pointed to resurrecting this old technology."

Bud walked around the combined device three times before asking anything more.

"What goes inside?"

Tom scratched his head. "Well, for starters all the possible sensors I can think of for things like heat, pressure, fluidity of the magma. Then I am trying to come up with a means of seeing through the magma itself. In order to test several possibilities you and I are going to Hawaii."

"Oh boy! Surf's up!" Bud cried enthusiastically. "How will hanging ten help you understand what you need to find out?"

With a shake of his head, Tom replied, "We are not going to surf in the ocean, Bud. I *am* going to construct a surfboard of sorts, only this one will skim over the surface of some of the lava spewing out of Kilauea on the Big Island."

"Oh. The stuff that's heading down into the ocean, huh?"

"Right. That stuff. Anyway, I'm going to try echo-location, ground penetrating RADAR, sonar and about four other technologies. So our test bed—"

"The *Lava Surfer*," Bud stated having already decided this would be the device's name.

Tom sighed. "Okay. So the *Lava Surfer* will be self-propelled and will both skim the surface as well as duck under everything. I figure that we will spend a couple days there, and yes… we can take the ladies, before you ask. It'll be over the weekend so Bash doesn't need to take any more time off, and Sandy has already arranged it with George Dilling to be gone Friday."

Sandy had been working at Swift Enterprises in the Communications department for the entire previous year.

"But, if Sandy is taking Friday off, and Bash is only gone for the weekend, what happened to her Friday?"

Tom smiled. "You forget. Bash has every other Friday off anyway. This coming Friday is the one for this cycle. She did that in lieu of asking for a raise from the ad agency. They're a little under worked and over staffed right now, so she chose to let her people keep full pay and she took a one day in ten break."

The trip out was uneventful. Even the preparation leading up to the trip was uneventful. Sandy's mother—realizing that her daughter was just months from becoming Mrs. Bud Barclay—had dispensed with her traditional warning about the dangers of hanky-panky. She realized that the pair had progressed beyond holding hands and kissing quite some time ago.

In the hangar of the *Sky Queen* was the *Skeeter Mark II*—a

helicopter with twin, bulbous windscreens that Sandy said made it look less like a helicopter and more like a "butt-copter"—and the recently dubbed *Lava Surfer*. To Bud's disappointment it looked less like a surfboard and more like the bottom portion of a jet ski.

Inside, Tom explained as he and Bud unloaded both machines, were three equipment bays. With six total instruments to check out, everything would need to be repeated once the first run was complete. It was propelled by a small repelatron in the stern, and it would remain tethered to the surface to make recovery easy. The entire device was powered by a small closed-loop power plant that would use the heat from the lava to generate steam that would spin a small dynamo for electrical power for all of its systems.

Now enlarged to carry four people, the *Skeeter II* was warmed up by Bud while Tom attached a cable beneath the helo to the netting that encased the *Lava Surfer*. Minutes later the craft lifted off from the Kona International Airport—the only airfield with a large enough parking space to accommodate Tom's Flying Lab—where they had been allowed to park the giant aircraft for the two days they would be on the island.

Tom chose to fly down the coastline of the Big Island of Hawaii rather than to go up and over the large Mauna Loa range. As they swung around the southern tip, Bashalli pointed down to a number of derelict white towers.

"What are those, Tom?" she asked.

With a rueful chuckle, he replied, "Those *were* one of the early wind farms out here. This point to land gets almost constant trade winds and it was thought to be the ideal spot."

"So, why did they abandon them?" Sandy wanted to know.

"Logistics and wind speeds higher than they could safely use. You see, the turbines were constantly in need of service, and this is more than an hour away from the closest port. With the cost of shipping things out here it just got to be too expensive to maintain them. Plus, the ocean breezes brought in salt that corroded things. After a while, blades began to drop off. That is all that's left."

Tom had received permission to set the *Skeeter* down in an auxiliary parking lot of the Volcanoes National Park. It would not be allowed out onto the lava floe. A transport truck was waiting for them when the touched down.

"I recognize you, Mr. Swift," the teenage driver said as he approached the helicopter. He was of obvious Hawaiian or Samoan descent, being broad and incredibly powerful-looking. "I'm called

Manu."

Shaking the boy's hand, Tom told him, "Thanks for being here on time. I've been told about the 'hang loose' attitude and there being a difference between mainland and island concepts of time."

The boy grinned. "Yeah, but my pop told me to hustle down here and to not be late or I don't get dinner." He patted his wide but lean stomach. "Can't miss that!"

Ten minutes later the truck, now crowded with all five people in the cab and the *Lava Surfer* in the bed, trundled out of the parking lot and down the highway. The four passengers were surprised when their driver slowed down, signaled, and turned across the road on one point, heading across a relatively smooth lava field.

"Shortcut," was the only explanation they received as the truck bounced along.

Bashalli clung onto Tom's arm with a vice-like grip while Sandy sat forward enjoying the warm air and the jiggly ride.

Twenty minutes later they pulled to a stop. Nearby was a fissure emitting a combination of steam and an acrid gas.

Manu reached behind the wide seat and pulled five filter masks from a box. He handed one to each of his passengers and put the last one on his face.

They were the same masks that Tom and Bud had been given at the cadaver farm in Tennessee.

"Nasty gas right now. These will grab the dangerous stuff and keep you from getting it in your lungs. Uh, they're good for about three hours. Are we going to be here longer than that?"

Tom nodded. "Let's see," he said looking at his watch. "It's two local time and sun down is at about nine?" Manu nodded. "I'd say we're going to want to work until about six or so. Have you got more of these masks? I'll pay for them, of course."

"Yeah. Pop told me to take the whole box. I got twenty all together. That'll last us for today. Did I hear you'll want to come back tomorrow?"

"Yes. We'll run one set of our tests today and the second set tomorrow. If you can be available to pick us up again around nine—" Tom looked at the discomfort that was visible on the boy's face. "Would a little later be better for you, Manu?"

The islander smiled and nodded his head. "I kinda have trouble getting out of bed before eight, 'specially on Sunday. Can I pick you

up back at the park around ten?"

It was agreed on. Manu assisted Tom and Bud in bringing the *Lava Surfer* down from the truck bed and carrying to the seventy feet or so to set it down next to the fissure.

As they prepared the device for its first run Tom told their new friend how it worked. With each new fact the boy's eyes grew wider and wider.

"Golly! We got science guys comin' down here by the bucket load who'd kill for something like that. You could make a bundle renting it out." He paused as a new thought hit him. "Say. Could a person ride inside that?"

Tom straightened up. "Probably. Why?"

With a laugh, Manu said, "Those adrenaline junkies would pay a fortune for a ride through lava! I bet the very first guy would pay a double fortune for the bragging rights."

"She's ready, skipper," Bud said as he, too, straightened up. "Do we shove it in or lower it gently?"

"Gently, Bud. Gently."

As the two ladies watched from a safe distance, Tom and Bud—on the front line—and Manu on the back lowered the sleek device into the fissure. Not quite convinced it wouldn't burn or explode, the Hawaiian squinted down at it in wonder as it sat on the glowing orange and yellow surface.

"I'll be! It's okay. Neat!"

Tom picked up a remote that used the thick stern cable to communicate to and from the probe. Flicking several switches he smiled as all green LEDs lit up. Within seconds they could all hear the small but powerful steam turbine whining up to full speed.

"We've got full power," Tom declared. "Here goes!"

With a gurgle and a small belch of scalding hot lava coming out from behind it, the *Lava Surfer* began moving forward. The fissure was just seven or eight feet wide next to where they stood but Tom spotted that it widened to nearly fifteen feet several dozen yards closer to the water. He would turn it around at that point.

As Tom concentrated on the readouts on his control box, Bud and Manu moved back to where Sandy and Bashalli were standing. The ladies had been leaning up against the large truck, taking pictures of the surrounding lava field and watching as occasional jets of steam and gas escaped upward from small holes and cracks.

Without warning, Sandy let out a yelp. She was joined by Bashalli and the two began hopping from foot to foot.

"Tom! Mr. Swift! We've got to get out of here!" Manu yelled, startling the inventor more than the girls' yelps.

As he turned to ask why, he could see the smoke rising from the closest tires of the truck and also from the shoes of his wife and sister.

He suddenly felt the heat coming through his leather shoe soles.

"Come on, skipper!" Bud urged. "The ground is heating up fast."

"We got to get off of this," Manu added. "This lava could collapse at any second!"

CHAPTER 11 /
NORTH TO ALASKA... AGAIN

ONLY GIVING his probe a split second's thought, Tom yanked the data cable out of the control box, dropped it to the ground and sprinted to the truck. Everyone else had jumped inside and were getting settled, so Tom vaulted into the bed of the truck and slammed his hand down on the roof.

"Drive!" he commanded.

The engine gunned to life and Manu popped the clutch causing it to lurch forward, almost toppling Tom out of the bed. He clung onto the side rail as they bounced, slid and raced over the uneven surface. When they had traveled about three hundred yards Tom again knocked on the roof.

"Stop a minute while I see if the ground is hot up here," he requested. The truck skidded to a halt and he climbed down, carefully moving his hand to within an inch of the surface. "It's okay," he told them through Manu's open window. "Slightly warm but not much more than the sun might cause."

The Hawaiian and Bud got out but both of the ladies decided to remain in the truck where they were taking off their still-hot shoes and fanning their feet.

"I should a told you all to not wear rubber soles," Manu told Tom with some embarrassment. "You guys with your boots are okay, but your lady friends are wearing deck shoes and flipy-flops. I'm real sorry."

Tom patted the large teen on the shoulder. "Not a big issue. In fact, if it hadn't been for their shoes we might have stayed too long and not known what was coming. Look."

He pointed back to the area they had been standing on. It had crumpled and some of the glowing red-hot lava was oozing up onto the surface.

Bud gulped. "Jetz! That's not good. Too bad about your probe, skipper. Guess the *Lava Surfer* is gone. Now what do we do?"

Shrugging, Tom was about to tell him there wasn't much they *could* do when Manu let out a happy shout.

"Whoo-eee! Look at that!"

Both boys spun to see what the teen had spotted. As they

watched the body of the *Lava Surfer* came fully up and out of the lava, settled back down on the surface and began moving toward the ocean several hundred feet away.

"Well I'll be," Bud exclaimed. "It really *can* surf!"

Tom smiled and nodded. "Yes it can. Why do you think I let you call it the *Lava Surfer*? If you notice, it is heading to the ocean. Before we lowered it in, a sensor took a reading on the coolest point within its range. That would be the seawater. Now, it will try to get there for recovery."

With the ground heating up, and in some spots sinking into the hot lava below the crusty surface, it wasn't going to be easy to recover the probe. But, Tom had an idea. He discussed it with their driver who gave him a big smile and nodded.

"Come on, guys," Tom called to Bud and the girls. "We're going back to the *Skeeter*."

As they climbed into the cab of the truck and headed off, now on slightly rough tires where the heat had allowed the rubber to flatten slightly, he laid out his plan.

"So," he concluded, "we'll leave you up here with Manu to keep you from wandering off—" he paused looking at his sister's face who didn't appear to be amused by his last statement— "and flyboy and I will take the *Skeeter* out to pick up the probe. You do realize you will be getting wet, don't you Bud?"

His friend nodded and smiled. "Yep. After almost getting terminal hot foot, a dip in the ocean will be a pleasure."

"Water'll be warm," Manu warned.

"Then, it will be a bath!"

They had to go slower back up than the trip down but made it to the park in fairly good time. Minutes later the girls and Manu waived to them as the helicopter lifted up, turned toward the water, and soared away.

Tom knew that Bud would never be able to get the cargo netting under the probe and so he was glad he had added a pair of tie-down rings to the device. The dark haired flyer had to drop into the water and then climb up onto the rocking probe but soon had it attached.

Tom brought the *Skeeter* low enough so that Bud could pull himself up and into the right-hand seat. Five minutes later they were setting the probe into the bed of the truck. The inventor knew that he had several hours of checks to make before their next attempt the following day, but also was feeling a little hungry.

"I don't suppose that you know of a good restaurant nearby?" he asked their driver.

"You like island style Italian?" When the foursome all looked at each other in bewilderment, he continued. "I got a friend who's got a friend who has an uncle that owns a place called Café Pesto up in Hilo. Got another one on the other side of the island but that's a couple hours away. Maybe more with my tires all crazy and flat."

They agreed it would be a fine place.

"Listen," he offered, "maybe you all should go change. You can fly back to Kona and then to Hilo about as fast as I can drive. I'll pick you up at Hilo airport, show you where the place is and then head home."

"Nothing doing. We'll go ahead and do the flying thing and I'm sure everyone will be happy once Bud here changes into something dry, but we're taking you to dinner with us," Sandy told him before seeing something in his eyes. "Uh, that is unless you've got a better offer?"

He nodded, looking a little embarrassed. "I got a girlfriend and I'm supposed to take her out tonight. She wasn't so happy when I told her that pop made me come here for you folks. Sorry."

Now Bashalli spoke. "Then, why do you not ask if she would like to come with us as well? The place must have a table for six. Tell him we'd love to have his girlfriend come with us, Thomas."

"Of course we do, Manu. Call her and see if she can be ready for you to pick her up in, umm, about ninety minutes. Oh, and I guess we need to make reservations as well."

While Tom and Bud secured the probe in its netting, Manu made two calls. By the time everyone was ready to go he had a huge smile on his dark face.

"She didn't want to believe I got the real Tom Swift with me, so she's gonna come just to see if I'm lying. This'll be fun!"

Eighty minutes later the *Skeeter* set down near some parked airplanes at the Hilo Airport. Standing next to a huge sports utility vehicle was Manu with a pretty but equally as wide young girl. Her face went from disbelief to wide-eyed surprise when she saw Tom and the others.

All during dinner she didn't stop talking about how nobody would believe her. Bud took several pictures of her sitting between Manu and Tom and a waiter took a group photo of them all.

The dinner was every bit as good as Manu had made it sound. Because the foursome was now six hours off their own time zone so

the current eight o'clock felt like two in the morning, they begged off from Manu's offer to take them on a drive into the lush hills.

Bidding Manu and his girlfriend, Kileekekepovi—like Manu, a sixteen-year-old, but unlike him with a six-syllable first name none of them could master until she told them to call her Kylie—at the Hilo airport they flew the nine-minute journey across the island, landing next to the waiting *Sky Queen*.

It had been arranged to have Manu meet them at ten at the park. Tom was so weary he and Bashalli climbed into their bed a little before nine and were instantly asleep. He rose at 5:00 a.m. and got to work on the probe.

A data check showed that the probe had continued gathering information while the humans had scampered off, so he first downloaded everything into his laptop computer.

With no visible damage to the outer shell, Tom opened it up. Luckily, the insides were just as nice. He swapped out the first three sensor packs and replaced them with the others. A small pinhole in one pressure tube in the generator had allowed about a third of the liquid inside to escape, so he replace the tube and topped off the liquid.

An hour later everything looked ready to go, so he walked down the corridor to the small kitchen. Chow had been involved in designing the area and it was about as perfect and efficient as could be. As he turned the last corner into the doorway Tom stopped. Sandy, wearing only a t-shirt he was certain Bud had been wearing the evening before, stood at the cooktop getting ready to fry some sausages.

She looked up, a little started. "Oh! Hey, ho, Tomonomo. I thought you and Bashi would be snug and still snoring. Bud's buzz saw sinuses were rumbling away when I left our cabin."

Tom smiled. Having bunked with the flyer and also living in the same house as his sister, he knew who was really the loudest snorer.

"I've been up more than an hour," he told her and explained about getting the probe ready for its second run. He no sooner had mentioned the leaky tube when a pair of soft, dark-skinned arms encircled him from behind. "I hope that's Bash and not Bud," he said, spinning around and kissing his wife on the forehead.

Minutes later the smell of the sausages and some cinnamon raisin bread Sandy had started to toast reached Bud's nose and woke him up.

He entered the tiny kitchen, making it impossible for any of them

to move, reached around Tom and Bashalli and filled a waiting coffee cup.

"Mrnn'g," he mumbled as his arm retracted and he turned to walk down the hall to the lounge. After his first sip of the hot beverage he called back to them, "Any of you seen Sandy yet?" He was taking a second sip when she pushed her way past her brother and sister-in-law.

"Miss seeing someone in there?" she demanded with a mischievous grin. "I was the first one up, you know! I've been cooking breakfast for everyone."

She came into the lounge, plopped down into his lap and gave him a big kiss. "Pardon the morning breath, but someone had to get food going."

They all sat down five minutes later and had a pleasant breakfast. Sandy, never known for her kitchen skills, had been learning how to make a number of things in preparation for getting married. Her mother, Anne, had made it clear that once the ring went on the finger, only the occasional Sunday dinner would be provided from her own kitchen.

With several hours left before they had to fly back to meet with Manu, the girls asked if they could all go into town and perhaps take a swim. They had not brought along a car and the rental agencies wouldn't open for another three hours, so they walked through the open air terminal and to the one and only waiting taxi.

The driver woke up with a start, but was glad of the early fare. He dropped them off at the bottom of a hill on the main street, Alii Drive, promising to come back in about two hours for them.

Dozens of small shops lined the street, all looking like they were meant for tourists and not locals, but the small bay next to the nearby pier looked beautiful and serene. A large cruise ship sat silently at anchor a quarter mile out, and several hearty people were standing up and paddling along the calm waters on what looked to be oversized surfboards.

They walked down some steps at the corner of the seawall, stripped down to their swimsuits and walked into the water.

While not cold it was certainly not tropically warm, but it felt good to them. When they came out of the water thirty minutes later, a female voice called out to them.

"Any of you want a hot cup of coffee?" As the looked all around them, the woman called out, "Up here. Second floor. Yoo-hoo!"

They glanced across the street and up to what appeared to be an

open sided bar. A young blond woman was waiving at them.

"Can you take us wet?" Bud yelled back.

"Sure. As long as you can stand sitting of rattan chairs. Come on up."

They picked up their clothing and walked up the stairs to the bar. The woman turned out to be a college student from Idaho who was taking a year off. She served them steaming mugs of coffee and excused herself to go to the kitchen. Later, when they got up to leave she refused to take any money.

"Keep it. If you four are up and out in town at this hour you must not have a hotel room. Save the money and if you're ever in Moscow, Idaho, look me up. Sally Ann Howard. Only one with that name in the book." She turned and walked back to the bar.

Tom placed a twenty-dollar bill and one of his business cards on the table, and wrote a small note on the back before they left.

Any time you're in Shopton, we'll do coffee! TS

Just downstairs they spotted their taxi driver and went back to the airport.

Sandy and Bashalli were in no mood to repeat the previous day's melting shoes event so they both put on long pants and leather-soled boots like the boys.

As they flew the *Skeeter* back south, the probe dangling beneath them, Tom and Bud discussed a few new safety procedures while the girls admired the scenery below.

"For starters, ladies," Tom raised his voice to get Sandy and Bashalli's attention, "only Bud and I will be going back down onto the lava flow with Manu. Sandy? You and Bash will stay in the *Skeeter*, *but*—" he emphasized to stop his sister from complaining, "you two will be flying around the area. I want you to be able to get to us within a minute or two at the longest in case we need to be evacuated again. Plus, I don't want to endanger Manu's truck again, so Sandy will take Bud and me and the probe down, come back to pick up Bash and Manu, and then take off and fly around."

Bashalli wanted to protest. She already was nervous about Tom's safety, but she also knew he needed to finish his tests, so she kept quiet.

She needn't have worried. Five hours later they bade goodbye to Manu and headed back to the *Sky Queen*. Tom had given the island youth a signed chit for his father to use to get reimbursed for the cost of four new tires for the truck, and both girls had given the

embarrassed boy kisses on his cheeks.

Within minutes of stowing the *Skeeter* and the *Lava Surfer* in the hangar, Tom and Bud headed for the third floor cockpit and quickly had the giant aircraft in the air and aimed for home.

Three days after getting back to Shopton, Tom had all of the information from his six sensors processed and was ready to call Stefanie Brooks.

"It turns out that echo location at a very high frequency, around thirty-one kilohertz, penetrates the hot lava quite nicely for at least sixty feet. It sets up both an outgoing waveform as well as a resonant wave that criss and cross until they get to solid and cooler materials. Then, they bounce right back like sonar and we can count the number of times they intersect to get a good idea or what's out there. It's fairly narrow. Maybe about a five-foot view at thirty feet and six at full focal length, but if this magma finger is as narrow as you believe, that should be sufficient."

"Great. When can you come pick me up?" she asked.

"Well, I need to get the proper sensor packages installed in my hot diving bell. That should be complete about a week from now. Where are you?"

"Anchorage."

"Alaska? How in the world did you end up there?"

