Damon Swift and the CosmoSoar

By T. Edward Fox

The story of how Damon came to lease an island, build a rocket and submarine base, and attempt to launch the largest private rocket ever.

Cover By THud

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This collection dedicated to Scott Dickerson, who reintroduced me to Tom Swift and gave us all Damon Swift. It is also dedicated to my writing buddy in Essex, England, Joanne Larner, she of the Richard III trilogy, for her long distance friendship, a trio of very enjoyable novels, and for sharing her Christmas Pudding recipe! And to Leo Levesque with whom I write another, truly fun, Tom series.

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A Damon Swift Invention Novel

"It has a runway," he declared, sounding shocked.

"Never!" responded the Senator. "No way."

"Then, what do you call that?" Damon asked as they flew along a straight area some fifty feet wide and running nearly a mile right down the center of the island.

— CHAPTER 5 —

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Foreword

After publishing my most recent Damon Swift Inventions collection I realized I forgot who I wanted to dedicate that book to. Since I already had a dedication written for this one, I decided to use some of this page for what I missed.

Because I have enjoyed the Australian adventures of Damon the most of them all I want to offer this book as thanks to a number of Aussies who inspire, amuse and amaze me. To Tony Abbot who proves someone who looks like a lizard can achieve—albeit briefly—high political office; to Adam Hills who not only inspires for being an amputee who is at peace with his prosthetic and even jokes about it, he makes me laugh until I am sore with all his other jokes and observations; to Paul McDermott for his music, often hauntingly beautiful and frequently delivered a bit tongue-in-cheek, along with his great humor and the shows *DAAS*, *Good News Week* and *The Sideshow*; to Megan Washington, a singer who has brought more men to tears than just me with her voice; and to Kevin Rudd, the first man to become a (nominally) world leader while saddled with the name Kevin.

Aussie, Aussie, Aussie, oi, oi, oi!

All the above has nothing to do with this book, which I wrote because I felt Damon deserved a longer story for a change.

T. Edward Fox

Chapter 1/
ENTERPRISES ON SOLID FOOTING

THE INTERCOM buzzed in the large office Damon Swift occupied most days. It was quite a difference from his old office at what was now renamed as the Swift Construction Company, and had been since the new facilities, Swift Enterprises, opened its doors officially three years earlier.

"Yes?"

"Mr. Swift. I just wanted to remind you that you have a department head meeting in five minutes. Mr. Rimmer from Legal is here as is Mr. Aturian. Do you want me to hold them out here for a few minutes?"

"No, Trent. And, thank you. Send them in as they arrive."

"Fine. Coffee and pastries will be here in two minutes."

The door opened as he pressed the button cutting the connection.

"Come on in, gentlemen," he greeted his chief Legal counsel and the man he was proud to call a friend for more than thirty-two years who now headed the older Construction Company.

"Hey, Damon," Jake Aturian called back. "I hear we're in for a humdinger of some announcement

from you today. Any early hints for the man who ran to get here first?"

Damon chuckled. "None. Hello, Jackson."

"Hello back, Damon. And," the lawyer turned to Jake with a small smile, "I already know what is going to be announced... so there!" He grinned and slapped the other man on the shoulder.

The door opened again and George Dilling, head of Communications, entered followed immediately by Harlan Ames, the Chief of the Security Department. As they were greeting each other another six people arrived.

Munford Trent, Damon's Executive Secretary, opened the door and wheeled in a small cart filled with a coffee urn, hot water for tea, an assortment of tea bags, and a plate of pastries. He was a somewhat tall and willowy young man of about twenty-five or twenty-six, kept the most fastidiously neat desk Damon Swift had ever seen, and could put his finger on anything in his filing system in seconds as if he memorized each and every location.

As he turned to leave the door popped open and a teenage boy came in. He had an embarrassed grin on his face as he crossed over to the second desk in the office and dropped his backpack on it.

"Welcome, son," Damon greeted him as he and the others were pouring their drinks and returning to the large conference area that took up a good quarter of the huge office.

“Hi, Dad,” the boy greeted him. “Hi, everyone else. Sorry I’m late. I was up late last night on the design of that project you all know about and think is crazy, so I won’t mention it!”

“Come on and sit down, Tom,” Jake invited. “I may believe that giant plane is crazy, but it is keeping more than a hundred good men and women busy at my place so it has some good to it!”

Tom came over and joined his father around the low conference table. It was surrounded by a dozen overstuffed leather chairs that were now completely filled with people eager to hear what news Damon had for them.

When they were seated, Damon leaned forward and cleared his throat.

“As you all know this wonderful new complex of ours, Swift Enterprises, has allowed the company both the space to grow and the increased opportunities to take on more and more business. That, by the way, is the reason for this meeting. Business.”

He glanced around at each person’s face. All were looking at him in anticipation of hearing good news.

“Before I get to the main news I want to tell you where we are as a company. Jake can verify this if you doubt me, but the Swift Construction Company has just booked a deal with Consolidated Aircraft Limited to manufacture wings and hydraulics for a new class of jetliners they will produce, and that

contract is going to come in at one-hundred-twenty million dollars in prepaid monies for us in the first year alone!"