"Well, you see, they asked me nicely and offered me tons of money to come up and study that nasty volcano… but you didn't mean that, did you. Suffice it to say that I can't sit still these days. Not after being cooped up with Keith and Zimby. My little legs get all jumpy and I have to move around. When the Alaska call came in, I—pardon the pun—jumped at it."

Tom arranged to come up to get her four days later.

That afternoon he was sitting in the shared office when his father walked in.

"I've got that news you were waiting for," the older inventor told him.

Tom was so engrossed in planning out the forthcoming trip to the Buzzards Bay magma finger that he didn't understand what his father might be talking about.

Seeing the confused look on his son's face, Damon pulled a file folder out of his briefcase that was stamped with the letters F.A.A.

"Oh! The FAA thing for Quonset," Tom finally said. "What do they say?"

"About the Rhode Island runway? They have given you a cautious go-ahead to try that platform on rollers approach to bridging the gap. They are withholding final approval until they can inspect it and see it, as they say here, 'tested to withstand direct contact by the largest aircraft to use the facility.' I guess that would be the C-130s."

"That's great!"

"Well, it is and it isn't. You see, they also won't let the airport reopen even it's smaller runway until the main one is fixed to their satisfaction. Are you sure you can do this?" He looked at Tom and the younger man knew that his father needed the most direct answer possible.

"Yes. Hank Sterling has the large-scale vacuum former ready to start pumping out interlocking sheets of a layered Durastress and tomasite sandwiched around pre-stressed alumi-steel rods. They will not flex more than two millimeters even if a plane should land short. The roller system will attach to that and we'll pave over the top so it matches the rest of the runway. Unless you know it's there, nobody will see any difference."

"When?"

"After I retrieve our Miss Brooks from Alaska we can start. It should take just three days plus curing time."

Damon Swift smiled at his son. It was moments like this he realized that Tom had no preconception of real limits on what he could accomplish.

That Sunday when Tom and Bud stepped out of the *Sky Queen* as she sat on the tarmac of the Anchorage Airport, two women stepped outside from the general aviation terminal. One, immediately recognizable from her stature, was Stefanie Brooks. But neither young man recognized the other one. She was a stunning-looking young girl, probably just a teenager, with large, incredibly blue eyes peeking out from under a fur-trimmed hood.

Stefanie smiled and waived after tossing her own hood back exposing her head and face. Bud smiled and waived back while Tom kept looking at the younger female.

As the boys strode over to them, the girl broke into a run and practically launched herself into Tom's arms. She wrapped her own arms around his neck and gave him a deep and lingering squeeze.

He was staggered by her impact, naturally, but even more so by her forwardness. He reached up and tried to remove her arms, which only made her cling tighter.

He swung around to try to get some help from Bud or Stefanie, but found only laughing faces.

“Ah, skipper. Don’t you recognize her?”

Tom racked his memory but having only seen an impression of her eyes, and a small, slightly upturned nose, left him bewildered.

The girl finally released him and stepped back, tossing her own hood off to expose a head of red hair and beaming a big smile at him. “If I were all scratched up and in a hospital bed, would you recognize me, Tom?” she asked him, batting her eyelashes

It hit him who this was and tears came into the young inventor’s eyes. “Becca!” he shouted and wrapped his arms back around her, picking her off the ground. As he set her back down he asked, “Is it really you?”

She nodded and then looked earnestly at him. “Yes. It’s me and according to Inuit law and custom, you now own me!”

CHAPTER 12 /
A WORLD OF FAULTS

TOM'S BREATH escaped in a whoosh and he was left dizzy from the news.

"Uhh-h-h-h…" was all he managed to say.

"Congratulations, Tom," Stefanie told him. "You're the proud owner of a five foot, five inch, one hundred ten pound bouncing, not-so-much-a-baby girl! What ever will you do to explain her to your charming wife?"

Tom was about to sputter his denial when he saw the twinkle in the young girl's eyes. "Ahh, you're kidding me. Right?"

Earnestly, she nodded, but said, "You saved me and with my folks gone and no other relatives, by local laws you have the right and obligation to take me in as your own. But," she said with a slightly sad shake of her head, "I won't hold you to that."

He placed a hand on her right shoulder and gave it a small squeeze. "Becca, just tell me if you need anything. If you want to get away from Alaska I can arrange to have you stay with people I know, good people, who will make sure you're safe and have good schooling. Whatever. Just say the word."

A single tear cascaded down her left cheek as she smiled up at him.

"I'm fairly well off, Tom. Insurance plus my father's investments mean I can make a good go of it up here. My friends are here and guess that means my life is up here. But," she added placing her index finger on his chest, "I would like to come see your home town and your company. Maybe some day I might even work there."

He assured her that there was an open invitation for her to come whenever she wished.

Becca had to leave them a few minutes later, so Tom, Bud and Stefanie walked to her car and then drove to a small café a few blocks away from the airport.

As he detailed his work with the *Lava Surfer*—accompanied at times by Bud pantomiming human surfer motions—Stefanie grew more attentive and excited.

"So, you really think we can get a good look inside that magma finger?"

"If it is as narrow as you say it is, then yes. The only thing we need to make certain of is that the hole we drill down to get to it is plugged tight. The last thing we want is for all that boiling rock to spew up and out."

"Isn't that how the Hawaiian Islands were made?" Bud inquired.

"Sure, but Tom's right. That sort of thing would be devastating in a relatively small area like Buzzards Bay. Even a shaft of magma piercing up and into the water, perhaps as narrow as five or six feet, would heat the water for thousands of feet, killing most of the life in that area." Stefanie shook her head.

"If that shaft of lava continued and formed an island an acre or more across at the water's surface, the resulting steam and heat could ruin the entire bay. So, she's correct, Bud. That may be the way Hawaii and the other islands out there were formed, but it took hundreds and even thousands of years for them to cool down and thousands more before they could support life. We have to avoid any of that."

"Then what do you do?"

Tom thought about it for a couple minutes as they got out of the car and walked into the café. It wasn't until after the waitress took their orders that he spoke again.

"I'm going to have to come up with a way to seal the hole behind the probe. Something even stronger than the original materials. There has to be a way to allow the communications cable to remain intact while building a tight plug behind and around it. Of course, that means accommodating the reel of cable inside the probe. Hmmm…"

They ate in relative silence until Stefanie asked, "You do know that Becca was putting on a brave act, don't you?" The news struck both boys. She had seemed so at ease with her situation. "Yeah. She is scared you-know-what-less of being alone up here, it's just that she didn't want you to see that."

"And you did?" Tom asked.

She nodded, taking another bite of the elk burger she had ordered. "She's got enough money from her parents to keep her warm and dry and fed for a decade or more, but I think it's started to hit her that she really has nobody. You own her, Tom. You have to do something about it!"

Shaking his head, the inventor pulled his cell phone out and made three phone calls. The first was to Enterprises' Legal

department. He needed to check on what he could and could not do.

That taken care of he next called his parent's house. Anne Swift answered cheerily. As soon as Tom explained the situation she went silent. "You do know, Tom Swift, that as soon as we get your sister married to Bud that we intend to travel. Now, if you are even suggesting that we take this young girl in—no matter how needy she is—I have to tell you that… oh, pooh! Of course we'd love to have her come stay with us." She started to laugh. "It'll be lonely around the house with you kids gone *and no grandchildren on the way!*" She emphasized that last part to indicate that she wanted her son to understand she expected to be a grandmother some day. Soon.

Tom's third call was to his father. He told the older inventor the same thing he had said to his mother and waited for the reaction. What he got wasn't exactly what he expected.

"Your mother is going crazy at the thought of not having you and Sandy around on a daily basis. Unless you bring this girl down to stay with us, I'm afraid that you will be constantly pestered by her to 'just come over for dinner,' or 'why don't you and Bashalli spend Saturday with us?' That sort of thing."

Laughing, Tom told him it wasn't a done deal, but they might as well get his old bedroom fixed up for her.

"You're a damned good guy, Tom Swift," Stefanie told him after he hung up.

"How about me?" Bud asked.

"Yes… you're a guy as well, Bud," she said with a straight face. When his lower lip began to tremble—something Bud had mastered in high school—she punched him in the shoulder and laughed.

Becca was thunderstruck when they arrived at her new apartment to give her the news. She cried and hugged them all for fifteen minutes before telling Tom that she really, really wanted to come with them.

With only a few outfits that she had recently purchased, and no furniture other than her inflatable bed, a small stereo and television, it took them just twenty minutes to get her packed up. Tom spoke with her landlord who was hesitant about letting her out of the one-year lease she had signed, but quickly changed his tune once Stefanie told him that Becca was only fifteen and that he legally had no right to have ever rented the apartment to her in the first place.

During the flight back to Shopton Tom placed one additional call. This one was to Bashalli. Although he had told her about the girl

they found floating in the volcanic mud field, he didn't want her to be a surprise. But, she was not only understanding of the situation; she even suggested that Becca move in with them. She relented once Tom relayed what his father had said about Anne Swift not looking forward to being an "empty nester."

Sitting in one of the jump seats behind the pilot and copilot positions, Becca was intent on studying all of the gauges and screens. Finally, as they flew down over Saskatchewan and into the U.S. she asked if she might try flying.

"My uncle had a flying charter service. A beautiful DeHaviland Otter that he let me fly sometimes. I don't have my pilot's certificate, but I do have more than a hundred hours at the controls."

"You did say she reminded you a lot of Sandy, skipper," Bud told him.

With a nod and a motion of his head, Tom both agreed and had Bud move out of his seat, letting the girl take his place. After just a few minutes of instruction she took the yoke. Tom notified both the Minneapolis and Cleveland air control centers that they were going to perform a series of maneuvers and then let her have some fun.

Becca proved to be every bit as capable a pilot as Sandy Swift had been at that age. He was amazed at the wide range of similarities between them and even more amazed at how mature and steady she was given her recent family loss.

Anne Swift's face went pale on seeing Becca. She turned to Tom and mouthed, "She's Sandy!" before regaining her composure and welcoming the young girl.

"Should I call you Becca, or Rebecca, dear?" she asked the girl.

"I've been Becca as long as I can remember, unless I was in trouble—" she paused and a look of sadness crossed her face for a few seconds. "But, Becca is sort of a little girl's name, and Rebecca is too formal. I'd like to be called Becky, if you don't mind, ma'am."

"Then we shall call you Becky, but you have to either call me Anne or Mrs. Swift. Ma'am doesn't cut it around here. That is unless I am in trouble or you want to make me feel old." They smiled at each other, instantly taking a mutual liking to the other one.

With his mother, sister and wife to take the girl under their wings, Tom turned his attentions to finalizing the probe to be lowered into the magma finger.

After five days of trying to devise something to permanently

patch the wet and soft bay bottom, he realized that there would be a need for another machine to accompany the probe. This one would follow along taking up the surrounding muck, mixing it with a new type of cement materials he had learned about that was used by the oil industry. It was stable and easily mixed with the damp sea floor, but hardened within minutes of getting wet. The added bonus was that it also expanded by nearly ten percent so it would form a pressure plug as the tandem machines went deeper and deeper.

"Can you tag it along using the same cabling as the probe sphere?" his father asked one afternoon as they sat sipping coffee and discussing the status of the project.

"Probably, but it is starting to look like the plugging equipment will need a hole three times as wide just to fit down there. Frankly, Dad, I'm stumped. I need to drill as narrow a hole as possible and everything I've come up with is too darned big."

They sat silently contemplating the problem for nearly an hour. In the end, Damon had to admit that he, too, was stumped. But he promised to give it some thought that evening.

"By the way, your young Becky a very incredible girl. Did you notice how much like your sister she is?"

Tom had to laugh. "It's kind of spooky, isn't it?"

"Spooky, but in a way it is reassuring. Your mother and I know that we'll be losing Sandy to marriage in a few months, and Becky seems to be quite happy to be a sort of surrogate daughter. The funny thing is that Sandy doesn't see any similarities between them. She likes Becky a lot, but I guess she's too close to notice that Becky looks just like her about four or five years ago."

"Have you taken a photo of her and compared it to one of San at that age?"

Mr. Swift, who had been in the process of walking back to his desk, stopped and turned to face Tom. "Now, that's an excellent idea. I'll do just that. I hope I can return the favor with an idea for your sea plug problem."

Trying to be a good husband, Tom limited himself to only one or two late work nights a week for a couple weeks. Bashalli commended him on his effort but told him that she understood if he needed to work a bit more.

"You have become so used to that, I feel like I am holding you back. I would not want you to miss the opportunity to fix this fault in Rhode Island."

Tom looked at her with surprise. “Oh, Bash!” he told her. “There is a whole world of faults out there and they’ve been waiting for thousands and millions of years. Maybe even billions. Of course I would love to see what Stefanie Brooks can make from data we collect off the coast, but right now I am only doing a lot of spinning in my tracks.”

He told her about several of his latest attempts at creating a way to safely drill into the magma finger without allowing any of it to escape upwards. She listened attentively, understanding about one-third of what he was telling her, but realizing that he needed to talk things out.

Over the years they had known each other, Tom had used her as a sounding board many, many times. On rare occasions she made an offhand comment or asked a question that helped him. Those were the times she felt a great sense of pride. Both in her boyfriend/husband, but in herself for having contributed.

What she failed to see was that her remarks and questions—asked or stated in innocence—had been major factors in a number of Tom’s successes.

Now, as he described what was the most necessary aspect of such a plugging device, her artistic mind began picturing different solutions.

When he finally stopped more than an hour later she looked into his eyes. Normally she could find herself getting lost in the steel blueness of them, but right now she wanted to ask him something.

“Could you not create some sort of plug here on land, perhaps at Enterprises or even Fearing Island, tow it to this Buzzard location, and then drag in into the hole behind your earth blaster and probe?”

He smiled at her.

He began to shake his head.

He stopped and his eyes opened wide.

“Explain that, please,” he requested slowly.

Hoping that she hadn’t said something foolish, Bashalli took a breath and repeated, “Could you create a plug on dry land, take it to the bottom of the bay and when your probe goes into the mud and everything down there, it could drag the plug along after it. I suppose that I picture it all wrapped in plastic or something to keep it dry, and then when you pull the wrapper off, the water makes it grow larger and get hard.”

Tom’s eyes flicked left and right as he sought to picture what his

wife just described. A moment later he reached over and pulled her to him, giving her a warm kiss and then hugging her.

"I'm not certain how I can make that work, especially the outer wrapping part, but I think you've hit the nail on the head, Bash. If we can't build it underwater, why *not* make it on land and take it down. Wow. Wow—"

Though she might have liked taking his mind off of his project, Bashalli stood up and kissed him on the forehead.

As she left the room she told him, "Try to not remain up for too many hours working on this."

The next morning Tom rushed past Munford Trent with a quick, "Hi," and into the shared office.

Damon Swift was at his desk with Becky Carter sitting across from him. He motioned Tom to take a seat as he spoke into the phone.

"That is correct, Mr. Superintendent. She recently passed her sophomore year at high school in Anchorage, Alaska… Yes, both parents and all other relatives are—" he looked inquisitively at the girl who nodded and smiled. "They have all passed away. The state issued a writ of independence to her so she could live as she pleases… That is correct. Mrs. Swift and I will be responsible for her financially as well as *in loco parentis*."

Becky looked at Tom. He whispered to her, "Acting as if they were your local parents." She nodded.

"Of course I would love to bring her to meet with you, sir. Tomorrow at nine will be just fine. Oh, and if you can have the list of supplies you must have already sent out to parents for me we will ensure she has everything she needs for classes. Thank you." He hung the phone up.

"Well, young lady. All we need to do is get you face to face with the school Superintendent so he can assure himself that I am not making you up, and you will be ready to attend school in a few weeks."

"Thank you, Mr. Swift. And, thank you, Tom. May I please be excused? Sandy said I could come over to her office to see what she does here at Enterprises."

Damon gave her a "shoo" motion with a little chuckle. As she left the office he turned to face his son.

"Except for not reliving the boy crazy about Bud stuff, I'd swear I've gone back in time with that one. But, hey. The last time we

spoke I told you I would try to come up with some helpful ideas about your underwater drilling and plugging. I mentioned it to your mother and she asked the various 'what color should it be,' and 'can't the ground take care of itself' questions, but then she climbed into my lap and whispered a few things to me. Now, I won't go into details about how she came up with this concept, and I'm sure that most women might arrive at the same sort of conclusion, but—"

Tom began laughing. He told his father about Bashalli's idea and watched as the older man's face went from curiosity to amazement to laughter.

"Leave it to a woman!" Damon stated. "But, the idea is a sound one as long as you can keep the core of the plug from getting wet too soon. Well, that and having enough water deeper down to actually make things work. Can you do it?"

"I've been thinking about it all night. Not a lot of sleep, but I may have a solution. You know about that quick hardening cement product, and I know that you have seen the blue and clear granules that soak up about seven times their own size in liquid. Mom uses them in lots of her potted plants."

Damon nodded. "They also use the same stuff in disposable diapers. Soaks up a lot of liquid, or so I've been told."

"Right. So I'm thinking about a combination of the two. I'll have to do some playing around with the amounts, but I believe that if the outer part of the plug is the cement product, high up it will react with the bay water. The granules will be in a sleeve in the middle that we will tow down and squeeze to release the water when we get into the solid rock."

"Will you have to draw the plug all the way down?"

"I don't think so," Tom replied. "We should only have about fifty feet of mud to get through before we hit rock, and if it is as solid as Stefanie tells me it is, I think a plug of just a few hundred feet more will do the trick."

"Assuming she's correct?"

"Assuming she's correct. Yes."

"And, if not?"

Tom looked at his father and shook his head. Neither of them wanted to contemplate what might happen if she was wrong.

CHAPTER 13 /
HOW DO YOU GLUE DIRT?

WHEN TOM TOLD Stefanie about the idea his wife and mother both had, she laughed until her face turned beet red.

"It's so darned obvious when you think about it," she told him. "So, when do we get to try this?"

"Probably in a week," he replied, "but I want to discuss what it is you think we might find. Not guesses, but a solid theory of what this means."

She pursed her lips a moment and then suggested they take a walk. A week or so earlier she had moved into a temporary office and one of the visitor apartments at Swift Enterprises. Many employees were amused at the sight of her walking all around the building complex in the middle of the four-mile-square facility for hours at a time, talking out loud to herself, even having arguments. Others had been slightly alarmed. After a few days of being stopped with, "are you okay?" she printed out and pinned to the front and back of her shirt:

> "I am fine. I am not crazy, but I do talk to myself. It is the only sure way to keep folks from talking down to me. Thank you for your understanding."

"Okay. You will recall that Zimby, that Keith guy and I spent considerable time in each other's company. We followed the fault line all the way from where it starts to where it stops and then on to a few thousand feet before it would disappear into that magma thing *if* it reached that far. Whether we were five feet under the silt or five hundred feet into the bedrock of the ocean, it just doesn't look like it extends east from the magma. My thoughts—my theory—is that our magma friend has been there practically forever and has acted as the stress relief point for the fault line letting it remain closed for a couple hundred miles going back out, but I'm completely unsure why a crack has started heading west from there."

"I'm with you so far," Tom stated. "Go on."

"Something has happened. And, geologically speaking, pretty recently. Maybe a thousand years or less. The magma buffer stopped working as well as it had been and let the crack open in the other side. From there, it goes right into Quonset. Some day… beyond that. Before I can say much more I really need to know three

key things about the magma. One, is it still as hot as it should be? Two, is it still as fluid as it ought to be, regardless of temperature? And, three, is it growing or shrinking?"

Tom asked if his instrument packages would give her that information.

"Yes they will, but only if we can do some fairly precise measurements from the very top and down at least another two thousand feet. My theory is that the magma has finally cooled enough that the fracture passed through it. It was probably always there but so tight that nobody noticed it. Now, it is moving."

The inventor looked at her. It made sense to him, but he was at a loss for what to do if it all turned out as she believe it would.

He told her this.

"Right. Well, if that is the case, and Bud assures me that you are a genius and can do anything—and I think I want quite desperately to believe that—then you will have to come up with some way to stick everything back together so it can't move any more."

"You are inferring that I need to find some way to glue dirt and rocks together. Is that it?"

She nodded and smiled hopefully. "Remember how I sort of chided you about those poles and cables at the airfield?" When he nodded, she continued. "Well, it was a nice try and something that would work on a problem that doesn't potentially run a sixth of the way around the globe. But it shows initiative. You just have to find a way to pump it up. Not a bit, but a lot. A whole, big, giant, massive lot!"

It was absurd and struck Tom as incredibly funny. He laughed. "Is that all?"

Stefanie began to laugh as well. "Pretty much. Now, this isn't the real solution, but if you could do your pole and cable thing all along the rift from the start and miles beyond where it can last be detected, that would probably do it. The trick is to attack the problem all along the path. Not just in local areas. Oh, and at multiple levels."