There were smiles and murmurs all around.

"That, by the way, represents thirty-one million dollars in after tax profits. It also means we need… I mean *Jake needs* to hire an additional fifty-five or fifty-six people for the work that will go on for the next twenty-eight to thirty months."

"Are those permanent or job-specific hires?" Jackson Rimmer, always the lawyer, asked.

Damon looked over at Jake.

"Well," the Construction Company manager answered, "I'd like them to be permanent, but we have to be careful right now, so I'll have them under defined term employment contracts that I hope you'll templatize for me." Rimmer nodded and made a note on a legal pad he always carried.

Damon took up the lead again. "So, and keeping with the desires of my grandfather, Tom Swift and his father, Barton, I want to make hiring locally a priority, but we may have reached the point where our little town of Shopton and the surrounding communities of Thessaly and Pottersville can't provide the necessary workers. We are, in the words of our Mayor, 'Just about all hired right now.' So, with only a few available people we are going to need to look outside our area and probably have to deal with paying relocation costs for some of our new people."

"Which we can write off," came the information from Margaret Davies, manager of the Accounting Department, "as long as their employment period is at least twenty-four months."

That brought out some laughter, most of it slightly nervous. This would be one of the first time the Swift companies had to go very far from their location to find workers or make that sort of commitment.

This did not include, however, the nuclear research and power facility Damon had begun building almost two years earlier, what he called the Citadel, in New Mexico. That location employed one-hundred-ninety men and women, nearly two-thirds of which had been hired from the nearby Albuquerque area. Some of the others had moved from Shopton out to live at the facility and a few had been "imported" from other places around the country. But, unlike this newest need, everyone moving out there had been so interested in being part of it they'd paid their own moving costs.

"So," Damon told the group, "we are, I believe it is safe to say, entering a new era for Swift Enterprises, and everything else associated with it. Something I sincerely hope we will be faced with again and again as we continue to grow. Now, I need to tell you all the reason for this meeting, and it is two-fold. First, as of this most recent fiscal quarter, we are on the firmest footing we've ever seen. We have money in the bank—about four-hundred seventy-million after tax dollars—nearly three-quarters of a billion dollars in pre-booked

business, and our little airplane, the *Pigeon*, is going into a slight modification phase so the sixteen-hundred and seventy of them we've built and sold will be joined by another model shortly, what we'll call the *Pigeon Special*."

"Is it going to cannibalize our current sales?" That came from George Dilling who had been with the company since before Damon had taken things over eleven years earlier.

"Gosh, George, I hope so!" Damon told him. "We make about thirteen-thousand bottom line profit from each *Pigeon*, and this new one, with slightly larger engine and side-by-side seating will sell for about twenty-thousand more giving us a profit bump of an additional eleven-thousand." He grinned and looked briefly at Tom who was also grinning.

He went on to describe five other new projects on the books for the combined companies before George raised a hand again.

"Sorry to be a bother. You *did* say there were two things you wanted to tell us, right?"

Damon blushed a little. "Oops. Thanks for getting me back on track. Okay, here it is. We are going to be expanding inside our four-mile-square walls, again. Yes, I know we have our two runways and five main buildings here in the central cluster, plus the five hangars and three manufacturing buildings in the eastern corner, but we need more. For starters we are going to more than double our runways because we are about to lease three cargo

jets. That is, at least until we can build our own which we will start to do in about five weeks." Jake nodded and smiled.

"Those jets need longer runways when totally full of products so we will begin by turning the five-thousand foot runway running from the hangar group to the South out to ten-thousand feet. Then, the intersecting runway out closer to the South wall will be turned into a whopping three-mile-long runway. That will be joined by a parallel runway closer to the wall out there slightly longer at three-and-three-quarters miles."

There were more than murmurs now. Everyone had questions, and Damon let them mutter and try to out-speak each other for a minute.

"Okay. Why, you are all asking. Two reasons. One is because we may someday want it, but we are being asked to build it by the U.S. Government so we become a safety landing place for the new Low Orbit Space Plane that my old stomping grounds, NASA, is building. That craft, in case any of you don't know, is replacing the Generation Two Space Shuttles that had so many problems. They will retire them next year and bring on the new craft that can take off under its own power and fly to the upper atmosphere before changing over from a ramjet to a monopropellant rocket and heading out into orbit.

"They need three emergency landing facilities other than the field at NASA. Currently they have Edwards Air Force Base out in California, a new

facility being built in Scotland near the existing air base at Lossiemouth, and they want to underwrite a long runway up here in New England to handle polar insertion launches. We offer them the best spot for it so I have told them we accept the offer to pay us to give them a runway we also get to use any time we want it. So, along with the runway we are lengthening at our east side, we will build a parallel one that runs nearly from wall to wall, then extend the perpendicular runways, old and new, out to meet that. Oh, and they are also going to pay for three new crash trucks and to have a taller control tower built in the center of the whole facility. Ten stories up, most modern air traffic control and RADAR equipment available, and the FAA is even providing a specialist controller position."

"What else is coming?"

"Oh, yes. Our five main buildings will grow to ten within the next year or so. We break ground for them all the day after tomorrow. Departments that have shared buildings to the bursting point will get their own dedicated structures or be in a lightly shared one. Nothing as massive as this Administration building, but then who needs another three-story, twelve-hundred foot long building?"

Harlan raised a hand. "What happens to the current control tower up on the roof of this building? Do we tear it off and patch the hole?"

Tom tapped his father's left foot with his right one.

"I believe Tom has a suggestion."

Tom nodded and looked at the adults around him. At just a few months after turning seventeen he might be overlooked by a team of hardcore business people, but the fact was he was nearly as important to the company as his father. Tom was both a genius as well as an incredible inventor, and as such had been responsible for multiple millions of dollars of business already.

"I propose we strip out the equipment and either donate some or all of it to the Shopton Regional Airport for their current expansion project, or at least put it in storage. Then, I would like to have the old space. I sort of need some quiet place of my own—as much as I like sharing this office with dad–I think it would be a neat place to set up maybe a small desk, a computer and a couple chairs."

"What would you do up there?" Harlan asked even though he knew it was none of his business.

"Think," was Tom's one word answer.

The Security man turned to Damon. "There are times I could use a place like that."

Tom smiled. "When I'm not there you are more than welcome to use the tower, Harlan. Besides, it will give you a great vantage point to spot bad guys if they ever try to sneak in over our walls!"

Harlan snorted. "Right. And, by the time I could get downstairs and call someone who knows what those same bad guys might do? I appreciate the

offer, however."

"I do plan on having a phone installed, you know," Tom told him. "I'll want to keep it turned off most times, but it will be there. Heck, there are five lines going there right now, so the offer stands."

"Okay," Damon broke in, "with that handled I want to tell you what I've already hinted at. Enterprises and all our companies are in the best possible financial state we have ever enjoyed. Even," he looked at Tom, "my son's giant jet project isn't going to break the bank. Besides, it could turn out to be an incredible boon to the company as an aircraft and as the template for a small line of giant aircraft."

He outlined how the United States Army had approached him a month earlier asking about the feasibility of an aircraft capable of carrying more than one-thousand troops, their weapons and packs, to any place around the globe in under the current twenty-three hours that jets only capable of carrying a third that number could manage.

"Question for Tom," Larry Drexler, the chief scheduler for the Construction Company said. "I'll assume airframe number two will cost less than the first one, and that it can do what Damon just stated, but can it carry that many soldiers?"

Tom nodded again and grinned. "Sure. The bottom deck would carry the fewest because of the loss of all the space to handle the vertical jet lifters and the lower part of the hangar in the back, but it should be capable of holding about three-hundred

reclinable seats. Deck three could hold about three-fifty more and the middle deck could handle four-hundred or even more."

Damon took back control of the meeting that was starting to wander off the course he wanted it to follow. "But, that is for the future. For now I want to have reports on what each of you are succeeding at and anything that is not moving along with one-hundred percent greatness."

One-by-one the department managers gave their reports. Only two of them, George from Communications, and Harlan with Security, had issues.

For Communications it was a matter of personnel and some needed equipment. Damon suggested that could be handled offline so he turned to Harlan.

"Well, the truth is we are at a junction between having security and being overrun with industrial and even international espionage agents."

This shocked everyone and got their full attention.

"Okay, I might have overstated that, but we have to face facts. As this company has grown our incidents of break-ins and attacks have increased. At least half of the, let's call them incursions, have centered around either stolen ID cards or phony identification. Tom has done yeoman's service taking us from the old days of laminated paper badges with just a picture to the current badges

that feature a built-in radio-activated microchip inside the layers. Our system send out constant waves that are pinged back by these chips showing where each employee, or visitor with a temp badge, may be found. We don't know who they are just that they have a chipped badge. And, as you know, anyone not wearing a chipped badge shows up on the ground's RADAR system and my team is notified."

There was a small amount of side conversations before he continued.

"I have asked Tom and Damon to look into this, but in the meantime there are a few things we all need to tell our people. First, a lost badge needs to be *immediately* reported. Even if that is in the middle of the night. We always have someone in Security on duty and the switchboard is manned twenty-four hours seven days a week. The new rule is if you can't find it, report it within just a few minutes.

"Next, if you see someone you don't know, introduce yourself and try to get their name. Then, once you are safely out of their sight, check with Security. This is especially vital for anyone inside your building. Take it as read that any new employee will be taken around and introduced to each and every person working in that building. Strangers are to be reported. Just do not ask anyone to place themselves in harm's way to make such a report and absolutely do not corner or challenge someone without Security backup."

Damon responded, “It looks like we are growing up and need to act that way. I have authorized additional surveillance cameras for the entire grounds and once we get the new control tower up, it will have total view of the grounds and heat-sensing cameras will scan the grounds to the walls and even what can be seen beyond them.”

Tom cleared his throat. “The next generation of badge will have a special identifier so we will know who is where. That way if I report a missing badge and get a new one, then I also show up over in one of the manufacturing halls with the reported code number, Harlan’s people head there immediately.”