That evening when Tom told Bashalli about his conversation with the geologist, she told him, "It sounds as if she is suggesting taking a giant needle and thread and sewing the world back together."

"It does at that," he admitted. The theory was easy to understand but the tools to accomplish it were… well, more than incredible!

The following day Tom waited in the shared office until his father

returned from a meeting with Jake Aturian, the manager of the Swift Construction Company. Several Swift products were nearing their production end-of-life and decisions had been made when and what to cancel, scale back on, and keep going with.

"Progress?" Damon asked Tom as they sat down in the leather chairs of the conference area.

"A little." He filled the older inventor in on his discussion with the geologist and the Herculean task she had set out for him.

"Well, then you will have to get that solution, Son." He smiled at Tom. "In the mean time I wonder if you could head back to that little airport and meet with the FAA folks? Your rolling runway end was finished a couple days ago and that Alan Digby is about to drive Trent crazy with his hourly calls of 'when do I get to reopen my airport?'"

Tom's jaw dropped open. "I completely forgot about that. Who got the ball rolling?"

Damon smiled. "One of the many things I do around here is to delegate responsibility. With the repaving crew back here and no projects for them until next week I went ahead and sent them back to do the new work. All you need to do is go down, stand there with the FAA people or person and watch their reaction as the National Guard and possibly Bud Barclay do touch-and-goes for an hour or so. Well, that plus you will have to explain the system and show them how the darned thing works."

Tom looked at his father. "When do the FAA folks get there?"

Looking at his watch, Mr. Swift replied, "In three hours, eleven minutes. Have fun."

Tom left the office tapping his TeleVoc and getting connected with Bud.

"I'm already sitting in the Toad, skipper. I've got Stefanie and Becky with me. One wants to take some more measurements and the other wants to try her hand at flying this little hopper. Oh, and Hank Sterling is on his way over."

Tom picked up his pace as he subvocalized back, "Hank?"

"Sure. He's the one who took over the project when your dad gave the go-ahead. He's the one who developed the overlapping sheets this thing is based on. Here he comes and I see you've just turned the last corner past Security. See you here in about two minutes."

Tom gave up his customary seat in the front to Becky. Since her arrival Bud, Sandy, and Red Jones had all taken her flying and she

seemed to be a natural. And while Sandy still hadn't caught onto the similarities between them, Bud had trouble not calling the younger girl, "Sandy," when he wasn't looking right at her.

Once the tower provided clearance Bud nodded to her. "Go on. I'll hold my joystick just in case, but you've got this takeoff."

She moved the throttles and the twin jet turbines whined into action sending the aircraft down the runway. At just about the perfect point she pulled the stick back slightly and the jet headed upward.

The flight was as smooth as the takeoff and it was only as they passed over the old torpedo testing platform on the narrow Gould Island that Bud took the controls for landing, explaining, "We have to set down away from the new moving runway and the FAA would have a fit if they found out an unlicensed individual was flying into this closed airfield."

When they rolled to a stop near to the tower, Deke Bodack came out of one of the hangars to greet them. "The FAA folks will be over in a few," he told Tom. "I called them at Digby's office. Oh—" he looked at the others. "What a gorgeous young woman!"

Bud was about to comment on Becky's age when he spotted that Deke was looking right at Stefanie Brook and she, in turn, was gazing at him.

"And, cue electricity and release the doves," Bud muttered, turning to Tom and smiling.

A car could be seen coming from the direction of Digby's office. It turned out onto the lane that ran next to the aircraft parking apron and pulled to a stop twenty feet from the waiting people.

Digby leapt out of the driver's seat and tried to get around to open the passenger door, but it flew open and a somewhat stout woman in an unseasonable gray wool business suit got out, refusing his hand. From the back seat a tall man in a more realistic light blue shirt and beige slacks seemed to unfold and stand up. He towered over the woman by at least two full feet.

Digby looked miserable as they led him over to Tom and his people.

The woman held out a hand to Deke, the oldest of the people in front of her. "Mr. Swift. I am Charity Speeks, and that is with a double 'e'. Please to meet you."

The tall man leaned down and whispered something into her left ear. She turned bright red and spun to face Tom. "This one?"

"Yes," the man wearily told her. "That is the world famous and

instantly recognizable Tom Swift." He looked at Tom and rolled his eyes. "Sorry about that, Tom. She's a little new and a lot of a bureaucrat, but she's my boss."

"It's okay, Lew." He held his hand out to the woman. "Please to meet you— uh, do you prefer Miss, Mizz, or Charity?"

"Well," she said wiping a glistening drop of sweat from her forehead, "it is normally Miss Speeks, but I suppose that if you know my lumbering minion you may call me Charity. The rest of you, however, should address me more formally."

"Have a little of your own first name, Charity," Lew told her. "It's hot and getting hotter, and it'll be even more so the longer we're out on the tarmac. It's too warm for titles. I propose we dispense with the formalities and go inside the hangar where I believe you will be telling us about this rolling runway of yours."

"I don't like it at all," the FAA woman told them all before they even begun walking. "It can't be stable and certainly not strong enough in case of an emergency short landing, but I have been told to keep an open mind about it. So, lead on."

Hank smiled at Tom and walked back to the Toad to retrieve the dozen poster board-mounted illustrations and photos he would be using.

It didn't take long for Miss Speeks to soften a few of her rough edges. As the engineer described the issue, the solution and the process, she went from arms crossed over her chest and scowling to sitting forward and listening intently.

In the end she thanked Hank and turned to Tom. "And this approach will do everything Mr. Sterling says it will?"

"Every test, both in the computer and in real life, says it will," he told her. "But, the only way to prove it to you, and hopefully get your approval so Mr. Digby can breathe again and reopen Quonset Field, is to demonstrate it. I assume the customary ten touch-and-goes by the heaviest aircraft currently using the runway will do? In addition we can fly our own small jet around and do a couple dozen landings."

It was agreed. Tom, Bud, Hank and Becky walked out of the hangar while Deke offered to remain behind with Stefanie, "just to make sure nobody steals your posters," he told them with a sly smile.

Tom and Hank were joined by Lew in the back seat while they and Charity Speeks drove out onto the airfield in Alan Digby's car; Bud and Becky remained behind to fly the Toad. On the drive out,

the airport manager made a phone call, and by the time they were all standing next to the small white and red utilities building just one hundred fifty feet from the runway, one of the C-130s from the National Guard base was taxiing toward them for takeoff.

As Digby set up chairs he removed from his trunk, Charity Speeks took out a pair of binoculars and scanned the end of the runway. “I don’t see anything. Shouldn’t I see the raised bit and the rollers?”

Tom laughed. “Not at all. That’s the beauty of it. It looks and operates like a standard runway but if and when the ground underneath moves slightly apart it will not break like a normal surface would. It all remains still while the ground moves fractionally back and forth. Even a small aircraft landing on it during a major ground move wouldn't notice a thing.”

The C-130 rumbled around the corner, paused right on top of the new area, and then headed down the runway. Bud and Becky in the Toad lined up behind and waited the appropriate time to give the aircraft proper separation. Soon, the smaller jet raced down the runway taking flight just a third of the way down.

For the next hour both aircraft did a series of landings and takeoffs, often hitting the runway just a few yards from the very end. When they had finished and both had landed, the FAA people walked out to the runway to examine the surface close up.

One hour later, a beaming Alan Digby held the just-signed certificate allowing him to immediately reopen the airport to all traffic.

Lew, with a wink at Tom, climbed into the car he and Charity had arrived in and they drove off.

Tom turned and looked at Bud, who rolled his eyes and gave an exaggerated shrug.

“I believe that I need to go make peace with myself and hope that my chosen deity will let me renege on my promise of eternal servitude,” Alan Digby said in a weak voice. With that, the overwrought man made a half turn and slowly collapsed onto the hot tarmac.

Deke, who had been standing with Stefanie off to one side, jumped forward and grabbed the fainting man just before his head might have hit the ground.

“Come on, Alan,” he said in a soft voice. “Let’s get you back to that nice, air-conditioned office of yours and get a couple slugs of that vodka you keep stashed in your lower drawer into you.”

He scooped Digby up and carried him to the airport manager's car, setting him in the back seat.

"Want 'ta come along, Steffie?" he asked, smiling at her.

Her head bobbed up and down. "You bet! Hey, Tom? Can you wait here for half an hour or so?"

Tom shook his head. "Sorry, Stefanie. Bud and I have to get back to Enterprises. But, I understand that your old pal Zimby Cox is bringing the latest sniffer atomicar down here. I want to have it standing by when we hit the bay day after tomorrow. I'll ask him to make a sweep down to pick you up and go back to Shopton, and then come back and wait for us."

The petite woman made a motion up to Deke. He bent down and she spoke into his right ear. A big grin spread over his face and he stood up saying, "Absolutely! Say, Tom. Change of plans. Mr. Cox is welcome to come on down, but it won't be necessary to play taxi for Steffie here. We'll all see you in a couple days when you get back."

With Bud trying, unsuccessfully, to hide a grin of his own, Tom nodded. "Fine. Come on, faithful flying friend. Let's head for home!"

Less than five minutes later the Toad soared into the early afternoon sky, disappearing from sight after a few seconds.

With most of the work complete on the self-digging, hole-plugging probe, Tom spent the next day and a half researching ways in which to cause dirt and rocks to spontaneously adhere to one another.

It was mostly lost time as everything he found of any substance pointed at the need for enormous heat and incredibly long periods of time.

Heat he might be able to generate, but time was another thing.

On the morning of the probe insertion, Tom packed up everything he thought might be required into the *Sky Queen*. The probe would be lowered through the middle of a semi-rigid raft that sat, currently un-inflated, in the hangar. To make it as stiff as possible, it would be filled with quick-hardening foam, just like the foam used to stiffen the environment structure on Mars.

The two foam tanks and the activator tank of butane were lashed down next to the folded raft.

Underneath everything sat the probe assembly. It would be the last thing out of the hovering jet once they were ready for it to head to the bottom of the bay.

On arriving at the site Tom was happy to spot the atomicar

bobbing gently on the waves below. Zimby, Stefanie and Deke sat inside waiting for the action to begin.

Tom had Bud angle the lifting repelatrons to their widest positions so the water directly below them would not be pressed upon.

"Keep us at about three hundred feet, flyboy," he directed as he unstrapped and headed back and down to the hangar. He was met there by the five-man team who would be launching and monitoring the probe.

"Ready?"

"Sure thing, Skipper," the lead man answered.

Tom hit the button to equalize pressure in the hangar and open the roll-up door at the back. The crane built into the ceiling rumbled into action and was soon lowering the raft and tanks to the surface where they were met by Zimby. He and Deke manhandled the raft bundle into position a foot above the water's surface.

"Go for inflation," Tom radioed down to them. In a few seconds everyone could see how the raft began to gently unfold and fill. The entire process took just five minutes after which the raft was allowed to settle onto the water.

The tanks came back up and were stowed while Tom and half of the launch crew were lowered down to the waiting raft on a circular platform. Thirty minutes later the inventor declared that the foam was hard and it was time for the probe.

Down it came, its special-purpose earth blaster attached to the bottom and the large, compressed plug packet at the top trailing all the way back up to the *Queen*. Everything was supported by a bundle of cables and wires that would remain attached to the *Sky Queen* and also to the raft.

With the center of the raft left open to accommodate the probe assembly it was up to Tom and his people to position everything so it would slip straight down through the hole.

"How's it going down there, Tom?" Bud TeleVoc'd. "I can see you on the belly camera, but that's not showing much."

Tom smiled and responded, "Nice, gentle waves, light sea breeze and the distinct smell of rotting fish. Yuck!"

"Better you than me, skipper. I'm about to have my lunch and will be a much happier boy as long as I don't have that smell in my nose."

"Save a sandwich for me," Tom called back. "We're about to have

the bottom half lowered into the water." He paused a couple seconds and then, in a more serious voice, said, "Uhhh, Bud? You're drifting a little up there. Check your settings, please."

Bud looked at his panel and the positioning readout. It was accurate to within five feet while in flight and fifteen inches in hover, but he had also turned on the laser positioning system that fixed on eight different points of land around them. Noting showed more that an inch of travel.

"Not seeing it, Tom. You sure one of us is moving?"

There was not answer from the inventor.

"Tom! Are you there?" Bud called out.

"Yes. Here. We have a little problem. Get the hangar crew ready to pull us up. The water down here is starting to heat up and the rising thermal mass is shoving us to the side."

"What's that mean?"

"I'm afraid it means our magma finger could be *about to erupt!*"

CHAPTER 14 /
ON THE VERGE OF HE_ _

BUD BLANCHED at the news and at the worried tone of Tom's voice.

"I'm getting the hangar team ready to pull you up. Do you want to jettison the probe?" he asked his inventor friend.

"No. Have them just bring up the platform. But… wait one. We'll tie off the probe to the raft just in case we need to move the *Queen* away. Give me one minute."

It was one of the longest 'minutes' Bud had experienced in a long time. Finally, the TeleVoc beeped and Tom came back on.

"Tell them to haul just the platform up. And call Zimby and have him come up and pull into the hangar after we get inside. I want to go down and take a look for myself and his atomicar is just the thing I need."

Bud knew better than to argue the point at that moment but he also knew it would be wrong for the young inventor to risk his life when both he and Zimby were classified as "test pilots" in the Enterprises employee records. That made it *their* duty to go down into the danger zone.

The call came over the intercom a few minutes later.

"Got 'em, Bud. But the skipper is determined to get Zimby up here. What do you want me to do?"

"Tell him I'm on my way, and that the longer he argues the longer the *Queen* will sit here on autopilot with nobody at the controls."

He undid his restraints and leapt from the pilot's chair, jogging down the hall behind the cockpit to the auxiliary ladder that ran straight down from the top level to a doorway next to the hangar entry.

On hearing the hatch open, Tom spun around. He had a determined but not angry look on his face. "What's this I hear about you trying to pull rank on me?"

"It's the same old thing, Tom. You… important. Me… not so much. So, to quote your very own father, 'If it comes down to you or Tom going into danger, I want you to do everything short of clubbing him to the ground to see that he remains safe.' Remember that?"

Tom gave his friend a rueful grin. “Yeah. But this time I think I may have jumped the gun a bit. Unless someone can tell us any seismic activity just happened to indicate an impending eruption, I think this might be a bit of a cart-before-horse situation. Can somebody check that?”

Ten minutes later with Zimby having transferred to the cockpit of the *Sky Queen* and Tom taking his place in the atomicar, the flying vehicle slipped back out of the hangar and Tom, Bud, Stefanie and Deke—because he claimed it would take a team of wild manatees to drag him back out—dropped to the ocean below.

“I want to take a few measurements coming in from the east leading up to our magma anomaly and then repeat that from the west,” Tom said. “I want Stefanie to tell me if anything looks different than the last time she saw this.”

In his rear view mirror he could see the diminutive woman and the lanky air controller holding hands and looking at each other.

Without turning she replied, “I’ll do my best, but we came back up above the silt about three-quarters of a mile away. I suggest we begin out there.”

The atomicar headed almost due east just a few dozen feet under the surface of the bay. They soon came close to an inbound oil tanker—presumably headed for the transfer dock in New Bedford, Massachusetts—and dove twenty feet deeper to avoid it.

“If we find anything, that sort of ocean traffic is going to have to cease,” she said to everyone.

“We might have to get the Coast Guard—” Tom looked back at Deke, “—to halt it anyway. I have an undersea listening device that we can get down here to listen to any gurgling, but it works best in the quietest water.”

He told them about a virtual stethoscope he had once used to help an amateur sleuth search the waters of Lake Carlopa for, what the man claimed, a local version of the Loch Ness monster. The device had proven to be a success even if the search had proven less so.

Arriving near the point they wanted to start their check, Tom dove to the bottom of the bay. The point where the Geotron had come up was visible as both an indent in the bottom—only slightly larger than the vehicle—and a ring of dirt, silt and rocks that had come up with the subocean traveler.

They paused just a few yards above the center of the indent.

“Does this look like the way you left it?”

Stefanie blushed. “Ummm, I wasn’t exactly paying attention to what was being left behind us, Tom. With all the instruments saying we were getting too close to a heat source, my eyes were pretty much glued to the dashboard. Sorry. But, having said that I can tell you the good news is that I can’t see any hint of separation either ahead of us,” she turned around in her seat, “or behind us. That’s a good indication the ground is not tearing apart.”

“Does that mean we’re safe, Steff?” Bud asked.

She nodded. “In the world of probables, yes. A guarantee… no. I’ll be able to tell more as we go along, although I have to say, Tom, that we might need to get the great sea slug back here to go underground again.”

“Great sea slug?” Tom asked.

“Oh, sorry. Twist on a *Doctor Doolittle* reference. Not particularly apropos for this, but it’s the first thing that comes to mind when I see your Geotron.”

Tom glanced at Bud in the front passenger seat. The flyer was almost doubled over in silent laughter.

“See,” he managed to sputter out. “I told you. Too much time with your nose in science books and not enough in juvenile fiction as a kid. You should have been reading things like a few *Dig Alans* and not as much of the Sagan and Turing and Hawking. Even *I* got the *Doolittle* reference, skipper!”

They traveled most of the nearly five miles of Buzzard’s Bay before the ground rose and they soon were on the surface near Woods Hole and its oceanographic studies institute. On a whim, Tom raised the craft above the water and headed for the shore. He touched back down next to the road leading down the peninsula and the facility.

He radioed the *Sky Queen* telling Zimby of their little detour. “See you in two hours,” he said.

After parking in one of the five visitor spots, the foursome got out and headed to the main entrance of the Institute.

“I’d like to speak with Dr. Robert Dobbs,” Tom told the receptionist. “If he is in, that is. Can you tell him it’s Tom Swift of Swift Enterprises, please?”

The young woman looked warily at the four of them. She seemed to be trying to decide what to do when a gravely voice sounded from behind Tom.

“Is that you, Tom Swift?” When they all turned around, a tall man with a full, black, Santa-style beard wrapped his arms around

the young inventor and picked him up.

"By gadfry, it is you, Tom. Well…" he set the inventor back down, "this is both a surprise and a pleasure! What brings you to Woods Hell?"

"I *was* about to call you, sir," the receptionist said in a somewhat bratty voice.

"Sure you were, Lucy. Just like last week when my son came here and you had Security escort him from the premises because he was wearing flip-flops, a t-shirt and 'didn't look like he had a reason for being here.' Right?"

He turned and winked so only Tom and Bud could see it.

"Come on across the street," he invited them. "A watering hole awaits and I'm a man with a thirst." They walked out the door, around the building and crossed Water Street entering a beautiful stone building nearby.

As their "host" went to the bar to get refreshments—lemonade and cola for them and a shandy for himself—Tom told the others about having met the co-Director of the Institute a few years before and had saved the man's life.

"Here we go," Dr. Dobbs told them, setting the tray down. "Oh, and before Tom here fills your heads with titles and that sort of uninteresting stuff, my full name is James Robert Dobbs, but my friends call me Bob. Please be my friends?" He smiled a big, toothy smile at them.

A few minutes of pleasantries led to the reason for the impromptu visit. Tom told Bob about the rift, the magma finger and the potential for catastrophic problems.

"Yeah," Bob said quietly. "We've been getting some measurements and soundings lately—oh, for perhaps a year or so—that point to something rumbling under the buzzard's belly. This is beginning to make sense, now."

"So, Dr.—I mean, Bob," Stefanie began, "have things been getting more active? I only ask because we've been at this for just a few weeks and any other info we can get could be of great help."

"Well, little lady, and I mean that in the Southern gentleman way and not anything else—" he paused and grinned when she smiled and nodded. "We don't have the pleasure of owning one of Tom's incredible go anywhere underground submarine things, so I can't speak for much below about the thirty feet of silt and loose dirt we dig into out in the bay, but we have detected micro-seismic activities. Mostly to our west, though. We've got a few sounding and

listening devices planted out in the Atlantic about one hundred seventy miles east of here, next to the edge of the continental shelf. They're getting readings out into the Atlantic but quieter than toward land."

"Can you tell us what they are reporting?"

"Sure. Off the top of my head I can tell you that there are these, as I say, micro-seismic events. Somewhere in the one-point-two range on the Richter scale. Barely noticeable above background activity. And, only perhaps on average of once a month. Maybe even six weeks apart. We've never been able to get more than a very general 'away from land' fix because they last in the quarter to half-second range. But, now that you tell me about this unplanned rift it makes sense. Wow!"

When they left the doctor's company an hour later he had provided them with printouts of everything they had. Tom, in return, promised to get all of his information to the Institute in the next week, including what they might find with the coming probe into the magma finger.

They skimmed over the surface and Tom pulled the atomicar back inside the *Sky Queen's* hangar. As they got out he handed the activation fob to Zimby.