The meeting broke up a few minutes later with the department heads agreeing to take the security message to all of their people.

Once they were alone Damon turned to his son. “What I did not say in that meeting is that your incredible flying lab will put us back into a fairly bad place if it fails or if it should crash. A lot is riding on that.”

Tom nodded and pursed his lips. “I realize that and appreciate the position I’m asking you to place yourself and the company. I promise I won’t let you down on this. The Flying Laboratory will be a success, and even if we never make another one for sale, the technology I’m creating for the vertical lifters can be used in those cargo jets you mentioned. Imagine how versatile they will be if they can head straight up, or even if the lifters only allow them to become short take-off and landing

aircraft, that opens up hundreds of other airfields and airports traditional jets might not be allowed to use."

Damon rubbed his jaw, an indication he was thinking the matter over with a great deal of concentration.

Tom let this continue until his father was ready to speak again.

"Okay, son. I would truly love it if you could knock off a few million or more from the build cost. Five million would be even more appreciated. And, yes, I know that is ten percent of your budget, but it is a good target to aim for. Finding cost saving measures is one of the biggest ways this company has been able to do what we do, and attract the customers we have and will have, and still give everyone what they want."

Tom grimaced a little causing Damon to ask what was the matter.

"It's about the costs. I want to make the entire fuselage from Tomasite, but I know how darned expensive that is. What did the shielding for the first reactor at the Citadel run?"

"Over a million dollars for the twenty-foot sphere by the two inches of thickness."

Yeah. That means my jet would need about twelve times that amount just to have a quarter inch skin, and that doesn't include the internal structure." He shrugged. "I don't know what to do."

"Well, I suggest that you and I try to find a

substitute for tomasite. Something as strong or even stronger, as light or even lighter, and as protective…"

"… or even more so," Tom said with a smile.

"Or, that. Perhaps there is a way to put a spray coat of tomasite particles on the outside. You may want to look into that as well. Even something else for the structural components would give you the needed savings."

Tom promised to take a close look into an alternative to tomasite starting right away. He looked down at his watch and shot to his feet. "Oops, got to go. I have a meeting with the propulsion folks that should last the rest of the day. And I'm meeting Bud tomorrow morning to go over to see the forms they are building to cradle the jet. See you around eleven tomorrow!"

Tom's friend, Bud Barclay, was a recent addition to the Enterprises family. The boys met out in New Mexico when Tom was assisting in completing the Citadel's first phase and had become immediately close. Bud's own parents were there on a stopover and vacation on the way to moving to San Francisco. But, Bud was miserable. He'd grown up in the nearby town of Thessaly, was the star of their small football team and hated the thought of leaving the area before he finished high school.

So, Damon and his wife, Anne, offered to act as the boy's guardian if Mr And Mrs. Barclay would allow him to stay in Shopton. To sweeten the deal he even said he would hire Bud after school and

help him pursue his true love, flying. Now, the boys were practically inseparable other than when Sandy turned sixteen and slung her hook into the helpless teen. They were constant dates, and Bud was more like a member of the family than just Tom's friend.

Of course, most parents would not have agreed to any such arrangement, but Mrs. Barclay had been a fellow girl at the all-girl school in Schenectady and had been friends with Anne during their five years together. She trusted Anne and therefore trusted Damon.

"Tell our dark haired young man he still owes us about ten hours of flying time this week. He has a dozen *Pigeons* to bring over here from the Construction Company field and then put through their half-hour flight tests."

"Will do," Tom responded as the door closed behind him.

An hour later Damon was disturbed by a knock on the door followed by it opening and a shiny stainless steel cart was pushed into the room. That wasn't what was the most notable. What was, was the man pushing that cart.

Also an acquisition from the New Mexico trip was Charles "Chow" Winkler, a former ranch cook from Texas who had recently been let go by a New Mexican rancher when he was selling his spread.

Chow had rescued Tom and Bud from an attack and brought them to the Citadel where he was welcome for the duration of the Swift's visit. When

they packed up, he begged to be allowed to come back to Shopton to be their cook.

What usually caught people's eyes were his round stomach hanging over a very large silver belt buckle, his ever-present ten-gallon hat, and his shirts. It mattered little which one he wore, each of them was gaudier than the previous one. And really bright and gaudy shirts were Chow's weakness.

He had about fifty of them, all western motifs, and in just about every color in the rainbow unless it was a subdued one.

Today's was bright green with an enormous orange and yellow moon rising over a brown cactus with three coyotes sitting at the base howling, their bright red eyes seeming to jump off the fabric.

"Another new shirt?"

"Naw. Jest one o' mine I finally had sent out here from my old place in Texas. Right purty number if'n I say so. Cain't get your son or that ornery hombre friend of his ta let me get them ones. Go figger! 'Specially that Buddy boy Barclay."

He uncovered two plates and set things up on the conference table.

"Is Bud still giving you a hard time about your, ummm, *interesting* concoctions?" Interesting didn't half describe Chow's recipes for things such as prairie dog hash, rattlesnake stew, armadillo fritters and other desert delicacies.