"We're going to take a one-hour break and then head down with the probe," he told the pilot. "It's back to the original plan. I'm pretty sure that little heat swell is normal." They had checked this with the doctor who verified that it had been measured before.

Following the break, and sandwiches and glasses of water, Tom and his team climbed back onto the platform hanging at the rear of the giant aircraft and were lowered down to the floating platform. The probe sat waiting for them like a dutiful dog.

"Zimby?" Tom radioed. "We're going to start lowering the probe in three minutes. Can you please go down and get in position? I'm going to rely on you to tilt the probe with the nose of the atomicar so it is at the necessary one-hundred-fifty degree angle."

"Roger, skipper!"

When the time arrived, Tom activated the remote winch and pulled the probe assembly up a couple feet. Then, he and Deke manhandled it over to the hole in their foam-filled raft.

"Lowering," he called out, sending the message to the waiting Zimby Cox below them.

As the solid part of the assembly sank under the calm water, the lengthy watertight sleeve holding the absorbent plug began to trail

along behind it.

"It's coming down into view, skipper," Zimby called up. "Slow it to half speed so I can get into position." Fifteen seconds later he continued. "Okay. On my mark, stop the drop. Five… four… three… two… and, now! Great. That's right on target."

"Have you marked out how far to push the bottom over?" Tom inquired.

"About to do just that. Uhh, first marker dropped and… second one down. Okay. I'm backing up into position now." There was a brief pause, then, "Bring it down at about one foot per second. Fine. I'm moving it forward, and… Stop!"

Bud's eyes went wide. The call had sounded more desperate than celebratory to him. "What's happening?"

Now Tom looked a little worried as well. "What's the matter, Zim?"

"Huh? Nothing. The tip of the blaster end is against the floor of the bay. That's all. It's ready. Give me another minute and I'll be above the probe end and ready to give it a little push into the soft dirt. After that, did you want me to stay down here?"

"At least until we are certain that the plug is following without any problems," Tom replied. "Let me know when to activate the blaster's program. After that it is all automatic."

"Roger."

Tom turned to Stefanie. "Now is the perfect time to tell me if you have any reservations about this. Once I get things started I can only stop it in an emergency. At that, an emergency halt will deploy the plug and once that is out and hardens we can't move the probe again."

She shook her head.

"I'm as ready as I can be. The instrument and readout package you have up in that massive jet of yours will tell me everything I need to know. Uhhh…" she looked slightly pensive. "Just in case things cut loose, though, how long do you intend to stay down here on the water? And how long until Mr. Cox gets to come up?"

Tom smiled. "As soon as the first ten feet or so of the plug go into the hole both he and we vamoose!"

"Where do I stand for that? Platform or this floaty bit?"

"Either," Bud spoke up. "You may not have noticed it because the skipper here is a genius at just making things work, but once we got back down and Zimby got the probe into position, Tom here pressed

a magic button and the two parts locked together. Now, if one goes up the other is attached!"

Stefanie looked from Bud to Tom. The flyer was smiling and Tom was nodding as his eyes scanned the remote controller in his hands.

"Give me five more secs, Tom," Zimby's voice called out.

"Go ahead and sit down in the middle of the platform," Tom advised the others. "Call when ready, Zim," he said into his headset microphone.

"I am… right about now. Launch it."

Tom flipped two safety switches and depressed a small button. The board flashed eleven green LEDs and a one-second *beep* sounded. "She's on the way, Zimby. Easy now. I've set things to go at just an inch a second for the first couple of minutes. After that it will speed up over fifteen minutes and by that time it should be in as far as the top of the probe housing."

He also let the atomicar pilot know that he should prepare to surface as soon as the first three to four yards of the plug had entered the hole.

"If you look, you'll see a black ring around the sleeve at that point. Once that disappears, come up. We will be half-way back to the *Queen* by that time."

At precisely the planned time the ring marker slid downward into the hole left behind by the earth blaster and probe. Seconds later Zimby gave a salute to the device and set an upward spiral course for the surface. As he came out of the water he looked up in time to see the slightly swinging platform passing the halfway point.

He lifted off and made a wide sweeping turn, coming into the hangar and parking the atomicar before the platform was any closer than fifty feet below the giant jet.

The combined platform and float were far too large to come into the hangar, but Tom had planned for this. After they stepped off and onto the extended platform jutting out from the hangar floor he accepted a hose from the outstretched hand of one of his technicians. This was soon attached to a previously unused valve on the float.

He gave a thumbs up to the tech and stepped into the hangar.

"What is that?" Bud asked. "You going to vacuum out the hard stuff and fold it all up nice and pretty?"

"Something like that, flyboy. Actually that hose is delivering a solvent to dissolve the hardened foam. Watch closely." He pointed

at the dangling platform and float. In seconds Bud could see that the outer part, the float, was visibly sagging at the edges. And two minutes later it was hanging from around the perimeter of the solid platform like a ring-shaped bag of wet cement.

At Tom's next signal, the solvent hose was transferred to another valve and a pump began removing the liquefied foam to a holding tank.

"Once that stuff gets filtered and the solvent neutralized, we can use it again. Five or six more times in fact before it gets too unstable."

The pump stopped and the technician along with two other men hooked tethers to their harnesses and climbed out onto the platform. In a few moments they had the empty bag that had been the float all pulled up and stored atop the platform. The winch arm drew everything into the hangar and by the time Tom and the others had made their way up to the cockpit the hangar door was reported to be closed and sealed.

Only the data and power cable assembly played out of the *Sky Queen* through a special port under her belly.

Three hours went by, then four, and finally five. It was at this time the blaster would be near to breaking through into the magma chamber. Everyone who had been lounging or even napping snapped to attention and got ready for the deluge of data that would soon be coming through.

"Temperature is up to about one hundred ninety degrees, Tom," Stefanie reported. "Now it's two hundred. Two twenty. Okay. Now it just jumped to over four hundred. We've got to be within a few yards of break through. Everyone, stand by."

It was a tense twenty-eight seconds, but her call did not come as a surprise.

"Breakthrough! We're in the magma. Temp is sky high. I'm taking the sample now before things get too hot."

She pressed a lighted area on her control board, which caused a small door to open on the underside of the probe housing. By now the earth blaster would have burned away. Tom had decided to sacrifice it early and to not coat it in Intertite. It would only be in the way of the probe's instruments anyway.

Three seconds later a light blinked and she sang out, "We've got a sample and the door is closed. I'm starting up all of the instruments."

"Let me know once you've got something," Tom requested. "Bud?

Can you have Zimby take the controls so you and Deke can help monitor the plug?"

"Sure thing, Tom." Bud TeleVoc'd the other pilot who had been taking a nap in preparation for his upcoming shift at the *Queen's* controls.

A few minutes later the changeover had been made and Bud and Deke slipped into seats at one of the instrument panels.

"Uh, Tom? How far in did you want to let that plug get before allowing it to swell up?" Bud asked.

Tom spun around. "It should have already started to open just as the blaster broke into the magma chamber. You mean it hasn't? Hit the emergency switch!"

Bud's hand raced out but it was caught in mid slam by Deke's much larger one. "Look, Bud. It *is* opening. Isn't that what that readout means?" He pointed at one of the green LEDs under a pressure readout.

Bud relaxed. "Yeah," he admitted meekly. "Sorry, folks. I was looking at the wrong gauge. I owe everyone a beer! The plug is fully expanded for the first thirty feet outside the magma chamber and moving back to the surface at... ummm, now about two feet a second." He leaned over to his panel-mate. "Thanks, Deke," he whispered. "If I'd hit that button this all would have stopped."

"Not to worry, Bud," came back the whispered answer.

Two hours later and with all of the information they wanted to collect in, the cable's coating could no longer hold back the ravages of the heat and abrasive magna. The data ceased and the readouts on all their panels went black.

The probe was dead.

CHAPTER 15 /
DEEP CRACK REVISITED

"THIS WAS FUN," exclaimed Tom, "but now it's time to head back to land. In case none of you have noticed it is past midnight outside."

The cabling had an auto-cut device set just below the surface of the bottom of the bay. It had activated once all of the upstream of data had ceased. Now, Tom ordered the remains of the cables to be pulled back up and spooled.

It took almost ten minutes but they were soon heading back to the Quonset airfield where Tom wanted to park overnight.

"Tomorrow we will examine everything we got and see if we can make an educated guess as to what to do next," he told them just after landing.

When Tom looked out the side hatch at seven the next morning he was surprised and pleased to see his father sitting on the hood of another atomicar, reading the morning newspaper.

"Good morning, Son," he called out as Tom walked over, folding the section he was holding and sliding off the car. "I got in an hour ago after stopping for a coffee and the local paper. I take it you had a late night from the bleary look in your eyes. Oh, and I also brought a surprise." He turned back the atomicar and pressed a button, letting the roof slide back and the side doors open.

There, laying on the middle and third bench seats were the tops of the heads of a blond woman with a ponytail, and a dark haired woman.

"Sandy? Bash?" Tom asked with a huge smile.

Damon Swift nodded. "It's Saturday and they insisted on my bringing them down. I can understand your wife wishing to be with you, but I can't imagine why Sandy wants to be here." He winked at Tom.

"Daddy! You know darned well why I wanted to come. Where's my big hunk of pilot?" she asked Tom, sliding out of the atomicar and onto her feet.

"Tom?" Bashalli's very tired voice asked, her head remaining on the seat. "Are we there yet?" She moved a little but did not sit up. Tom walked to the car and leaned in kissing her on the cheek.

"Morning, Bash." He said this is a quiet voice but the results were

like an electric shock. She jolted upright hitting the side of her head into his nose. By the time she gathered her wits he was standing back with his handkerchief up against his slightly bleeding nose.

"Oh, my!" she said rushing to him and smothering his face with kisses.

It took a few minutes to both get his wife and nose in order, but very soon the four of them were entering the *Sky Queen* where Sandy walked straight to Bud's small cabin and climbed onto the bed with him. When he refused to stir she began jumping up and down on her knees. This had the result of him reaching out from under his pillow and pressing the intercom button at the head of the bed. "Skipper? Zim? Can you please get above the turbulence?" The hand went back under the pillow but soon came back out. Sandy had ceased her jumping. "Thanks!"

"Budworth Barclay! I'll give you turbulence!" Sandy told him as she got off the bed and yanked all of his covers off onto the floor.

Bud's hand shot out, caught her wrist and pulled her down into his arms.

"Good morning, love of my life," he said to her. "I was just waiting for you."

She stood back up and was about to call his bluff when she noticed that he was fully dressed and had even had time to comb his hair and brush his teeth.

"Ohhh!" she exclaimed, stamping a foot that only served to make her jiggle a little and to cause Bud to wiggle his eyebrows.

When they got to the lounge Bashalli had breakfast for everyone going. "We're having french toast with turkey bacon, fresh blueberries and honey-infused green tea," Tom's wife announced.

They all ate gratefully sitting in the various chairs in the large lounge area.

After their meal Tom suggested that the ladies take the older atomicar and drive up to Providence while he, Mr. Swift and the rest of the team would start analyzing the data from the probe.

"Is it okay if I take them up?" Zimby inquired. "I'm a little useless with the scientific stuff and besides, I'd like to pick up a little something for my lady friend."

It was decided that the three would spend a few hours in the state's capital city.

"In fact, go ahead and skim up over the water and right into town. It'll save you about an hour of driving time," Tom suggested.

When they had gone the team went back to their instrument panels and began deciphering the data that had been received.

At first glance, the magma finger only extended a few yards above the entry point of the probe and went down at least two hundred yards, the approximate maximum they could detect from the upper area.

Later data, once the probe had lowered another five hundred yards, showed that it continued down well beyond their range, but that it was beginning to narrow from its maximum diameter of forty-one yards as measured about one hundred yards down from the roof.

"I'm very happy to report that the temperature is a cool thirteen hundred seven degrees at the hottest point we got the probe into, and about one hundred and nine degrees cooler than that near the top," Stefanie reported. "And that means that we may technically have a magma base but the temp is below that of real magma once it gets higher. Almost a hundred degrees Fahrenheit cooler."

One of the two technicians who had been watching the screen showing the contours of the space spoke up. "That goes right along with the findings that down deep the sides are as smooth as glass, relatively speaking of course, while up near the top the surface is rough and uneven. And, if I'm reading this correctly, we had almost a fiftieth of a degree cooling at the very top of the finger during the time we were inside."

"What?" Stefanie jumped down from her seat and raced to the tech's panel. "Show me that, please," she insisted.

He did and she spent ten minutes reviewing the results.

"Incredible…" she murmured several times along with a few, "how…" and "really?" Finally she turned to speak and was startled to see them all looking straight at her.

"Oh. An audience. Well, for my first number, I'd like to favor you all with that good, old hit, 'It Ain't A-gettin' Hotter You'all and That's Good News Fer Us All' by which I mean that this magma finger must be shrinking rather than growing. Even though I don't have all the formulas and computations I need to be definitive, I am pretty sure that if things progress like this, the magma finger will be no more in about fifty-seven months. Maybe even sooner if the lower region seals up and cuts off the supply of heat to the upper area."

"What's that mean for our rift?" Bud asked.

"If I am correct," she replied, "it has been this magma finger

expanding and contracting and exerting pressures and forcing the gap as it swells and shrinks. If it is actually cooling now, that ought to stop or at least diminish."

More and more good news kept being announced until they had completed looking at everything.

The last piece of information was reported by Stefanie and from the results of the mass spectrometer and gas chromatograph that had analyzed the sample taken by the probe.

"This is interesting magma in that it is highly sulfurous and a type of sulfur that is rarely seen on the surface. In fact, in volcanic eruptions it generally burns off so quickly that it is barely detectable, but it does indicate the depth the magma has come up. The higher the sulfur the deeper the source, as the old saying I just made up goes."

"So, how deep do you believe this source is," Damon inquired.

"Well, Mr. S, between eleven hundred and fifteen hundred miles, give or take. I'd love to get your sniffing car out there to test the water to see if it has the same traces in it." She looked at the older inventor hopefully and smiled.

"You're cute but the last time I fell for a smile like that I ended up married for going on twenty-five years." He smiled back at her. "I suggest that you ask my son. However, I might also caution you that his wife is due to be back here in less than an hour along with his sister. So, ask nice but not with that promising look. Okay?"

She blushed. "Sorry. Force of habit." She looked around to find that Deke was slightly scowling, so she walked over to him and gave him a hug. "Not to worry, D. I've only got it for you!"

Turning back she asked Tom, "May we go down in the tomi-sniff thing and check the surrounding area?"

"Sure. If you don't mind I'll let Brad over there take you and Deke down." He pointed at the other technician. "He's not just a good volcanologist, he's one of our undersea specialists and can pilot the atomicar as well as anyone."

Within five minutes the three had left to take some measurements. Twenty minutes later Bashalli, Sandy and Zimby came racing over the water, rose just in time to get over the bank of the airport's edge and came to rest next to the *Sky Queen's* left landing gear.

Over late afternoon cookies and sodas the girls showed Tom and Bud their purchases while Zimby went and stowed the necklace he had purchased for his lady friend.

Tom told them a little about the findings from the probe and then mentioned Stefanie's new name for the *CadaverCar*.

"Tomi-sniff? I like it, Sandy told him. "Besides, I've always thought of them as *TommyCars*."

"Well, that's a nickname that won't see the light of day," Bud whispered to his friend with a knowing chuckle.

An hour later and with the girls making dinner—actually with Bashalli making and Sandy trying to figure out what the heck she was doing so she might duplicate it for Bud some day—Brad and his charges returned.

"We might have a small issue," Stefanie told Tom and his father, taking them aside and speaking in a low voice. "I made my measurements at the site of the plug and got faint traces of the same sulfur as inside the magma finger. I also forgot to turn things off when we came back here and as we passed over the ground tear by the runway the sniffer tubes picked up traces of the exact same sulfur."

"Meaning?" Mr. Swift asked.

"Meaning that the same source of the magma finger out there is also close enough to be below this tear, and that could mean that we are seeing a new potential eruption point. It's flat and pretty small right now, but it could have the potential to blow out like Mount St. Helens over in Washington State."

"What do we do now?"

"Now we enjoy what smells like an incredible meal that Tom's beautiful wife must be cooking, and then I want to get that big old Geotron of Tom's down here and out to the Atlantic rift to make some very detailed samplings and measurements all along the length of it. I might also like to go another couple hundred miles inland from here along the possible fault path to see what I can locate."

"What can you find now that you didn't before?" Bud asked. He had walked over to the trio in time to catch the last exchange.

Stefanie took a deep breath and let it out slowly. "Now that I have a specific signature of sulfur to look for, I can fine tune the search. We were taking in everything out there the first time, so all of the data is muddled."

She looked right at Tom. "Believe me, I'm hoping I'm absolutely wrong about this, but if I'm not, then something is going to have to be done to keep this area—maybe even the entire eastern seaboard from Virginia to Maine—safe. As much as I hate to point fingers or

make monumental statements, I nominate you to be the *someone* who does the *something*."

Tom looked to his father to see the older man's reaction. When Damon nodded and gave Tom a "she has a good point" look, Tom also nodded.

"You get your proof and I'll keep trying to come up with whatever I can do to... well, to—" He stopped, stumped for a way to end that sentence.

"Seal it?" Bud said, trying to be of some help. "Weld it back together?"

Stefanie laughed at the notion. Everyone else in the *Sky Queen's* lounge turned to look at the group.

"You can all stop having fun now and come over here to get your plates. Bashi has put a real feast together for you," Sandy told them, a frown on her face over having not been part of the "fun" she supposed the others were having.

Dinner went well with no more talk about the potential for grave danger.

The following morning everyone packed up and headed back to Enterprises.

While Stefanie Brooks spent the next week going over all of her notes and findings, Tom spent the same time in his underground office and lab contemplating possible methods for doing just what Bud had suggested.

"If I can weld the rift back together," he spoke into an audio note recorder, "in such a way that it makes a permanent seal, stronger than the original rock, then perhaps I can avert the disaster." He paused, turning the recorder off for the time being.

He sat there, fingers steepled under his chin, thinking over what he had just said. It sounded simple; it sounded too simple. It also, he mentally noted, sounded a lot like a description of setting a bone.

Get the two ends—in this case, two rocky faces—together and cause them to knit into one. The end result was that the spot where the bone was set was much stronger than the surrounding bone.

That, he realized, could be a problem.

If he managed to seal/weld/knit/seam the two sides of the rift together, how long would it be before the stresses of the Earth, acting on itself, simply tore things apart in another location around the seam? How far away might it happen? A foot beyond the patch? Yards? Miles?

There really was no way of knowing. This bothered him.

Tom Swift was used to finding solutions that fully covered a given situation and ones that didn't have the high probability of simply being a short-term patch job.

With nothing concrete to go on he decided to start a list of things he already had and might be able to use.

To begin with, he had the technology in the form of his Subocean Geotron to travel deep under the ground and go right through the heart of any rift or area between tectonic plates almost as easily as if he were driving on the surface. Perhaps driving in mud that impeded progress a little, but still firm enough to make headway.

He had practically unlimited power in the form of his nuclear power pods. The one inside the current Geotron was sufficient to let the large machine travel around the world one and a quarter times without stopping.

He also had sufficiently strong materials and coatings to protect such a vehicle against nearly anything the planet might throw at it.

Providing, he reminded himself, that it was traveling through non-molten materials. Heat could be an enemy and yet he had a gut feeling that heat was almost precisely what would be required to accomplish his mission.

At dinner the fifth evening he mentioned his lack of progress to Bashalli. She understood that he wasn't expecting her to come up with anything, but that he needed an outlet to talk about things.

"But, if you melt the rock and let it harden, or cool or whatever it actually does, then will it not hold long enough for you to get from one end to the other?"

Tom was about to mention the whole "it could pull apart just inches outside of that," matter, but simply nodded and let his wife continue.

"Is it possible for you to travel from the end of this little tear all the way out into the middle of the ocean quickly enough?"

"It could be, but the big problem is that unless I build something tall enough to get from the top of any crack to the bottom, I'm only going to be putting down the equivalent of a bead of glue along the top of a potentially very tall wall." He looked sadly at her. The enormity of the task was taking its toll on his spirit.

"Then you must go back and forth as quickly as possible and lay down many of these beads of glue." It was an answer delivered with such an air of logic that it nearly made him laugh.

Getting up, Tom wrapped his arms around Bashalli from behind. “If it is really that easy, then I can’t fail,” he told her.

The following morning Tom was awakened by the sound of heavy equipment working on the property next door. He rolled over and eyed the clock.

7:22 blinked at him.

They had been promised by the people who moved in next door just a month earlier that when their landscapers finally began putting in a retaining wall at the back of their yard, that they would not start until at least 7:30 each morning.