"Yeah, but it's okay. He 'n I get along, but we kid each other a lot. So, today I got ya some cheesy

scalloped taters, a nice slice o' roast beef with juices, and fresh green beans an' pear tarte. Come on over and dig in. I'll be back in thirty minutes."

The man and his cart were out the door before Damon rose and walked the fifteen feet to his lunch.

He stuck his fork into the meat and took a bite.

"Best idea I've had in decades to let him talk me into bringing him back here when we came home," he said to himself as he savored every bite of his food.

Chapter 2/
A CONTEST IS ANNOUNCED

OVER THE next several weeks Damon did what few world famous industrialists would normally do… he ignored a lot of the day-to-day humdrum things and spent time trying to decide what might be fun to undertake.

The Citadel project was not complete, but most things were on an even and self-running keel. Most of that had to do with how he had set up the project to create the nation's first privately funded and owned nuclear research and power facilities.

The care and lengths he'd gone to ensure the smooth completion and operation of the facility was indicative of everything Damon Swift did. He was famous for it.

He was the envy of about nine-hundred and ninety-nine of the Dow Jones' Top 1000 companies and the men and women who ran them.

The fact that he'd taken the company from far outside even the top 2,500 all the way to number 132 on the list, and in only twelve years, made him exceptionally proud and all the others suspicious he might have had some sort of supernatural help.

That was, of course, ridiculous. In fact the only help he'd ever received was from the junior senator from New Mexico, the Honorable Peter Quintana,

who had decided the rest of the world was crazy, and that denying regulatory permissions for the facility was counterproductive bordering on un-American.

That's the way he played it in the Senate and managed to convince just enough of his fellow members to allow a large tract of land, useless for most purposes, to be leased to Damon and his company on which he was allowed to build a nuclear reactor utilizing a shielding—the aforementioned tomasite—that was so incredibly much better than anything any other reactor building company could offer or hope to even describe, with the ability to hold in more radiation and pressures.

For cooling there would be the traditional tulip-shaped towers, but there were also a trio of ten-thousand-foot-deep wells into which all cooling fluids were pumped. Excess heat was absorbed by the surrounding rocks and only cool water was stored for later use in the above ground towers. The reactor ran twenty-nine percent cooler that at other such installations.

In other words, his reactor was nearly foolproof and as safe as an installation of solar panels. The offer to provide New Mexico with all the surplus power they would make helped their cause.

Try as he might Damon could find no reason to go out there until his scheduled visit in three weeks.

He pulled the three other projects he headed up on his monitor and checked their status.

The first was a project to build the self-launching Earth Ozone probe's final stage and equipment package–basically a small solid rocket motor and an intricate spring release devise to allow the satellite to be placed in its proper position once his old bosses at NASA managed to get it to within ten miles of its orbital destination. After it was released Enterprises system would deliver it to orbit.

That was days from completion.

The next was a brand new type of avionics package for the forthcoming line of cargo jets the Construction Company would be building for Enterprises.

Like the first, it was near completion.

The final one was still in the stage where Enterprises had delivered a long project plan in response to a Request For Proposal from the United States Army. Reconnaissance drones had been in existence for a couple decades, but they had rudimentary autonomy capabilities. Oh, they could determine a tank from a school bus—in areas around the globe that could afford school buses (they always seemed to be able to afford tanks!)—but only his design and a terabyte of images to compare against would let them fly without ultimately having a human okay firing on whatever was targeted.

And, his would fit in a package smaller than an old-fashioned cigarette lighter.

He shut the files down. It wouldn't be for nearly

five months before the requestor would respond to all the proposals they received. It as, after all, a Government project and they always ran far too long and were very convoluted.

What did that leave? Day-to-day management and operation of Swift Enterprises… and dreaming.

When he'd taken command of the family company it was only because his father, George Swift, had proven to be both a bad businessman as well as mentally exhausted and unable to make decisions.

The company had been in debt to the point where most employees, some who had been with the company since George's father, the first Tom Swift, had managed it. Now, they had been laid off with little hope of rehire.

Damon had just quit NASA after a failed shuttle launch ended in the disaster he'd figured would happen, even though he had reported troubles on numerous occasions, and had been ignored. He was cleared but felt he could not continue working some place his, or others, input—particularly where it came to safety—was ignored in favor of expediency.

On arrival in Shopton he found the company doors just hours from closing and a single project sucking up time and money even after two years in a development coma.

He forced his father out, took the reins, put a stake in the ground on the project to build a foldable car, and managed to get it built, sold in the

thousands, and struggled hard to get more ongoing business.

It worked. The Swift Company re-grew and rehired, changed its name to Swift Aeronautics and specialized for several years in building aircraft parts and flight systems.

Then, one day he had the idea to build and sell their own products. A radical new radio system came first followed by several more electronic devices. What really got them on track were five Government contracts that came in one after the other.

One had been for a small, quiet reconnaissance aircraft. When that fell through, he decided to build it anyway, and it became the *Pigeon*.

Damon learned to be a business executive and saved as much money—both company as well as personal—as he could against any time business might turn soft.

It hadn't and the bank accounts grew as quickly as the number of employees did.