Bashalli wasn’t home having left at around 6:45 to get an early start preparing for an important client meeting. He pondered what to do. Normally he would just laugh it off, but the strain of the past several days made him unable to ignore the loss of even eight minutes of sleep.

He pulled on shorts and a clean shirt and headed out the back door.

“Excuse me!” he shouted to the three men operating a pair of trenching machines and a small backhoe. “Hey!” He put two fingers in his mouth and let out a shrill whistle.

That got their attention.

Turning their machines off, the oldest of them, presumably the foreman, came over.

“What?” was all he seemed ready to say.

Tom pointed at his watch. “You’re starting too early. We were assured nothing would start rumbling or roaring until at least seven-thirty each morning.”

The man looked at his watch. “It’s seven-thirty-two,” he said and turned away from Tom.

“Don’t walk away from me!” Tom demanded. “And don’t think you can make a rude gesture and get away with that,” he added as a caution.

The man stopped and turned back around.

“What’s eating you, sonny?” he asked.

Tom explained exactly what was bothering him starting with the early morning interruption of his sleep, and before he could stop himself he was ranting about the problems of holding two parts of a tear together against the forces of nature.

“It’s driving me crazy and your starting with all the noise too

darned early is about the last straw."

The man took off the baseball cap on his head. He examined the inside of the cap and turned it around several times. Finally, he walked over to the low fence Tom was leaning on.

"Sonny? You got two problems. Number uno, you don't never talk rude to a guy from Jersey. Got that? I don't give a hoot about your precious eight minutes of sleep. I might even start an hour early tomorrow just because I don't like you."

Tom felt the heat rise up his neck and into his face.

"Now, number two is on more of a professional level, see? If ya wanna hold two things together that want ta come apart, then ya gotta cross trench and put in anchors. Like we're doin' here. See that spot where the retaining wall is going? We're trenching back perpendicular to that about fifty feet into which we will install a long, steel beam. Then, parallel to the wall and about every ten feet we dig cross ditches and put in ten-foot long braces. Once we cover it all up, ya could run a freight train into that retaining wall and it would not fall down."

Tom stood there thinking about how to apply that information when the man tapped him on the chest. When Tom looked up, the man's fist shot out catching the inventor on the jaw.

His eyes rolled up and he sank to the ground. The last thing Tom heard was the man's laughter as he walked away.

CHAPTER 16 /
THE ATTACK BRINGS AN IDEA

ALMOST A FULL hour went by before Tom woke up. Standing up and peering over the fence he saw that both the men and their equipment were missing but a pair of long trenches, one at either end of the property, and their cross trenches had been dug down about five feet.

He got up and tested his jaw. It creaked but didn't seen to be broken. Opening his mouth he wiggled his chin a little and winced with the pain he felt on the right side.

"I'll have to get Doc to take a look when I get to work," he muttered.

The experience had left him less angry than he would have thought. His attention was drawn to the trenches and the physics of using the very ground they wanted to keep from moving to accomplish just that.

As he turned a piece of paper fell from the front of his shirt. Picking it up he read:

Sorry, kid. Guess you got that extra rest you lost.

Tom gave a short, rueful chuckle and wadded up the note. He went inside, showered and shaved—a painful experience—got dressed and headed to Enterprises.

Doc Simpson was mildly sympathetic to his plight but also had to tell Tom, "You can't go picking fights, skipper. Some not very nice people out there are bigger than you and, from what you said about being surprised by that punch, sneakier than you. Well, nothing's broken but it looks like your right jaw hinge got partially dislocated. Temporary, because it's all back nice and neat, but it will hurt a few days."

"Ice and aspirin?"

"Ice, aspirin and stay away from right hooks!" He gave Tom a box containing a half dozen self-cooling packs. "Use one for at least twenty minutes every two hours," the medico told him. "When you get home put the used ones in the freezer for a couple hours and you can use them again tomorrow. They will re-activate once you open that little cap and drop in another of these pellets." He pulled out a small vial from the box.

Tom thanked the man who had fixed him up and even saved his life more times than either of them cared to recall and then went down to his underground office.

He researched as much as he could find on the engineering side of brace-and-trench technology. There wasn't a whole lot to be found by way of the mathematics involved, but numerous photographs and diagrams that gave him a pretty good idea of what might be needed for his massive project.

All that was left was the nearly impossible task of trying to devise a way to accomplish it.

The one thing he had figured how to do on his drive to work was the job of heating up the rock face of either side of the rift. It would be possible to use the very heat of the nuclear reaction in his power pods to melt the rocks on either side.

He sketched out a few diagrams showing how he might channel the fierce radioactivity inside the pods—or, as he realized, special purpose-built pods one day—into some sort of chamber that the rock's would pass close to. If he could manage to find the balance between shielding the actual radioactivity and allowing its heat to pass through, he ought to be able to create a long vane or pole that would super-heat the rocks as they touched and then let them cool quickly after the device moved on.

When he told his father about it at lunch the older inventor laughed. "Coincidentally, your mother spotted a loose hem on my pants leg this morning and used some sort of ribbon that turns to glue when you press an iron over the two fabric pieces it sits between."

"Well, I don't think I can use a sort of heat-seal ribbon, but I do hope to use the very rocks to do that same thing," Tom told him.

"How much of an area do you think you can seal at a time, Son?"

Tom shook his head. "I have no idea. I guess it depends on how large of a vehicle I think I can pass through the rocks without disturbing things and having it become counterproductive. Stefanie Brooks is heading back into the ocean tomorrow. She and Deke make a great team." He looked at his father and winked. "Both professionally and personally I believe. Anyway, I'll have Zimby do some maneuvers to see if anything the Geotron does effects the rift."

"And, if it doesn't?"

"Then I believe that we know something fourteen feet wide, eighteen feet tall and thirty-nine feet long would be okay. Even a little larger. If that's the case I can see the possibility of making

telescoping, hmm, I haven't thought of a term for them. Rock welders? Well, for now… telescoping rock welders that could extend out perhaps thirty feet or so away from the craft."

"Do you have any calculations on how much force that sort of rock weld might withstand?" Damon asked. He was amazed at the speed his son's mind worked. In *his* younger years it had been all private aircraft and folding cars. Tom worked in realms of racing through space and nuclear welding.

"Not really. I'm afraid I will have to go to the financial well and take out enough to build a test vehicle. Something I can easily transport to several kinds of sites. I'm thinking that our Rhode Island rift is just the old iceberg tip compared to what else is out there. Volcanoes that want to relieve themselves, continental plates that keep drifting even though they all touch other plates all the way around. Lots of things."

They talked a lot about the type of vehicle Tom had in mind and how much it might cost to build it.

Cautioning his son, Damon said, "I don't believe we can go to the government on this. Not yet. We've managed to keep this rift very quiet up to now and I can't imagine how devastating it could be if word got out and panic swept in. The fortunate thing is that several of your inventions are paying great dividends to the company. We have orders for almost eight dozen of your smaller inflatable structures like the one you built as proof of concept for your Martian colony project."

Tom had built a few different sizes of the structure that eventually grew to over 1.2 million square feet of floor space for his actual TerraVironment inflatables. Two of the smaller sizes were becoming very popular with electrical companies for keeping power stations dry and businesses that are located in much colder or much hotter regions of the globe.

"Oh, and also your backpack mini-plane. The Australian Army tripled their order and we have a new order of one thousand of them from NATO. So, I guess you can take the necessary funds to build your test platform."

"If it is a success, then can we ask Uncle Sam to pitch in on the real machines?" Tom asked. "We might need to build a fleet of them to do things properly."

Damon Swift smiled and nodded. "Oh, yes! I love this planet of ours, but Swift Enterprises can't bear all the costs for something that will benefit all mankind. In fact, this is one of those things all of the richest countries are going to have to ante up for in order to get

done!"

Tom always felt better after having a talk with his father. It was the same this time. He returned to his office next to the *Sky Queen* and went back to work with renewed vigor. By the time he headed home he had a good start on the design of his test vehicle.

It would need to be as mobile as possible in order to get to the widest possible variety of locations. This meant it would also need to be both submersible as well as capable of flight.

In the last three hours he sketched fifteen designs for such a vehicle. In the air it needed to be moderately streamlined, but when it traveled through rock it had to be as smooth and sleek as possible.

That meant three of his designs—virtually flying versions of his current Geotron—could be discarded, or at least filed for some future project that might some day tickle his imagination.

The craft also needed to offer the ability to carry one of Tom's larger nuclear power pods. He knew that this first test model would not have a purpose-built pod but that he needed to adapt what was available off the shelf.

Of course there was the matter of outfitting it with vanes or extendible posts to carry the enormous heat right to the very rocks he intended to melt back together.

He stopped and sat back thinking about this last consideration. An earlier thought had been to use the flight surfaces—the wings—for this but he discarded that as it would mean tilting the machine on its side.

Scanning the remaining drawings he moved another six of them to the "for later" pile, and then he took a close look at the rest of them. How, he had to ponder, would any of these designs fit his needs? At least two were beautiful and yet wouldn't provide enough space for all of the equipment, not to mention a one- or two-man crew to operate it.

As he picked everything up and locked it away for the night he shook his head.

Pilots.

Were they going to be absolutely necessary for this test model? The answer came back to him as he took the elevator up to ground level.

Yes.

There was no readily available or practical way to make a vehicle designed to travel deep underground through crushing rocks and

possibly fiery lava, and to make it remote controllable. The same thing for making it autonomous. There were far too many variables that the craft might encounter where the decision-making capabilities of the human pilot would be the only way to succeed.

Tom spun on his heels and re-entered the elevator traveling back down to his office. As he unlocked the documents safe and watched it slide silently out of its reinforced concrete and tomasite wall panel, he made a phone call.

"Bash? It's me. Listen. I just had a notion about that little rift issue and had to come back to the office. I'll be about twenty minutes late. Hope that doesn't ruin dinner."

She laughed. "Thomas Swift, if you think for one second that I plan any meal for a specific and unchangeable time, you are mistaken. I love you and I know you. Of course you are going to be an hour late."

"But… no, I said twenty minutes, Bash."

"Right, and I will see you in about one hour when your twenty minutes are over. Bye!"

He looked at the receiver. "Boy oh boy does she know me!" he said out loud.

Taking out the six drawings that were still in the running he flipped through them. In seconds he found what he was looking for.

Two of his designs would *not* accommodate a pilot. At least not in the size of vehicle he had in mind. Running from about twenty-two feet in length to upwards of thirty-six, the two he now set aside were so thin from bottom to top that a pilot would need to lie flat on his or her stomach.

That brought up a space problem for the power pod and everything dealing with motive power.

Too bad, he thought. *I really like the design on this*, and he set one that was reminiscent of a stealth fighter aircraft into the non-contender file folder.

He also took the stubbiest contender out and placed it in the folder. Locking things up again, he headed for home.

Bashalli let out a little yelp and jumped several inches when Tom walked up behind her as she stood at their stove. She spun around, wide-eyed, but threw her arms around Tom's neck and kissed him joyfully.

"How? I did not expect you to be home so soon," she said after a moment.

Tom smiled and laughed. “Gee, Bash,” he said innocently. “I told you I’d be just twenty minutes. Don’t you believe me?”

Now, she laughed. “Of course I believe you, Tom. It is just that history is against you when it comes to knowing what specific periods of time mean. ‘I will be off the computer in five minutes’ generally means that you come to bed a half hour later. You know?”

Tom admitted that he did know his habit of underestimating time sometimes got the better of him.

“But, tonight the time was worth it.” He explained about the different drawings and how he now had the design possibilities down to just four contenders.

The more he told her about his designs the more interested she became. A trained artist, now managing the creative department at Shopton’s one and only advertising agency, anything having to do with design caught her attention.

She asked him to sketch out a few of his viable designs, and he complied warning her, “We’ll have to burn these after you look at them.”

With a twinkle in her eyes and a little giggle she asked, “Whatever for? These little drawings aren’t going to get into the hands of your enemies. And, even if they do—” She stopped seeing the look on his face. “What is it?”

“At least one of those designs would be so stealthy and with the right propulsion so fast that it would make a terrible unmanned flying weapon,” he explained. He tapped the one he was speaking about.

Bashalli looked at it carefully. Finally, the light dawned on her and her mouth formed an almost perfect “O” as she said, “Oh. Oh, yes. I see that. So, right after we talk about these I will grab the butane lighter for our barbecue grill and we shall get rid of them.”

In truth, she hadn’t seen what Tom did, but she also didn’t want him to think that she couldn’t understand the potential danger he spotted.

“How would you fly that one?” she asked pointing at the “dangerous” design.

“Well, that depends on what you mean by ‘fly.’ If you mean what powers it, I’d say we use the same repelatrons that will shove the rock and soil aside. But, if you mean ‘who,’ then it would be me, possibly with Bud.”

Her brow furrowed. “I do not see any repelatrons. Do you add those later?”

Tom laughed. “Nope! They will be inside the skin of the craft. I’ve got a new formulation for Durastress that will form the outer hull and it lets repelatron energy pass straight through. This is going to solve one of my pet peeves with the Geotron, being that it takes about five hours to clean and scrub all the dirt and debris from under and around the exposed repelatron dishes each time we take her underground.” He leaned in conspiratorially. “It’s a really mucky job and usually falls on the newest hire or intern out on Fearing Island. It is also the number one response interns give as they go back to school when filling in the exit questionnaire about ‘the least enjoyable aspect of your internship.’”

They went to bed with Bashalli never asking her husband why his left jaw line was turning black and blue.

The next morning was Saturday but Tom needed to get back to Enterprises. He promised to be less than five hours as he knew Bashalli and Sandy had later afternoon and evening plans for their men.

Once in the office he pulled out all of his sketches and reviewed even the discarded ones. An hour later he was glad he had. There were a trio of design ideas that he added to his now favorite possibility. One of these was a small set of canard winglets at the front of the craft.

Useless underground they would be almost mandatory for stable flight. The only matter was what to do with them when not needed? He had no desire to widen the cockpit to allow them to swing inside the body, but if they had to, then he realized the space would limit the crew to a single person.

With something that would ultimately travel for days or even weeks underground, having a single individual in there wasn’t an option. In fact, the final vehicle would probably need to carry three people.

He made a note to look into creating them from metals that would lie flat when in use and then curve to fit against the body when underground.

As he sat there a knock came on the frame of his open door.

“Hey, skipper!” the cheerful voice of Arv Hanson, Enterprises chief model maker called out. “I saw you drive in as I was walking back from the commissary with my morning latté. What’s up?”

After inviting the man to have a seat, Tom gave him a five-minute rundown of the situation with the rift and then told him about his intention to build something that could “heal” the problem.

Arv listened carefully asking only a couple questions. When Tom finished he asked to see the sketches.

"First off, these are the ones I've set aside for a variety of reasons, but mostly because they won't work for this purpose. And here are the final three I'm concentrating on. Any ideas or comments?"

The model maker carefully looked over the drawings. Twice he pulled out his smart phone and used an application to calculate something he did not mention to his young boss.

After twenty minutes he tapped one of the designs. "This one," he declared.

Secretly thrilled that it was the same one Tom believed to be the best candidate, he inquired, "And, why is that?"

"Simple. It's the most aerodynamic which means the most terradynamic—that's a word I just made up for ability to glide through good old *terra firma*—appears to have ample room for the power system and sports those four fins at the back."

Tom wanted to draw out more feedback, so he asked about Arv's feeling on those fins.

"Well, for one they give you flight control surfaces. I mean, the body obviously is a form of flying wing from its shape. You get a little lift from that to augment the repelatrons—say, you *are* using repelatrons in this aren't you?" Tom nodded. "Great! So, in flight they give you control and underground they become your rock welding things. My guess is the top and bottom ones ease along the actual rift surfaces and the side ones melt out a horizontal channel to add strength to the weld."

Tom told him about the brace-and-trench work he has seen and how he hoped to incorporate it into his machine.

Arv scratched his cheek and then the top of his head. He pondered the matter for a full minute before speaking again.

"Okay, then somehow you need to make those side fins able to do two things. Do the continuous horizontal seam for strength but periodically make them drive energy out and melt the rocks in a long shaft. Oh, and I'd angle that shaft back maybe twenty degrees."

Tom was puzzled. "Why?"

"Maybe I need to rephrase that. Each shaft needs to go out at varying angles. Some forward, some back, a little up, a little down, and some straight out. That way no matter what direction the two halves of the rift want to move a lot of the braces will not let it easily slide. It's like carpentry. If you toenail a wall stud into the floor you do it from several angle so that any one stress on it won't pull the

nails out!"

They two men discussed the project for two more hours before Arv got up to leave.

"Did you want me to make a model of that one ship?" he asked. "I can't do it today, but Monday and Tuesday are pretty free. I can input it into the CAD system and have a foot-long model on your desk by end of day Wednesday."

"It might all go for nothing, but sure. I'd love to see this in 3D form and maybe even get some inspiration from it."

A full hour ahead of his promised deadline, Tom left Enterprises heading for home. He took a route up an old road that crested a small hill half a mile away from the complex. He had heard that a builder was putting in a fifty home neighborhood on the other side and wanted to see if there was going to be a security issue with it overlooking Enterprises.

As he neared the site, Tom spotted a truck and trailer with the same company name as the one parked in front of his neighbor's house the previous day. He stopped and got out.

Walking around a large pile of waiting lumber he saw the very same man who had hit him and knocked him unconscious.

Tom stalked over to the man, tapped him on the shoulder, and when the man spun around, Tom's hand shot out!

CHAPTER 17 /
NEVER AGAIN VOLUNTEER YOURSELF

"I WANT to thank you for telling be about the trench-and-brace thing," he told the cringing man. It was obvious that the landscaping man believed the young inventor was out to seek revenge for the earlier attack. When it did not come, he was left looking a little foolish in a semi-crouch with his hands raised to fend off the punch that never came.

"Wha—" was all he could get out.

Tom smiled, obviously enjoying the man's confusion. Not given to violence, he would never have considered exacting physical revenge on his attacker. This reaction was so much more satisfying.

"As I just said, I stopped because I want to tell you thanks for the information on the trench-and-brace system for holding up that retaining wall."

Tom turned as if to leave, but turned back to face the man.

"Oh, and one more thing. I see by the surveyor's markers that you are building at least fifty feet outside of the boundaries of the allowable area. Please tell your bosses to move back inside that area or we will have the courts order you to tear out anything extending beyond that yellow flag line over there. A mandatory twelve-foot solid wall goes at that line and then one hundred feet of open space before the buildings. Anything beyond encroaches on a *federal* zone. I would have to believe the people building here wouldn't want to tear down one or more already built houses just because of a slight mistake. Have a wonderful day!"

Tom climbed back into his car and drove off leaving a confused and slightly nervous man behind.

During the picnic supper Sandy and Bashalli prepared, sitting on the aft deck of the Swift family sailing yacht, the *Mary Nestor II*—named for Tom's great-grandmother—he told the other three about his encounter the day before with the landscape man, the "tap on the jaw" he had received, and his triumph at the large building site that afternoon.

"I probably would have clocked him," Bud admitted, "but this sounds like such a fun bit of revenge."

Sandy added, "I hope there isn't going to be trouble."

Tom assured them there would not be. "Before we all came down

to the marina I called a local FBI agent, a man named Narz. I told him about the situation and he promised to get on to Washington first thing Monday. By Monday afternoon the site will have been visited by a team of agents with a Federal Warrant ordering them to either move everything back—and that's probably going to mean shifting the entire fifty lots—or be shut down."

"Could they not make a few lots smaller?" Bashalli asked.

Tom smiled and shook his head. "From what I understand, they had to guarantee to a minimum lot size with zero exceptions. And that first row have to all be single story. They could easily not build the dozen homes up front, but that would end up costing them a fortune."

The conversation turned to more entertaining things with the girls telling Tom and Bud of their most recent shopping trip to the city of Oswego.

"Bashi found the most darling dress, shoes and handbag for the wedding." Sandy turned her head slightly to look at Bud. Smiling more like a hungry shark than a sweet young woman, she asked, "You do recall that we have a date with a preacher in just two months and eleven days? Right?"

Without missing a beat, the flyer replied, "Of course we do. I may have a head stuffed with facts and figures about airplanes and jets and helicopters, but I remember that date!"

"Well, here's one figure I want you to remember first and foremost!" So saying, Sandy slipped the light summer dress she was wearing off her shoulders and let it drop to the boat's deck.

Underneath she wore a pale yellow, rather skimpy, bikini that very plainly shouted, "Look at me!" to anyone within a hundred yards.

She stepped out of the sandals she wore and dove over the side of the boat.

"I believe that is my cue," Bashalli said also standing up and divesting herself of her outer garments. Underneath she wore a brilliant red bikini only slightly more modest than the one worn by her sister-in-law. With a "What are you going to do?" shrug she, too, dove over the side.

A minute later both Tom and Bud had their shirts and flip-flops off and joined their ladies.

While Lake Carlopa, especially around the more shallow perimeter, can get fairly warm in the summer, it still was not the sort of water you paddled around in for more that fifteen or twenty

minutes, and so the foursome was back on the boat a quarter of an hour later.

The remainder of the evening was so relaxing that Tom immediately fell asleep once they got home. All thoughts of the difficulties involved in creating his upcoming rock welding machine were forgotten until the following afternoon as he and Bashalli sat on their patio drinking iced tea and reading.

She was perusing a recent issue of *Today's Young Bride* magazine that Sandy had given her and Tom was looking through some of the many notes he had been making the past week.

Their phone rang and Tom picked up the remote handset from the table. "Yes?"

He listened for a moment before putting the notebook down and sitting up straight. Seeing this move, Bashalli also put her magazine down and leaned forward, hoping to hear what might be going on.

"I see. Yes. Get everything we have out there and pick them up. Have one of the cargo seacopters readied with a submersible earth blaster. I'll pick up Bud Barclay and we'll be out at Fearing in three hours. Keep me up to date." He hung up.

In answer to her silent plea for information, Tom said, "The emergency buoy from the Geotron popped up on the surface out in the Atlantic. That only deploys if the Geotron is jammed inside rock. Hopefully, the escape system will let Stefanie and Deke and Zimby get out and up to the surface." He looked incredibly worried. The buoy only broadcast a simple emergency message and gave no details.

While Bashalli got out his clothes plus a change for the next day, Tom phoned Bud and told him about the situation. The flyer promised to be at Enterprises twenty minutes later.

Tom hopped into the shower, shaved and raced from the house in just twelve minutes barely making contact with Bashalli's lips as he tried to give her a kiss.

Once he was gone she went back inside and sat down with a sigh, then called Sandy to tell her what was going on.

A Whirling Duck was waiting, fueled and warmed up, when Tom arrived. Bud was only a minute behind him. They strapped in, made the checklist in record time and took off heading southeast.

Twenty minutes later the radio beeped. Tom activated his headset. "Tom here."

"Skipper? Good news. Our trio made it to the surface. They're in the life raft. It must be a bit rough because the Zimby said, and I quote, 'she's tossed her cookies a dozen times.' That make any sense

to you?"

With both relief and seeing the ironic humor, Tom said, "Yes. It does. How soon before the rescue team is on site?"

"Only fifteen minutes, give or take. We sent out the Swift cargo jet that just dropped off a load of food for us. Figured it was the fastest thing we could get there with hover capabilities. What's your ETA to Fearing?"

"Fifty-two minutes. They'll probably be half way back by then. Cancel the seacopter, for now. I may need to get the *Super Queen* over to pick up a jetmarine. But, I'll make that decision on the ground. Out."

By the time the cargo jet came back to the island, Tom and Bud had marshaled the medical staff of the island in case anyone had sustained an injury. In addition, warm food and drinks were standing by.

The large jet touched down with only the slight roar of air rushing out of the way of the repelatrons. The side door opened and a somewhat embarrassed Zimby Cox came out first.

He walked straight to Tom and took the inventor's offered hand. "Sorry, skipper. We were attempting a maneuver to see if we could get the rift to move and I got her stuck." He looked absolutely miserable.

"Later, Zim. How are Deke and Stefanie?" he asked not seeing them coming out right away.

"She's fine, but Deke busted his arm up trying to beat the upper escape hatch open. It was jammed. He got it freed but it mangled his forearm pretty bad. She insists on staying right next to him. Did you know they're in love?" he asked in amazement.

Tom patted his pilot on the shoulder. "Oh, yes. Just look at their eyes when they're together. It happened fast and it hit hard." Turning serious again, Tom asked, "Is he going to be okay?"

Zimby was about to answer when one of the nurses came out of the aircraft.

"Tom? The tall guy is going to be *mostly* fine. Doctor Mangus is putting one of your auto-set pressure splints on his arm right now. The tricky thing is the woman. Did anyone know she is pregnant when she went down there?"

Tom was startled by the revelation. "No! Absolutely not. I'd never have okayed it if I'd known."

She patted him on the arm. "Simmer down, Tom. I'm fairly

certain she will be okay... the baby as well. It's early days for her. The thing is she is terribly dehydrated and hasn't been eating for a couple days as far as I can tell. We'll strap her to a gurney, get her to the Dispensary and get both fluids and solid food into her. We should know about the baby by tomorrow."

She turned and walked back and into the cargo jet.

"I guess that explains all the throwing up," Zimby said. "Not just once we got topside. It wasn't more that six-inch swells out there. She's been barfing for three days. Every morning— Damn! That should have been the giveaway." Zimby slapped his forehead.

Deke came out of the door in the side of the jet. He was walking but had one of Tom's self-forming splints covering his entire right arm from shoulder to fingertip. He gave a small waive to Tom with his other hand and turned to watch as a stretcher was brought out.

The small figure of Stefanie was covered by a blanket, and she had two IV lines attached, one in each arm.

The doctor came to talk to Tom. Most of what he said had already been relayed by the nurse. At the end he was able to add new information.

"I'm going to recommend an osteopathic surgical specialist in Boston for his arm. We'll take him for a series of x-rays and possibly an MRI to get an idea of the actual damage, but my belief is that he has totally splintered that forearm." He stopped a moment until Deke and Stefanie were in the back of the ambulance and the door was closed.

"He could lose the arm if it's too far gone."

Tom felt a great sadness in the pit of his stomach. "Do everything you can," he directed. "What about the baby?"

"Not really sure, to tell the truth. If she had remained down there another day without eating or drinking enough then I'd say she might lose it, but I'm pretty sure we caught this in time. Not the best thing overall in light of losing that Geotron of yours, but that might just have saved her life!"

Zimby described the situation down in the Geotron.

"As I said, we were doing a lot of zigging and nudging when the prow just got wedged. I upped the power and tried to get the treads to pull us back but a couple of the emitters got snagged and tore off. That let too much pressure come in on the upper, left side and the rocks just sort of trapped us."

"That prow and the exposed emitters have been a weak point all along," Tom told him. "Ask Bud about the time we got stuck in fifty

feet of wet sand because the emitters started acting more like anchors."

Bud grinned. "To be fair, we had a split second power drop and that let the sand crumble into every nook and cranny. That was also before Tom added the escape system. Lucky for you we pioneered getting the thing stuck!"

Zimby nodded but was looking at the ground.

"Something else, Zim?" Tom asked.

"Yeah. The reason we couldn't get that hatch open was the entire hull got torked a little. Bent the frame and jammed that hatch really tight. In fact, if it didn't open outward so Deke could have beaten in into submission, we'd still be trapped."

"Good thing you had Deke," Bud stated.

"Yeah. Good thing. Here's the rotten part, skipper. We couldn't get the hatch completely sealed when we popped out. By now she'll be flooded and ruined!" He looked at his boss with misery plainly running across his face.

Tom sighed. "Well, if the frame got bent, then she would never have been dig-worthy again. Perhaps it's best to let her have a burial at sea."

They headed across the tarmac toward the Infirmary. Tom insisted that Cox also get a check to make certain he was in good health.

The same nurse that had talked to them before came out of the emergency examination room.

"She's going to be fine. Ditto, the baby. At least at this stage. She's only a few weeks along. Certainly less than a month. We were able to sonogram the fetus and I can tell you it appears that she is working on a non-dwarfism baby. We took a minute tissue sample and will send it to a lab in Cincinnati to get the whole story, but things look pretty positive."

"How's Deke?" Tom asked.

She made a motion with her head. "Go in and ask him yourself. He refuses to leave her side."

The three men went through the door and into the somewhat small room. Everywhere along three walls were various pieces of medical equipment.

"Deke," Tom said causing the man to turn away from looking lovingly at the petite form in the bed.

"Yes, Tom?"

"Deke, things are looking good for the woman you obviously love. So good that she is being ordered to have one full night of *uninterrupted* and *unaccompanied* sleep and then will most likely be discharged in the late afternoon. You, on the other hand, will be flying out of here in twenty minutes and are due for a visit with a bone mechanic in Boston."

Tom's look told the former Coast Guardsman that there was nothing he could do or say to change things. He shrugged and then bent down to speak into Stefanie's left ear.

Straightening up a minute later he said softly, "You remember that. Both parts. I'll call you as soon as they get a cast on this wing." He kissed her first on her forehead and then with more passion on her lips.

"None of my business, really," Bud said as they were leaving the room, "but my own true love will kill me if I tell her this story without all the details. So, what two things is she supposed to remember?"

Deke blushed.

"Well, the first thing is that I love her and will always do any and everything possible to protect her. The second one is a bit silly sounding, but it's good advice. Any of you know the acronym N-A-V-Y?"

He looked at Tom and Bud's blank faces and at the sudden look of realization and amusement on Zimby's.

Bud looked back and forth from Deke to Zimby. They both had big grins on their faces.

"What? What about the Navy?"

Zimby shook his head. "No, Bud. Not *the Navy*, but the letters N-A-V and Y. Never Again Volunteer Yourself! Years ago when all the services went totally volunteer, someone who probably ended up with some sort of grunt detail that he'd put his hand up for coined that phrase."

"Right," Deke said picking up the story. "For a while just the Navy used it, and then the Coast Guard picked it up and finally the other services. Except for the Marines. Now, *they* say it's because they are all about volunteering for all the difficult duties, but most Navy folks will say it's because they can't spell N-A-V-Y."

Bud laughed with the rest of them, but it was plain to see he still had a question. "Okay, but what does that have to do with little Steff in there?"

"I told her that it is nice that she is so gung-ho about getting to

the bottom of this rift thing, but now she is, well, you know, I don't want her to be the first to jump at every new thing coming along. I said she needs to repeat, 'Never again volunteer yourself,' until it sinks in that others can do it just as well as she can."

When he inquired about the recovery of the Geotron Tom could only tell him that it might have been the final voyage for the vehicle.

"Ah, it's my fault, isn't it?" Deke moaned as they all climbed into the Whirling Duck. "I broke the hatch. Shoot!"

Tom turned in his seat to face Deke in the back. "Not a chance of it, Deke. According to Zimby the entire vessel got twisted down there. It's a miracle that the hatch could have been opened at all. You are a hero for doing that. And now, we have a date with a man in Boston."

"Are they going to have to amputate it?" Deke asked emotionlessly as they left the building.

"Not if Tom has anything to say about it, Deke," Bud stated as if it were a foregone conclusion. "From what I hear you're going to meet up with the best of the best. Luckily that's not too far away, but even if this guy were in Siberia, Tom'd get you there as fast as possible and get you fixed up!"

Deke nodded, unconvinced. He knew how much the arm hurt and how with each slam of it into the unmoving hatch he had felt more and more breaks happening.

They landed on the roof of the Massachusetts Osteopathic Hospital seventy minutes later. Deke refused the wheelchair and walked inside with Tom while Bud and Zimby waited with the helo.

Deke was checked in and escorted into an examination room. Ten minutes later a very young-looking Asian woman—Chinese was Tom's guess from her features—entered the room.

Five minutes later they both came out and walked down the hall. This time it took nearly half an hour for them to return. Deke had a glum look on his face and the woman's features showed nothing Tom might interpret as either good or bad.

He took the opportunity to TeleVoc Bud and Zimby to give them an update, or lack of update. As he was pressing the pin to turn the system off, the woman came back out of the room. She crossed to Tom.

Standing up, he introduced himself.

"Oh, yes. I know who you are, Mr. Swift. I am Doctor Jeiin Yan. Most people see the spelling and think it is a typo, so even though it is pronounces like 'jay-een' they call me Jennie. Please, let us sit."

They picked two chairs just around the corner from the room.

"Now, as you are aware your mister Bodack has a badly splintered radius and ulna. None of the breaks are clean or easy to fix. The radius has at least fifteen fractures, but they are still in line and we can go in and install a special dissolving wrist-to-elbow wrap around the bone to hold them together. It is fairly new and has about a seventy percent success rate to date. The ulna, on the other hand, is totally destroyed. It has to come out. How that man is still on his feet with the pain he must be feeling is amazing to me."

"So, what do you do?"

She sighed. "Without that second bone his arm will be fairly weak. Too weak. Cosmetically he might look and feel better, but the truth is that the best option is amputation just below the elbow."

Tom has aghast. "There's nothing you can do?"

"Not unless somebody can build me a brand new bone to go in there and do it in less than twenty-four hours. Time is not on our side. And, before anyone asks, we can't use cadaver-donated bone for this because of all the other damage."

"Give me the specs and the x-rays and you'll have it!" Tom promised.

"But how? Culturing bone frames takes many weeks! Whole bones take months."

"Oh, Jeanie, I know this man who can build anything in his little 3-D printer. He is an absolute master at making things in that printer!"

CHAPTER 18 /
ALL BOXES ARE TICKED

ONCE TOM had more information from the doctor, and he had been able to get her to agree that it wasn't necessary to have a living bone replacing the ulna as long as the replacement was strong enough and fit correctly, he made a call to Arv Hanson's home.

"Sorry as heck to interrupt your Sunday, Arv, but I have an emergency." He explained the situation and the absolute deadline it all had to be accomplished within.

"Any way to send me the specs right now, skipper? In one of those freak circumstances I happen to have found a bone-printing program for my mid-size printer maybe a month ago. Never thought I'd have a real use for it until now. All I need are the eight major measurements and off we go. I can do it as a solid piece or as a honeycomb that real bone can eventually grow into. Name it!"

"The osteopath says a solid bone would be best given that the radius is also a mess. Salvageable but it needs the immediate support of the ulna. I've got the entire set of files downloaded on my tablet. I'm sending…" he tapped a few spots on the screen and selected Arv's computer. "It's on the way. Let me know in the next half hour if anything is missing and I'll get it from the doctor before we leave."

Arv called back twenty-eight minutes later.

"Got it all and I've just started the process. Because this isn't very intricate and can be built laying on its side, it'll be out of the printer and cured by midnight."

Tom and his team headed back to Shopton arriving a half hour later. While Bud drove off and Zimby took the helicopter to the hangar to put it away, Tom went straight to Arv's workshop.

He had already let Bashalli know what was going on and warned her that he would not be home until the following morning or even early afternoon.

"Got it going, skipper," Arv greeted him, pointing at the two-foot-long tank filled with a milky substance and a lot of equipment. An armature could barely be seen inside the liquid traveling back and forth, make a complete trip from one end of the forming bone to the other every twenty seconds. "This Bodack fellow is going to be the first of what might become a new fashion craze. Designer tomasite bones."

Tom continued to watch the 3-D printer in action. "Are you running

this at one-hundred percent tomasite?' he asked.

"No. It's really about sixty percent. The rest is a mix of a short-string polymer and good old sawdust." He looked to see what Tom's reaction would be.

Without missing a beat, the inventor simply stated, "Cellulose. Good, but won't it be dissolved by the body?"

"Sure. Over time. But at that same time the body will be replacing it with human cells that will calcify into bone. Well, when I say bone I mean about twenty-five percent bone."

As the next few hours wore on Tom tried to convince Arv to head back home, but the model maker would hear none of it. So, they spent the time discussing how Arv had come up with the formula he was using in the printer, and then they turned to talking about Tom's rock welding test model.

With a sly grin Arv admitted that he had planned to put a small Swift Solar Battery inside the model along with the smallest of repelatrons Tom had ever designed.

"I was going to have it floating here above the bench at first, and then I thought, heck, I can put a tiny timer inside and have it start to float an hour after you take it back to your office. Hank talked me out of it."

"Probably for the best, at least for this first one," Tom told him.

By six a.m. the bone was complete and had been placed in the thermal curing oven. Tom was asleep on Arv's sofa and had been for more than two hours. Arv used the time to start the wire drawing of the new rock welder. He hadn't gotten very far when the thought hit him that "rock welder" wasn't at all clever as a name and even kind of boring.

He stopped what he was doing and sent an email to Bud:

> Bud? Tom's new rock welding machine needs a name. The man for that job is typically you. If it were left up to me I'd call it R-WUG (for Rock Welding Under Ground) but I'm sure you can come up with something better. IF you can, let me know before Tuesday so I can make it part of the model I'll be building. Arv

With any luck he could have that imprinted right in the model's underside.

By the time the bone was ready to go, the sun had begun to shine in through the windows and Arv was bushed. He jostled Tom's arm and the inventor woke up with a start.

"Huh? Bone? Is it ready?" he asked, rubbing his eyes.

“It sure is,” Arv replied favoring his boss with a big yawn. “It is finished and so am I. Let the good doctor know that it can be sterilized at one-eighty but not above one-ninety. Technically it is sterile right now in the container but you know how careful they will want to be.”

Tom took the cup of day-old coffee Arv offered him and took a sip. He made a face.

“I hope they have some fresh coffee in Boston,” he said handing the cup back.

“How about this one?” Bud’s voice sounded from the doorway. “I got up in time to fly you back to Beantown, I see. Didn’t want you falling asleep at the stick!”

They flew in the Toad to the small airport in the community of South Weymouth. It was just a mile from the hospital and they took a tax to the front door.

Dr. Yan met them downstairs near the scrub station for the operating room. Deke was already inside enjoying the first of the relaxation shots that would lead to his general anesthesia. She looked at the bone in its tight plastic wrapping and her mouth fell open.

“It looks perfect!” she exclaimed. “It looks— well, real!”

“It should be. I told you I have this man… oh and speaking of which he has some instructions.” He told her about the sterilization temperatures. She understood and handed it to a surgical tech instructing him to put it in the autoclave at just one hundred seventy-five degrees.

“I hate to say it, Mr. Swift… Tom. But you look like something a feral cat might drag around. Go up to the second floor and look for the doctor’s lounge. It’s about halfway down the corridor. We’ve got several bunk beds in there. Pick an unoccupied one and get some rest.”

When Tom woke up six hours later, again being handed a cup of steaming coffee by Bud, he felt good and rested. And, during his nap several things had come to his mind regarding his latest invention. He pulled his tablet computer out of his jacket pocket and spent fifteen minutes making notes.

Bud left him to it knowing it would only be counter productive to say or to ask anything right now.

By the time the notes were done so was the coffee so he got up, splashed a little water in his face at the sink in the adjoining bathroom, and came out to thank Bud.

They walked down the hall to the nurse's station and asked where they might go to inquire about Deke's condition.

"I believe they are in the last hour of his operation. I'll page down to the O.R. and let them know you are up here. Rather, I'll let them know where you might be. If you're hungry you can try the dining room. I wouldn't suggest it, personally, but you might be hungry enough." She looked at them. "No, you go across the street to the BlueFin Grill. Surprisingly enough they serve fish. I hope you like fish, 'cause that's what they serve. At least it's good fish."

They were back an hour later and arrived in the main lobby just as Dr. Yan was coming out of an elevator. Spotting Tom she walked over.

"Whoever your bone guy is, I want to meet him," she said by way of greeting. "That is one perfect bone with just the right points to connect ligaments and tendons and even muscle groups. If you could do that full time you would save maybe eight or nine hundred arms and legs from being cut off each year in the U.S. alone."

Tom asked whether Arv might get in touch with her about that very subject and she excitedly gave her permission.

"What about Deke?" Bud interrupted them.

"He is going to hurt like the proverbial flames of Hades were licking at his arm for a week or two, and might even wish we'd taken the thing off, but I'd say he'll recover and even get between ninety and ninety-nine percent of full arm function back. Thanks to that incredible bone!"

They found out that he would be remaining at the hospital at least three days while they kept him heavily sedated to help with pain management. And, that it would be fine if Stefanie came to see him after two days.

The boys left Boston happy, tired and relieved.

Tom slept at home all through Monday only waking up around dinnertime. After a sandwich and a glass of soda water, he fell back to sleep.

It only lasted until four a.m. when he sat up, wide awake. Bashalli stirred a little as he got out of bed and closed the bathroom door before showering, getting dressed and finally tip-toeing over to give her a kiss.

"Going?" she asked still half asleep.

"Yes. Got many things to do. Love you. Call you at lunch. Bye."

The night shift guard greeted him cheerfully when he arrived at

the main gate. Tom drove straight over to the small building that housed the elevator down to his office and lab.

Once he transferred his notes from Sunday he pulled out the final two drawings. One, *not* the one Arv had selected, was now re-filed in the other folder. He knew deep inside that this final drawing, the one he would soon have an actual model of, was the prime candidate.

In his now lost Geotron, Tom had relied on a set of retractable treads to push the large machine through the dirt and rock being held at bay by the repelatrons. There would be no room for those in this new design, but one of the things that had come to him in his slumber was to mount the repelatrons that ran around the outer ring of the hull on motorized gimbals. They could swing back and forth pushing or pulling the craft as it virtually swam through the rocks. The bonus was they would never get clogged up or have issues with snagging on loose materials.