Tom had been showing up his teachers in Junior High–actually since about the second grade—and had been bumped forward several grades in the hopes the instructors might stay ahead of the boy.

And, as his son turned twelve and his tenure at the company hit its seventh year Damon made the decision to grow. Swift Enterprises, built on a tract of land several miles farther out of town, one the county had been glad to be rid of, had been started

and was occupied a year later.

With the added responsibility came less and less time for his own inventing and more and more time spent managing.

He envied his father at times and secretly wished Tom would come into his office one afternoon, declare that Damon's time had past, and he was taking over running the company.

That thought, now, made him laugh.

Tom was a teen and having as much fun as he could imagine, and Damon did not want to stand in his way. His own father hated the business life but spent more than twelve hours a day, six days a week at "the plant," and ignored his wife and son. As a result, Damon had once promised himself he would always be there for his family.

He got up and headed out the door.

"I'm going for a walk, Trent, It's about time I took a look at where those new building are going in. If anyone really needs me I will be somewhere within the cluster of buildings."

He left the outer office and stepped onto the automatic ride/walk strip running down the center of the corridor. In less that thirty-seconds it deposited him eight-hundred feet at the far end of the hall where he opened the double doors and took the stairs down to the ground level.

This stairway had an outer exit so he stepped into the sun and stopped to take a couple deep breaths. The air in the northern lakes area of New

York was always clean. In spring it was fragrant with blossoms, in summer it was the surrounding pines and their needles that could be detected. In autumn it was the clean rains and smoke from a few fires set to burn leaves in back yards. Winter brought the crisp smell of new snow.

Today it was changing from winter to spring and there was a lot of pollen in the air. He let out three rather explosive sneezes before pulling his handkerchief out and blowing his nose.

One of the things his wife had suggested to make the grounds more beautiful had been to put in meandering walkways between all buildings surrounded by grass, plants and flowers.

He'd agreed. Everything was in bloom, and everything seemed intent on putting pollen directly up his nose.

After a bout of sneezes he decided to make a stop on his walk and headed to the left.

DISPENSARY announced the sign over the only single-story building at Enterprises. He gave his nose another blow and opened the door.

"Well, hello Damon," a young man, probably only in his mid twenties, greeted him. "What brings you here, and please let it be something more dire than a splinter. I now you warned me things might be slow around this place when you hired me, but other than your son and his habit of getting himself hurt everyone seems to be ridiculously healthy."

"Hello, Greg," Damon replied to the young

doctor who had been hired right out of his medical school.

Ranked number one at Harvard's School of Medicine, Greg Simpson had been courted by more than thirty prestigious hospitals across the country as well as two in Japan and one in France, but he had grown up in the small city of Oswego some hundred miles away, so when Damon phoned him offering the chance to bypass being a sixty-hour-a-week intern for several years, he'd thought over the offer to head the new Enterprises Dispensary for about a minute before jumping at the chance.

"I dropped by because I got a snoot full of pollen and it seems my hay fever has decided to nearly blind me and make all my body fluids drip from my nose."

Greg, who was coming to terms with being called "Doc"' by most of the employees, nodded. "Yeah. You and statistically sixty-five percent of the employees here. I had to have a giant jar of a decongestant and antihistamine combo shipped in. Come back and take a seat so I can at least tear off a couple feet of slick, white paper from the exam table after you've left. I want to take a look up your nose before I dispense anything."

In the first of the department's two exam rooms, Damon let the young medico push a hard plastic cone up his left and then right nostrils looking for the typical signs.

"Yeah. Inflamed mucous membranes up there and a little redness in the eyes. I have just the thing

for you. Hang on a minute."

When he came back it was with a small vial containing what appeared to be twenty small yellow pills.

"Take one every six to eight hours and try to avoid breathing in a lot of the pollen. As in, don't stop and smell the flowers."

He handed Damon a small cup of water and watched as the inventor took his first dose.

"For my next trick I will require the assistance of the lovely Olivia. Come in, Ollie," he said toward the heavy curtain.

A pretty brunette in light blue nurse's scrubs stepped in with a curved basin in her right hand and a white plastic bottle with an odd-shaped top in her left. Doc took them and asked her to hold a towel under Damon's chin.

The took the basin and placed it over the towel and under his nose and told the inventor to hold his breath.

The nozzle of the bottle went up his right nostril and a warm, soothing liquid was forced up. A little made its way down the back of his throat, so Doc waited for him to spit it out before attacking the other side.

"It pays to clean out the junk and not just rely on the pills. You should be good to go for a day or so, but if it gets bad again, come back and we'll sluice you out again."

"Can I blow my nose? Some of that liquid is still in there."

"Sure. Here's a nice tissue for you. We'll be out front writing up your bill."

When the inventor came out and stopped by the desk he had to sign a paper stating he understood that should a higher level of treatment be required he promised to not hesitate to call for help.

His walk, recommenced, took him through the entire building cluster such as it was, and past the five new locations that were in various stages of being leveled or having concrete poured.