That solved one of the two most important problems he had been facing.

The final hurdle was how to modulate the two side fins' output so that the variation on the trenching technique could be accomplished. This also came to him as he slept.

Rather than try to burden the fins with the double tasks of slicing and welding a continuous horizontal strip plus making them responsible for the "trenching," he added a new type of emitter to each side of the craft. They would need to sit forward of the rectangular doors that housed the landing gear, but there was room enough if he lengthened the overall craft by about two feet.

He called up the CAD program and did a search to see how far Arv had gone on entering the older design. He sat back with a smile as he watched lines being added and moved.

Arv was already at work and trying to get things finished.

Tom called him on the phone believing that a five a.m. TeleVoc voice suddenly appearing inside the model maker's head might be too startling.

"Skipper? Is that you at this hour?" Arv's tired and husky voice asked. "Phone's got your ID, but... gee you're early!"

Tom laughed. "Yes, Arv. It's me. I slept all day yesterday and got up an hour ago. Before I forget, the doctor in Boston wants to speak to you about setting up a bone building business." He told the man how many limbs might be saved and then gave him the contact information.

“Now, I want you to be honest. Did you come in early, or are you here very late?”

“Late,” Arv admitted.

“Fine. So here’s the thing. I’ve got some changes I want in the model and I also have the CAD for it up right now. You go home and I’ll make the necessary changes. Hank can help me get the 3-D printer running with this. By the time you get back on… what will that be? Thursday morning? Right. Thursday, it’ll all be finished.”

Arv was too tired to protest.

Tom spent the next three hours inputting the last of the design and making the changes. A little past nine he called Hank and asked if he could take a look at the design.

“Just give me a ‘ready-to-go; or ‘needs work,’ please.”

“Will do, skipper. I’ll get back to you in about thirty minutes if that’s okay.”

Tom used the time to begin work on a design for the emitter that would fill this new side position. As close as it would end up being to the pilot and copilot of the craft he knew it could not use the heat from the radioactive reaction within the power pod.

He thought back to a project from about a year earlier that involved a new way to put precise holes in some of Enterprises’ strongest metal alloys. Heat on its own didn’t “cut” it. Eventually a new kind of circuit capable of creating ultrasound waves at an incredibly high frequency had been built.

It didn’t cut through the magnetanium or other metals, it created an intense vibration that instantly heated the metals to just below melting point at which time a simple steel punch device could precisely shove the unneeded materials out and away.

The results were smooth and fast and accurate.

He studied the original plans. To his delight he discovered that it would be possible to up-size the ultrasonic emitter and even to fine tune the temperature range it created a little.

Precision wasn’t going to be a necessity, but getting something melted—rock, dirt, sand, wet or dry—out to an estimated fifty or more feet might be a problem.

He would have to do some experiments and that meant building a large emitter. The ones used at the Construction Company were generally in the quarter-inch to one-inch size and only had to go through about a one-foot stack of metal parts at a time. This one would been to be at least two feet across—the minimum diameter

Tom had been able to compute that might have enough tensile strength—and also could neither be exposed outside the hull, nor could they damage the hull with their heat.

It had the potential for being tricky.

His concentration was interrupted by a call from Hank.

"I'd have to say we're ready to go. Did you want me to just get things running over here?"

"That would be great, Hank. Can you do me one favor. With different things happening on the upper shell and the lower shell, can you make them different colors. That will keep things straight as I work with the model."

"I've got red, blue, green, yellow, gray—light and dark—and black in the tanks. What are your choices?"

Tom selected light gray for the upper area, dark grey for the canopy and black for the underside.

"The computer says twenty-one hours. Guess you can have it tomorrow, late mid morning."

Tom went back to work on his ultrasonic emitter. By the time he took a lunch break, and followed up on his promise to call Bashalli, he found that about seventy percent of the components could simply be upsized, or at least tripled and quadrupled in their relative strengths and outputs.

More things needed doing to protect the components from damaging themselves. Mostly in the arena of keeping the emitter from getting too hot and melting itself.

Tom made a few changes to one of the ship's internal systems. The same liquid glycol cooling system he wished to use to keep the main cabin at a comfortable temperature could be partially routed into a cooling coil he would mount to the back side of the emitter.

But, a few minutes later he realized that glycol wouldn't be sufficient for everything, so he changed his notes to list liquid helium as the intended coolant.

Four days later Tom and Bud flew a rather strange-looking device out to New Mexico and the Swift's atomic power facility, the Citadel. The object consisted of a circular ball on a platform with a cube in between that and something that looked like a heavily fortified satellite television antenna.

In reality, the set-up was one of Tom's power pods, the cooling system, emitter, and all of the circuitry to generate the hyper-ultrasound waved that would be pulsed our through the incredibly

cold antenna.

They had come to the desert for two reasons. One, Tom didn't have the facility at Enterprises to contain a possible catastrophic destruction of the equipment. And two, the small power pod would only suffice for up to three half-second pulses. He needed to be close to a source of more power pods to swap out quickly.

Knowing all too well that prairie dogs abounded in the area, Tom's first duty was to send an irritating vibration into the ground near the test site. This was accomplished by a small sonic vibrator attached to a three-foot metal spike that Bud drove into the ground with a sledgehammer. As anticipated, about fifty of the small creatures scampered out of hidden holes and raced for cover hundreds of feet away.

With Bud helping, Tom set up the equipment, got the antenna pointed at a seventy degree down angle, and triple-checked everything.

A control cable had been laid down stretching back nearly two hundred yards, the minimum distance Tom wanted to be away from his device. The control board was sitting in the shade of the jeep they had borrowed from Facilities, and would also provide some protection. In case…

Bud patted the antenna. "You be a good girl, Screaming Shrew." He turned only to find Tom standing there, hands on his hips, looking bemused.

"Really? Screaming Shrew? That's your best shot at a Bud name?"

Bud pretended to be hurt. "Gee, Tom. I discounted Melty Maggie, Hot Hannah, and Boring Bertha. Give a guy a break. They can't all be winners!"

As they walked back to the jeep Tom asked, "Have you got a name for the whole vehicle yet?"

"Well, it almost defies a silly description, doesn't it? I mean, it's all pretty serious. I thought of calling it SID, as in the actor Sid Melton. Melton? Melting? Get it?" Seeing Tom's face he muttered, "Ah, forget that one. I guess the thing that's stuck in my head is that this will be a tectonic plate movement interrupter. But T-P-M-I isn't very good, is it?"

"Well, maybe not your best, but I suppose I could sign on to just the T and the I."

"Tectonic Interrupter? Hmmm?"

"We'll see if we can fine-tune that after the tests."

They sat down in the shade of the jeep and Tom activated the control panel. The computer did the system checks with a series of lights turning green in turn until all five indicated readiness.

"We've got good cooling, clean and steady power, all electronics check, and total system readiness," Tom told his friend.

He flipped the safety cover from a button and took a breath. "Here goes. Three… two… one…" and Tom pressed the button.

There was an ear-piercing scream, and the boys looked up and watched as the entire equipment platform flew overhead, perhaps a hundred feet in the air, only to crash a hundred yards farther away in a twisted wreck. Only the heavily reinforced power pod survived intact.

Bud had a look of horror on his face but was stunned to see the grin on Tom's. The inventor got up and jogged back to where they had originally set up the equipment. With a triumphant shout, he called for Bud to come look.

In front of them was a glowing hole, as wide as the antenna was—had been—going down into the dirt and rocks. Tom pulled a temperature sensor from his pocket and aimed it at the molten rock.

"That goes in almost eight feet! Once I put the second one on the opposite side and brace between them so they can't fly away we should be making holes eighty or ninety feet deep. Bud, we have a winner!"

CHAPTER 19 /

VOLCANO DIVE

THE EQUIPMENT wasn't a total loss. In fact, after prying things apart only two circuit boards had cracked and the antenna destroyed, but everything else would be reusable.

Eleven days later Tom and a crew returned to the desert with his new two-antenna test system and an earth blaster. Once again he chased the local prairie dogs away but this time he instructed the team to dig a hole about twenty feet deep and six feet wide.

Into the hole they lowered the two antennas on their platform. The remainder of the test equipment was placed a dozen or so yards away at ground level. The antennas faced directly away from each other and had a clearance of just a few inches from the sides of the hole.

Tom did another prairie dog chase, getting rid of the three that had snuck back into the area, before they all headed for safety.

This time, the one-second burst of energy had the potential for both melting the rock horizontally as well as having it gush back into the antennas, so Tom was prepared to lose them in the experiment. He had brought two additional sets in case he needed to repeat the test.

He didn't.

The first test proved conclusively that, at least through dry rock and dirt, everything worked as he hoped. Readings showed that the molten holes extended to almost one hundred and fifteen feet in both directions. As he suspected, some of the molten rock did come back out of the holes and destroyed the antennas. Luckily he had added an automatic shutoff valve for the cooling system so very little of their liquid helium was lost.

They returned to Shopton with Tom feeling that success was now possible.

There was a flurry of activity at both Enterprises and the Construction Company as Tom finalized the design of his test vehicle.

Mr. Swift readily gave his approval for the name, Tectonic Interrupter, as the official moniker, and laughingly added that he thought *Meltin' Molly* was a great nickname.

Day by day Tom watched as the craft, now coming in at twenty-

eight feet long, thirteen feet wide and just nine feet at its tallest point—excluding the fins, of course became a reality. The cockpit would be cramped with the two seats separated by the bay into which the nose gear would retract.

One of Tom's latest wrap-around all-glass instrument panels provided everything the pilots needed by way of readouts and all steering could either be computer-controlled or manually via a multi-function joystick.

Although the craft gave the appearance of having a fairly large canopy, this was an illusion. Because repelatrons were necessary to be mounted every twenty-two inches all over the craft, only a small slit of tomaquartz material was left for direct viewing.

To augment this a full array of wide light spectrum emitters and receivers, thermal imaging, SONAR and ground-penetrating RADAR would work in unison to provide an eerily realistic view all around them shown on a second curved screen that sat just above the tomaquartz slit window.

As Tom had figured, she would never be a speed demon either in the air or underground. Flying, he hoped for nothing more spectacular than about one hundred and fifty knots. The *Meltin' Molly* might be covered with dozens of repelatrons, but they were meant for close-in work.

And so, she would also have a fairly low flight ceiling of just two thousand feet above whatever ground she traveled over.

All of these things were totally acceptable to Tom.

"Besides," he told Bud, Hank and Arv as they had lunch one day, "If push comes to shove we can load her into a cargo pod and fly her anywhere in the *Super Queen*."

The most unique and hard-to-see aspect of the Tectonic Interrupter was that all four of the fins that only extended five feet from the hull in flight could extend to a full eighteen feet each for use in the heat-seaming of surrounding rock.

Tom had hoped for twenty feet or more, but the physics were against him. Not only did each added inch increase the stresses and strain that needed to be engineered to handle, it also meant more coolant would be required and that meant the craft would have to be made larger.

Eighteen feet each or a total span of thirty-six feet—plus the hull—would have to do.

As the T.I. neared completion Tom, Damon, and the Legal department began making inquiries with the Government. While

Damon and the lawyers concentrated on funding, Tom tackled requirements for a full-scale test.

"I am hoping to take my craft back up to Alaska," Tom explained to the USGS individual who had assisted him in the past, "and see if there is anything we can to do seal up the erupting opening on Mt. Spurr outside of Anchorage. While I can't guarantee success, I believe we'll accomplish two goals. I get a realistic test under molten rock conditions and if there is a point that can be sealed, I should be able to do that."

It took a week of wrangling including a phone call from the Swift's favorite politician, Senator Peter Quintana of New Mexico. Once his call got to the "right" individual, approvals were practically falling out of the sky and into Tom's lap.

Sandy and Bashalli appeared at the door of the large shared office one afternoon as Tom and Damon sat discussion some of the final details that needed to be completed before the first big test four days later.

"Hey, ho, Tomonomo! Hi, Daddy!" Sandy called out as the two girls breezed into the room. Bashalli, slightly more demure, gave Tom a kiss and her father-in-law a hug.

"What brings you two ladies down here?" the older inventor asked.

"We've come to see what is keeping my Bud and Bashi's hubby from spending time with us," Sandy said taking a seat on one of the leather chairs in the conference area.

"Thomas has told me only a few things about this latest project and I feel a little left out," Bashalli admitted giving her husband a little sad grin.

"Well, then both of you take a seat and Tom and I will fill you in on everything. We are about to make a huge announcement to the world and you girls get to be the test to see if what we want to say makes any sense."

As they settle in, Trent opened the door and brought in a tray with some soft drinks. He left as quietly and quickly as he came.

"Okay, here goes," Mr. Swift began. He gave them a somewhat lengthy background on the nature of the tectonic plates that covered the globe and how they were the primary source for earthquakes.

Next, he brought up the subject of the newly discovered Atlantic rift and how it was traveling into the eastern portion of the U.S.

"But, won't it stop now that it has hit land?" Sandy asked, not quite understanding the dynamics of the rift.

Tom answered. “No, Sandy. You see it is already traveling through solid rock just underwater. Now it has come this far west the only difference is that there is no water to hold things down. In fact, it could be that the lack of weight on top of the rift is going to mean it will tear faster.”

“Oh, no!” Bashalli exclaimed. “Are we safe here, Tom?”

He smiled. “Probably quite safe, Bash. The thing is I’ve been spending a lot of time, as you know, working on a device that might just be able to seal the rift back together. If I can do that, I believe I can stop any future damage.”

He explained how the Tectonic Interrupter would work and how the next thing to do was to try it out in a variety of situations.

“We’ll start with a short run under the Quonset airfield. Perhaps a mile or so beginning half a mile off shore and then running under the land about the same distance. That’s just to prove we can move easily through the rocks and melt things on a consistent basis.”

“What then?” Bashalli asked.

“Well, then we go up to Alaska and see if we can get inside of the volcano that has been threatening and even dumping rocks and ash all around the area of Anchorage. If that works, then I think the next thing to do is a large-scale test out in the Atlantic.”

Both of the young women were quiet for a good minute. Sandy, a sad look on her face, asked, “Does that mean you and Bud are going to be going down there for a long time? You do recall that he is supposed to be marrying me in less than six weeks.” A tear streamed down her left cheek and she turned to face Bashalli.

Seeing the look on her sister-in-law’s face. Bashalli also teared up and soon the two were hugging and crying softly.

Tom looked at his father for some help. The older man mouthed the words, “Not much we can do.” Tom nodded, but spoke up softly anyway.

“Sandy. Bash. Don’t worry. The first test will take about a day and we’ll be in Alaska two days, or three at the very most. In between, I promise that he and I will spend as much time with the two of you as possible. Okay?”

Sandy’s eye narrowed. She’d heard promises like this before, but never so close to what she hoped would be the most important day in her life so far.

Wiping tears from her face, Bashalli looked at Sandy and saw the look of disbelief on her face. “Sandra, I think we need to trust Tom and Bud and your father on this. I know that Tom would not lie

about a thing like this. If he says Bud will be back in a few days, he will."

The statement was so emphatic that Sandy blinked, twice, and nodded.

Tom drove the ladies over to the Construction Company to see the nearly completed ship. While they walked around it both of the girls couldn't help but touch the smooth surface.

"It's so shiny," Sandy said.

"It almost does not look real," Bashalli stated. "It is very much like a large model of a space craft out of a science fiction novel."

"But, do you two *like* it?" Tom asked.

They turned in unison.

"Like it?" Sandy sputtered. "Like the thing that might take my darling Budworth from me? Oh… and you as well, Tom," she added when Bashalli gave her a wide-eyed look of "What the heck?"

"Okay. Let me reword that. Do you think the design will do what I told you it is supposed to?"

"I want to see inside before I handle that hot potato," Sandy told him. As Tom took them to the right side where they could enter, Sandy quickly explained the concept of a "hot potato" to a slightly bewildered Bashalli.

When the canopy swung up on its heavy pistons both of them gasped.

They both pointed out it was very cramped inside. Besides the instruments, controls and pilots' chairs there was only a small cabinet behind the seats. Tom explained that it would hold their food and water plus a small first aid kit and emergency oxygen cylinders.

At the mention of the word "emergency," both Sandy and Bashalli blanched. Tom knew he had misspoken and hastily amended it to, "Auxiliary oxygen cylinders, is what I meant to say."

They left ten minutes later. Rather than comforting the girls, Tom realized it had only heightened their fears over his and Bud's safety.

During a slight lull in Tom's personal involvement he made good on a promise. He and Bud flew the latest *CadaverCar* down to Tennessee and the body farm facility. This time, both were wearing special clothing that would not absorb the aromas of the test subjects.

Dr. Kathy Gladstone and her doctoral student, Steve Addams,

were stunned at the accuracy of the sniffing and identification capabilities and inquired about leasing some of the technology. Tom told them he would build a portable unit and ship it down to them in the coming weeks.

Two days later the *Meltin' Molly* was loaded into the largest of the Swift's cargo jets—a very tight fit—and flown to the Quonset airfield. After darkness fell, the ground team tugged, pulled and slid it out of the jet and onto plywood sitting on the tarmac. Because the landing gear had to be retracted to fit in the jet, Tom climbed in and turned on the main repelatron systems, lifted the craft a few feet off the ground and extended the gear.

It was planned to get a night's sleep on a set of cots they also brought along and to get the T.I. energized and into the water well before dawn in the morning.

Tom needed to maintain as much secrecy about what was happening as possible., He was still surprised that nothing had leaked out after the FAA inspectors had come to see the runway work.

Everything went exactly as he hoped it might. He and Bud made a single east-to-west pass averaging fifty feet below the solid surface of the bay starting a half-mile away from the end of the airport property.

They dug in as easily in the T.I. as in the Geotron and managed to make about a half-mile per hour headway through the rocks and mud.

Every thirty feet the ultra-hypersonic emitters fired as they continued to move forward. As those tunnels of molten materials began to cool they connected with the cross-shaped molten seals that the fins were creating.

Tom would have loved to double back and come out right next to the cargo jet, but he was finding that the left to right steering was more than a little sluggish.

"It appears that I'm going to need to fit this with more steerable vertical fins, flyboy. More than just the small flight rudders that is."

They came out of the ground in a field across from the airport's largest parking lot. He risked a brief flight over the road and several buildings, setting down in the shade of the jet.

While it was bundled up after Bud retracted the landing gear again, Tom sat in one of the passenger seats near the front of the jet and made many notes about his impression of the test.

Mostly favorable, but he now knew that it wouldn't be just

another day or two before he could tackle the volcano in Alaska. The retrofit fins would require about a week.

The arrived back at Enterprises before closing time so Tom called a meeting of the department heads who needed to be involved in the changes.

Everyone understood their tasks and promised rapid turnaround. In fact, Hank Sterling had alerted several departments of a few changes he might like to see in production versions and the more steerable fins were one of those items on his list. People had been contemplating what this would entail for a few weeks.

A mere four days later Tom and Bud climbed into the *Super Queen*, the Tectonic Interrupter in the forward cargo pod and the portable habitat pod in the rear bay.

They arrived at the large international airport at just eleven a.m. The plan was to lower the two pods as the *Super Queen* hovered and then move the aircraft a hundred or so feet to the side. Ground space was tighter than they had been told to expect. Several large military jets had landed the day before and were not leaving again for at least a week.

While Tom manned the hoists, Bud kept the ship in a hover about fifty feet above the surface. Then, when the pods had been released he pivoted the jet around just enough so that the fuselage fit in between them.

A large contingent of people from both the military and the USGS came to see what was going on. Tom explained they were in Alaska to test a new piece of equipment and that it would involve going into the cone of the active volcano.

Most of the people stared blankly at him. Wasn't this supposed to be the *brilliant* Tom Swift? What kind of an idiot would purposely fly into a volcano that literally could blow up any second?

Tom smiled and let them think what they wanted to. As long as nobody got too nosy and figured out anything, the tentative secrecy could be maintained.

He and the team spent the rest of the day setting up an open ended inflatable tent that the ship could be secured in until the test starting the following morning. He made numerous systems checks finding one suspect circuit board in the process. It was replaced from the set of spares he brought with them.

Early that evening Tom was startled when he looked up from the table that had been set up under the *Super Queen's* left wing and into the face of a beautiful young girl.

"Becky," he cried out happily, jumping up and accepting a big hug from the teenage girl they had rescued a few months earlier.

She had only spent a month living with Tom's parents before her heart began tugging her back to Alaska.

She was looking very good and told him she was finally enjoying life again.

"I'm sorry things didn't work out in Shopton," he told her. "But, even mom could tell something more than just the people you lost was missing. I'm glad you've found peace. And, happy birthday. You're sixteen now."

He invited her to stay for dinner but she refused explaining that her boyfriend—her *very steady* boyfriend—was making dinner for them at his house. She went up on tip-toe and kissed Tom gently in the cheek.

"I now you're only a few years older than I am, but I think of you like my father. At least, my *soul* father. I love you, pops!" and with that, she turned and walked away.

Bud walked over and handed Tom a small twig.

"What's this?"

"A stick. As in 'a stick to beat them off with,' dummy. You really can't help but attract the young pretty ones, can you," Bud joshed with a twinkle in his eye.

Early the next morning the T.I. was wheeled out of the tent and prepped for flight.

Other than its one test flight at the Construction Company and the short hop in Rhode Island, this would be the first real flying test and one that would last more than thirty minutes.

At seven a.m. both the T.I and *Super Queen* lifted off and headed to the west and the Mt. Spurr volcano. Flying in formation with the *Super Queen*—riding more on its repelatron lifters than from the lift of her wings—it kept pace to the right side of *Meltin' Molly*. On reaching the volcano, still spewing smoke and ash into the air, they made one complete circuit of the cone.

Tom had to laugh at one oversight he had made. The tomaquatrz slit window looked straight out of the canopy and so only things directly in front of the craft could be viewed that way. But it was his lack of making the other means of "seeing" their surrounding capable of pointing any lower than about fifteen degrees that had him smiling.

It all meant that in order for him and Bud to see the volcano, the

T.I. had to fly with the nose tilted down almost forty-five degrees.

Leaning forward against their restraints, Bud asked, “This can be adjusted, right?”

Tom laughed. “Yeah. Version two will definitely let us see above, straight out and *below* us.”

After he radioed the larger jet that it was time, Tom eased the T.I. into a slightly steeper position and set the repelatrons to allow them to glide down and into the cone of the volcano.

“Here’s where the alternate visual systems come into play,” he told Bud. With a flick of the switch the smoke and debris they were beginning to encounter all but disappeared. Thousands if not millions of small rocks were flying in all directions but they heard of felt none of them as the all-around repelatron system kicked in, keeping them away from the hull.

“Stand by for impact,” Tom said as they approached the undulating surface below them.

“Is that rock moving?” Bud asked.

“No. I’m pretty sure from these readings that we’re just seeing waves of heat. Nothing reads as hot enough to be molten, at least not in the top hundred feet or so. Ready?” Bud nodded. “Then, let’s dive!”

Bud patted the instrument panel. “Molly,” he cautioned, “just make sure it’s the stuff out there that you melt and not us!”

The ship nosed into the hot rock and was soon swallowed up by it.

From above it was as if the Tectonic Interrupter had never existed.

CHAPTER 20 /
STOPPED AND HOLDING… FOR NOW

FROM INSIDE the hot rock Tom and Bud watched as everything around them passed by the ship. Temperatures remained high but were hundreds of degrees below the point that the cooling lava would have shown any color or tendency to soften.

Tom took them in a wide downward spiral until they reached a depth of nearly a thousand feet. Twice during this they passed by or through the wide vent allowing all of the ash and smoke to escape.

"So, skipper," Bud asked trying to sound casual about the whole thing, "do we simply seal up that vent or do you propose to put an entire hat on this thing?"

After thinking over the question a moment, Tom replied, "I think we need to build a very strong network of seams on several levels. From what I'm seeing we need to go even deeper and start to build from the bottom up. That vent is the relief valve for what's underneath and I don't want to close it off too soon."

"Well, you let me know what I can do. Right now it looks like a one-man show."

Tom grinned. "In a way, it is. You're my support team and comedy relief. But, so you get the hang of all the controls, I want you to take over and spiral us down another five thousand feet, or until the outside temp exceeds one thousand degrees."

Over and over the T.I. made its way around inside of the volcano going nearly six hundred feet lower with each circuit.

"Temp has just gone past nine hundred," Bud reported about the same time they had leveled out at six thousand feet below the crater floor. "Do we go any farther or is this okay?"

"Level out and set it to creep mode," Tom instructed. "We can't completely stop but that setting only moves us about a foot a second. I need to set up a program to best use what's around us."

When Bud said nothing, the inventor took it as a sign the flyer really did have a question but wasn't certain how to ask it. "What can I help you with, my friend?"

"Well-l-l-l-l… I understand all about how this works inside a rift like the one back at Quonset. We glide along keeping the rift about dead center and hit the melty button, and then presto! Seal-a-Wheal!"

Tom's hands dropped to his lap and he groaned. "Seal a wheal? Ah, Bud. Even by your standards…"

Bud actually blushed. "Sorry. It was a real stretch, but in my defense seal-a-rift doesn't have the same ring. But, you get the point. We travel along the open area and leave a trail of sealed rock behind."

"Absolutely correct. So, my guess is that you are puzzled about what to do in the case where there *is* no rift." He raised an eyebrow, which caused Bud to give a little nod.

"Uh-huh."

"That, my soon-to-be brother-in-law, is what I am attempting to determine. I was hoping to find something other that just the smoke vent open. Something like a rift I might just seal up. What it is looking like is that we need to go as deep as we dare and begin to create a multi-layered mesh of seams. If we can get down another nine hundred feet we will be a full thousand feet below the bottom of the volcano's outer cone."

"What does that get us?"

"It means that we can begin to build upwards starting outside the base and that means we have not only the entire mountain itself holding things down, we get the surrounding hills and mountains in on the job."

"I get it!" Bud said, delighted at his realization.

Tom maneuvered the T.I. deeper and managed to descend to nearly the level he had hoped for. At that point he began the first wide circuit of the volcano. It required four hours but they arrived back at the starting position. It was easy to see the trail of seamed materials as they had cooled down into a darker and completely solid material unlike the separate rocks and pumice.

Next, Tom set up a back and forth pattern always turning just short of the outer ring. It was tedious work and mostly accomplished by the computers. By the time they finished six hours later, it was nearing dinnertime.

As they ate from the meals in the rear cabinet, Tom and Bud talked about the upcoming wedding.

"Have you and Sandy ever… I mean… ah, heck. Forget I asked." Tom said turning bright red.

Bud looked at his best friend and stated in a steady voice, "Yes. But only after she got me officially engaged. Skipper? I love your sister and always have. Oh, sure, I've had crushes on lots of TV and movie girls, and even that waitress in Thessaly who might just as

well climbed into my lap for all the flirting she was doing—and she was beautiful!—but it has always been Sandy. I'd never do anything to make her less than happy."

"And, you're absolutely certain you are ready to become a homebody? I've got three times the responsibility resting on my shoulders these days. There's work and Bash, and it is a two-to-one ratio in her favor. I don't mind it at all, but Sandy is a different girl. Woman. She's a little more demanding in case you've never noticed it."

This caused them both to break out laughing.

"Oh, Tom. Believe me when I tell you I've known that since I first met your little sister. It was only amplified about a thousand times the day she turned sixteen and decided that we were going to be forever girl and boyfriend. I'm not sure I ever told you this, but she straddled me on a park bench, grabbed my head and made certain we stayed locked in a really nice kiss for about ten seconds. Then she told me to never, ever think of her as 'your sister' and that was the start of my downfall."

After they finished eating Tom checked the instruments. He had the ship performing a slow crawl upward about three hundred feet above the first lattice of seams and they had just reached the next starting point.

This level, and each succeeding level, would be about five hundred feet less wide and take a half hour or forty minutes less. Like the first it would leave the smoke vent opened. Tom wanted to get at least three layers of seams complete before he tried closing that off. He believed the pressure below needed some escape and didn't want it blowing things apart.

He only wished that he could be certain that once closed, the pressure would be contained and not seek and find a new outlet!

"Why don't you get some rest, Tom, and I'll run her around and back and forth. There's really not much for me to do except the little jog around that vent thing. How long do you think this level will take?"

"With the loop, a little over nine hours, ten minutes," the inventor replied.

"Then, see what sleep you can get during that time. If I need you I think I know where I can find you," Bud said grinning.

Tom wasn't feeling particularly tired but he closed his eyes. Almost immediately, Bud was tapping his arm.

"What?" Tom exclaimed sitting back upright.

"We've finished the second level. I thought you might want to stop that snoring racket you were making and get us set up for the next one. Besides, I could use some of that log sawing you've been doing."

"You mean I've been asleep?" Tom gasped. "That's impossible. I just closed my eyes. I'm not even tired," he protested, but realized that must be because he had just slept nine hours.

Stretching, he grabbed a water pouch and drank it, realizing that his mouth was very dry.

"Okay. I've got the controls," he told Bud. "It'll take twenty minutes to get up and set for the next level, but that one ought to take just eight hours and about seventeen minutes. Your turn to turn in."

Since it was nearly midnight in the outside world, Tom completed the next level and a quarter of the next higher one before waking Bud.

"Are we there yet, mother?" Bud asked in a raspy voice. He sat up, stretched and then checked the clock. "Boy, you don't half let a guy sleep the day away. Why didn't you wake me after six or seven hours?"

"One of us needed his beauty sleep. If I return you to the care and feeding of my sister and you are all cranky and beat, she'll make my life a living you-know-what! Fix breakfast while I take a second pass at the vent."

As the flyer took out several pouches of water and food, he asked, "So we've started to close that up? How's it going?"

"So far, so good. As we came past the vent on this level I let us continue on a straight line. The side reinforcements seem to be holding. That vent is only about eight feet wide at this level, nothing like the twenty or more feet higher up. I think we just might succeed in closing it entirely on the next level."

They continued their level-by-level work until about six that evening managing to put three more complete circuits of the lattice-like patch levels in place.

"I know we've got five or six more levels to do, and that should only take another ten hours, but we did promise the ladies we'd be out and calling them before ten p.m. tonight. Their time. If we hurry we can go straight up and make that call on schedule," Tom stated.

He sent them on a steep rise breaking the surface of the caldera with three minutes to spare.

After making a brief call to the *Super Queen* and assuring them

of a more detailed report within the hour, Tom told Red Jones, the pilot currently keeping their position above the volcano, “We have to check in with the ladies or we’re in muy mucho grande problemo!”

Only a minute late, Tom placed the call to his house. He knew that Sandy would be there fretting along with Bashalli.

“Thomas! Is that you?” his wife practically shouted into her receiver.

“Yes, Bash, It’s me. If you will please put this on speaker, then Bud and Sandy can take part. By the way, I love you!”

“I love you, too, Tom,” she said before a click and a slight buzz told him she had hit the “speakerphone” button.

The boys assured their ladies that everything was going according to plan, if only a bit longer than Tom originally anticipated.

“We’ve got another day of work to do down there, but we’re spending the night at Anchorage airport. It’s looking promising, by the way.”

They all talked another twenty minutes before he explained that they needed to report to the *Super Queen* and then fly back to Anchorage.

“Come home quick!” the two women chorused before hanging up.

Everyone was up and in the air by seven the following morning. The giant jet took its position again while Tom and Bud eased back into the volcano.

The last levels seemed to go incredibly fast. Wanting as much protection as possible against the vent reopening, Tom took them back down a thousand feet and put in four additional criss-cross seals over and around the vent in between existing levels.

When they came back out, an incredible sight waited for them.

The air was crystal clear and there was no sign of any leakage from the vent.

Red radioed down to them. “We set a couple of the repelatrons to the composition of that smoke and then flew back and forth until the last of it blew away. Oh, and by the way, there was a call from the Governor of the state telling you that a special ceremony is being set up back at the airport.”

“Ceremony?”

“Yeah, They all are goofy up here. Evidently you and Bud are

heroes for closing up that volcano. So, come on up here and we'll fly a victory lap around the city before landing. Oh, and pictures of that *Meltin' Molly* of yours are splashed all over the newspapers up here and down in the southern forty-eight. Guess the secret's out, skipper."

It was a nice ceremony that evening held inside the airport terminal. The Governor awarded Tom and Bud framed certificates declaring them to be honorary citizens of the state of Alaska, and keys to the city of Anchorage.

The other eight members of the Enterprises team each received small "loving" cups with their names and the message, "**For Services to Alaska, We Salute You!**" engraved on the sides.

The happiness they all took back to Shopton was more for the accomplishment of their task rather than the awards, but Bashalli and Sandy were ecstatic about the certificates.

A week later Tom was sitting in the shared office approving a set of changes he wanted to make to the production versions of the *Meltin' Molly*. There was a tentative knock on the office door and Munford Trent poked his head inside.

"You have a couple of visitors, Tom. If you're busy they say they can come back..."

"No," Tom said setting aside the pages he had been looking over. "Who is it?"

Trent gave him a little smile. "You'll see," was all he said before slipping back out.

The door opened a second later and Tom jumped up seeing that it was Deke and Stefanie.

"Well, hey there, Mr. Bodack and Miss Brooks!" he greeted them.

Stefanie shook her head and held up her left hand, wiggling her ring finger.

"Nope. Mr. and *Mrs*. Bodack if you please." She broke down into giggles. "The tall drink of water here proposed to me right in the hospital and we tied everything up three days ago. Neither one of us have any immediate family, and we don't want you to think we were ignoring you, but we had a nice little civil ceremony. There will be, I have assured Deke, a beautiful party in our honor at some future, but not too future, date. You will be guest of honor, of course!"

Tom reached out and shook Deke's hand and leaned down to get a hug and small kiss from Stefanie.

"I'm really happy for you two," he told them. He tried to take a

little look at Deke's right forearm. The man saw it and held the arm up for inspection.

There were several large and colorful scars running up and down the inside and outside of the arm from wrist to elbow, but it looked to be straight and functional.

"All the fingers work although it hurts to make too tight a fist or wiggle the wrist too much, but it's getting better every day. I don't know how to thank you for what you and Arv Hanson did for me." His voice choked up a little.

"It was nothing you didn't rate, Deke. You saved Stefanie here and Zimby. We'd do what we did again and more if it ever comes to it. Which, hopefully it will not!"

"Nothing?" Stefanie sputtered. "*Nothing*? You do realize that Arv Hanson and that nice Dr. Yan are working with your Legal department to set up a subsidiary company to make what they intend to call the '*Bodack Bone*' don't you?"

Tom laughed with glee. He had heard about it and told them it had his whole-hearted approval. "Besides, you two are going to receive about twenty percent of the profits on the sales of these bones. It's only right as Deke was the pioneer in their use."

"So, what's this we hear about you shutting down a volcano in Alaska?" Deke asked as they took seats, trying to get over the latest good news.

Tom gave them the rundown of the three days spent under the volcano.

"It's all been stopped and is holding, for now, but only time will tell. What I did learn is that the Tectonic Interrupter theory is solid. What remains to be seen is whether we can get a fleet of them out to seal that Atlantic rift from end to end and keep it together. After that… the rest of the world, perhaps."

Stefanie leaned forward. "I've got a little news about just that," she said. "After my internal cargo and I got out of the hospital, and Deke was spending two weeks in intensive physical therapy, I went over to Quonset with all my instruments. I even took a few of your splendid laser measurement tools. During that two weeks, there was notable movement in the rift. Micrometers, to be sure, but definite movement."

"We would have expected that," Tom said, puzzled at where this was going. "Or, should the cooling of the magma finger have stopped that?"

"Not certain, but right after you and Bud ran your T.I. device

down there I went back again. Spent two days with the instruments. Not a wiggle! Nothing, nada, zilch. Whatever you did under there is holding things solidly together."

Tom agreed that it was great news.

"Let's hope that once we get a few deeper layers of seaming in place that it will stay like that," he declared.

"Uh, about that, Tom," Deke spoke up. "Steff and I were wondering if we could be of some use. Her doctors say she's got a good three months of full-steam-ahead-Stefanie left before she needs to go into rest and enjoy mode, and we were thinking that we work really well as a team," he looked at her and she blushed.

She picked up the conversation. "Deke and I want to know if we can take your current T.I. and run it back and forth, maybe out to a hundred miles or so offshore, and see what multiple layers can do." She looked at Tom, a combination of hope and trepidation on her face.

"Are you really up to it?" he asked finally. "I mean I am certain neither of you want to endanger the baby, and I'm guessing that physically you are prepared, but you'll be in incredibly close quarters for days, with no, uh, restroom facilities. I'm afraid it's adult diaper time in the *Meltin' Molly*. That, plus the added emotional stresses of worrying about keeping each other safe down there. Especially after what happened with the Geotron."

Stefanie hopped off the chair and came to stand in front of Tom, looking him straight in the eyes.

"Deke and I have no secrets from one another. Nothing taboo and nothing that demands modest privacy. We are incredibly in love and want to be together forever, so of course we will worry. But I'd worry if it was just him and he's do the same if it was me down there. We do best together. So, what do you say?"

Tom gave a little snort. "I say that as long as you can satisfy Doc Simpson of your fitness that I have no objection."

She launched herself into his arms hugging him around the neck. "Thank you, thank you, thank you, Tom," she said into his ear.

Tom stood up but Stefanie remained clinging to his neck.

"She does that to me as well," Deke told him. "You just sorta have to let her get it out of her system and slide off on her own when she gets tired."

Three days later and following a barrage of medical tests at the Enterprises Infirmary—along with most of the same psychological and physical tests used in the selection Swift astronauts—Deke and

Stefanie Bodack began their two days of training in the operation of the Tectonic Interrupter.

His flight training and skills made his training simply a matter of familiarization. She needed a bit more tutorial work before Tom declared her ready for the job.

And so, a week after they appeared in Tom's office requesting the jobs, Deke and Stefanie climbed into the *Meltin' Molly* and lifted off from in front of the Barn at Enterprises.

* * * * * *

Over the following two weeks—amid daily reports of success from the Bodacks—Tom, Damon and the Swift Legal department spent countless hours dealing with the governments of India, Japan, China, South and North Korea, Canada and the United States.

Their message was straightforward: Increasing seismic activity due to tectonic place movement compounded by human encroachment into areas of great activity were meaning greater levels of damage and higher loss of life. Tom Swift had a potential solution to the problem, but it would require absolute trust that no ulterior motives were involved and that he needed absolute access above and under the ground, no matter where it might take him or his team of Tectonic Interrupter pilots.

Canada jumped on the bandwagon first, even before the U.S. Government could respond. Their seismic experts had been detecting a worrisome level of activity from what now was being called The Quonset Rift.

The U.S. rushed through a special Congressional Bill giving the Swifts *carte blanche* access the following day.

Japan joined in on the promise that they would receive the first Tectonic Interrupters outside the U.S. and that Enterprises would eventually train Japanese pilots to take over once the first and worst of the moving plates had been tackled.

North Korea blustered and threatened that this was all a western plot to dig under their country, destroy their military, and to kill their citizens. South Korea expressed cautions optimism and gave their approval.

India followed soon after with Tom eventually speaking personally with their newly appointed Minister for Population Security, Mr. Raj Singh.

"We have put your *CadaverCars* to great use," he said. "Oh, yes. We know of your special name for them," he laughed. "Whatever they are called, they are incredible and we have recovered more

than one thousand lost people. It has made me very popular and led to my recent rise to this position. I not only give my approvals to you but my very sincerest thanks!"

Only China seemed to be holding out. As the next week went along Tom tried, unsuccessfully, to contact Tsai Ri Wei, the head of the Chinese delegation that had appealed to Tom to halt the use of his OzoNuts months earlier.

A few days went by before he received an email from the very man he had been attempting to locate.

> Dear Tom Swift;
>
> I am living in exile in Taiwan. My failure to convince you to stop your environmental repair balloons was seen as a personal and professional failure and I was faced with prison. Do not believe that your refusal was incorrect or to blame. It was I who was incorrect and only through my insistence that it must be a problem outside of China was I brought to this.
>
> Your assertion that it was a much larger issue with plate tectonics is correct as I now see it. Please allow me to work behind the scenes with my replacement inside the Chinese government to get them to see the light.
>
> Yours, R.W.

With little more to do, Tom continued to work to complete the first of what would soon become a fleet of more that two-dozen Tectonic Interrupters. He intended to divide them into five working groups: four groups would be built around four T.I. vehicles and the largest group of eight, the one to tackle the length of the Quonset Rift, would be the first to be deployed.

Sitting at home late one evening going through the construction reports, Bashalli climbed into his lap and placed her head on his shoulder.

Softly she whispered into his right ear, "You do know that I love you, do you not, Tom Swift?"

"Uh-huh," he told her setting the papers on the side table.

"Then I want you to come to bed," she cooed.

Tom grinned and tilted his head back to look at her.

"Special night?"

She shook her head. "No. Special day tomorrow. You may or my not remember but you are holding Budworth's bachelor party tomorrow night, and then standing up as his best man the next

afternoon. I want you to get some rest. Those Melting things of yours can wait."

She got up, took his hand, walked with him to the stairs and turned off the lights.

<•>—< End of Book >—<•>