In months there would be a Propulsion and Metals building, each department getting two entire floors, plus either dedicated or lightly shared buildings for Marketing, Sales, Software Engineering, a two-floor guest quarters build like a modern motel, and a large storage building where he hoped to one day put in a museum of everything the company—going back to his own great grandfather, Barton Swift—had ever produced.

That, he told himself as he walked past the last of the new building sites, *will have to wait a little.*

He turned around and spotted a small group of employees coming toward him. It was his policy to encourage all employees to come up to him or Tom or any of the Executive Staff members if they had a legitimate question or concern or idea, unless that person was speaking with someone else.

Since he was alone the four young men and two

women came over.

"Hey, Mr. Swift," Amanda Valaley whom he recognized as being with the model making group headed by Arv Hanson.

"Hey right back at you, Amanda, and the rest of you. I can see from the expression of each of your faces that you have a need to talk with me. Well, I am on my way back to my office but can give you some time."

"We can walk and talk, if that will help you," a young man he didn't quite recognize, stated.

"Thanks. Let's go, but we can take it as slow as you all need."

On the way back to the office Amanda expressed a concern about everybody's physical wellbeing. "You see, we can walk out here like this, at least when it isn't pouring," she told him, "but this area gets about six to ten rainy days every month. Even the so-called dry ones. We were wondering if there might be some room eventually for an indoor exercise facility?" She looked hopefully at the man who okayed her paychecks as if she'd put all of theirs in jeopardy.

Damon stopped.

"You do realize that for at least five of those months it doesn't rain here at all; it snows!" He grinned at them. "So, I know it hasn't been broadcast all over but those five holes in the ground? Well, one of them is going to be a combination health and fitness building on the

main floor with about fifteen motel-like rooms and meeting rooms for visiting guests above. All employees will have all-hours access to the facilities including a small lap pool and a couple racquetball courts."

He began walking again only to have to turn around to motion for them to follow; they seemed a little stunned at the announcement.

When they rejoined him, Amanda was all smiles. "It's really that easy?"

He nodded. "That easy. I have to admit to you all that this is something Tom and his friend Bud Barclay also have been badgering me about. Now, for the good news… that building is the least complex of the five we're putting up, so I believe the schedule calls for it to be completed, at least structurally, in under five months. Plenty of time after that for you to duck in to avoid the October rains and be snug and cozy and sweaty all winter long." He looked around at them as they neared the Administration building. "Anything else I can help you with?"

They all agreed that he had just made their collective day and they had nothing else other than to thank him for being, "The best boss in the whole world!"

He shook each of their hands and headed back inside.

"Mr. Swift. You have a call on line one. It is from someone named Dr. Brant Hirshfeld. He says it is

in regards a new X-Prize being announced tomorrow."

"Thanks, Trent. But before I take it I want to tell you how sorry we will be to lose you while you are taking time off. Promise to get better and come back soon!"

"I'm just going in to have a small growth removed from my right knee. It is just an annoyance when I bump it under my desk. I'll be back before you know it."

With a chuckle, Damon went to his desk and pressed the line one button. "This is Damon Swift. How are you today, Doctor?"

"I am fine, Damon, just fine. All except for getting everything ready to announce tomorrow. I hate to say it but this go-around is a breaker for me. I'm calling to tell you to not be surprised when I announce the X-Prize at ten tomorrow and also announce my almost immediate retirement."

Hirshfeld had been one of what Damon called "the good guys" at NASA when he'd worked there. As ancient as he'd seemed to the cadre of young men and women working in his department, he must only have been about fifty at the time. His departure had been a month before the accident, the one that made Damon quit and come take over the family business.

"I'm saddened, obviously, but delighted for you. This makes two retirements for you. Will this one stick?"

Hirshfeld let out a hearty belly laugh. “Gads, I hope so. If I go back one more time I fear my wife will… well, *I fear my wife*!”

“You are blessed with an understanding woman by your side, sir, just as I have been.”

“And, Maggie is blessed with a wicked right hook. That, plus she is petite and we all know petite women are feisty.”

“So, what will you do once you are not working?”

“Well, my darling wife has told me I will be enjoying a vacation to some place in the Bahamas that I have always dreamed about. Funny things dreams. I can’t remember a single one that included the Bahamas. Oh, well. I wanted to give you the heads up and also to tell you I sincerely hope that you will consider taking part in the contest. And, yes, you actually qualify this time around.”

Damon knew better than to try to get any pre-release information from Hirshfeld, so he satisfied himself by asking about what might make this contest possible for him, and Enterprises, to be involved in. Most were for small companies and individuals.

“That’s an easy one. This go-around we continue with the requirements that everyone be a privately held company and receive zero funding for the project from any government but be financially stable. In fact, each entrant must be able to post a twenty-million dollar bond but only so we can weed

out the companies who haven't a chance to come up with the necessary funding. Obviously your company qualifies on both stipulations. The, uhh, only thing up in the air right now is whether you will take part. No. No, don't say a thing. I'll wait until you see the official contest details, then we'll talk again. Have a good evening, Damon."

"You as well, Doctor."

Damon and Tom sat in their office looking up at the big screen monitor that hung on the wall across the table of the conference area.

"It ought to be up in a moment," Tom said looking at his watch. "I wonder what this X-Prize will be about. Maybe a pedal-powered airplane that can fly around the world?" He grinned at his father.

"I'm not putting anything beyond reason," Damon stated. "The good doctor told me he hoped I'd take this one on, so it has to be something we at Enterprises can do. That leaves a lot to things on the table. Personally, I wish it to be for someone to build a jet aircraft that can fly using nothing but water. I'd dearly love to get rid of that jet we've leased. It's comfortable enough but it's costly per mile and since we don't own it we can't make modifications. One day soon I want us to build a jet or even a couple models. Maybe after you get your giant jet off the ground, so to speak."

Tom was about to respond when the X-Prize logo disappeared and the face of Doctor Hirshfeld

appeared. He blinked several time.

"Greeting, would be entrants and our esteemed press and other lookers in. I am Doctor Brant Hirshfeld and it is my pleasure to be the current chairman of the X-Prize committee. As you know over the years we have sponsored no fewer than fifty minor and major prizes running from autonomous vehicles to the first suborbital flight to be accomplished by the same rocket twice in two weeks."

He seemed to be looking around at a crowd of people although Damon recognized this as a ploy used by speakers on television to make the audience at home think he was looking at them or at a gathering.

Doctor Hirshfeld hated crowds and made these announcements from a small studio room in their office building in Culver City, California.

"We pride ourselves in what we call incentive prize competitions that can benefit mankind. Take a look at our website to find out more so I can get to the point of this address. One of the things our founder, Peter Diamandis, was most anxious for us to sponsor were projects relating to space. We began fairly small and built to larger and more complex things as time, opportunity, and necessary resources seemed to allow.

"So, it is with some pride I announce another ambitious project, but one that comes in two flavors, if you will. Both have to do with the design, construction and flight of rockets, but this time it is

to put people into Earth orbit where they must safely complete one or more orbits and return to land on… well, land.

"We all know our Russian friends have been setting their returning capsules down on dry land for practically ever. But this is different. There will be a specific target zone so the closest one there, regardless of whether they were the first in orbit, wins. Of course, that in only for launches on the same day and within a two-hour window. The first ten or more teams to declare readiness, and pass inspections by our team, will be given a simultaneous take-off window. A ten-day window will be announced as soon as the first team reports. Later launches do not count. And, this is not a drop in by parachute landing but a controlled powered landing.

"The easy part if it might be termed that—contest number one—is to place at least two astronauts into safe orbit of one-hundred miles or greater. The distance traveled will be a minimum of twenty-eight-thousand two-hundred miles at the lowest allowed altitude. They must take up a data recorder and camera to capture their entire trip, be able to get up and move about their cabin, and perform at least one mechanical task.

"The other part, and this is a separate contest with separate prize, is to put the first cargo-capable capsule into a higher Earth orbit of one-hundred-fifty miles for three orbits and to carry at least ten thousand pounds of payload to that height. The payload must be offloaded in orbit where it will be

brought back down to burn up in the atmosphere under our control, thus lightening the capsule whose three-person crew must also make a pinpoint and safe landing back on dry land."

He gave a few more details before getting to the point of prize monies.

"For the small two-person rocket project, the announced prize is twenty-five million dollars. For the cargo ship project, the prize is double that or fifty-million dollars.

"Now, we know these projects will cost more than the prize money but especially in the case of the larger craft, and our requirement for only non-government sponsored or underwritten entrants will place a strain many cannot overcome. That is why we will insist on three things: first, absolutely no Government underwriting or funding; second, not teaming up multiple companies—this is a one company per entry contest; and three, entrants in the lifting competition will be required to post an assurance bond guaranteeing they will follow all rules and obtain government licenses and launch permissions."

He spoke another five minutes about things he admitted would be in the information packets that could be requested by any serious party.

At the end he said, "I hope you all find this to be two of our more compelling contests. Good luck to all who enter."

The logo came back on for a moment before the screen went black.

“Well, that isn’t exactly what I’d thought it might be,” Damon said. “I suppose the two-man project is a bit beneath us as a company so if we enter anything it ought to be the larger, cargo ship. What do you think, son?”

Tom had a sort of dreamy look in his eyes. When he spoke it was with some amount of awe in his voice.

“Space? I’ve always wanted to go into space. It sounds like a heck of a lot of fun. But,” he focused on his father, “what did you say about not wanting to do that?”

Damon repeated his assertion that the cargo ship should be their focus.

“How about this? You build that cargo ship and I’ll make a smaller rocket that can take me, and probably Bud, into orbit.”

“Not until you finish your jet and do something to bring in money to the company, not just spend it.”

“Okay. It will probably take a couple years for anyone to get to a launch stage so I can wait a little. How about I promise to give you a six-month head start. In fact, we can make it a contest between us as well. So?”

Damon knew he was about to say something he’d regret at some point, but he reached on a hand and placed it on Tom’s shoulder.

“It’s a bet!”

Chapter 3/
DESIGN BEGINS IN EARNEST

DAMON REQUESTED his old drafting board be brought into the office from storage and Trent made the arrangements. Tom offered to just drag in the one he used in the laboratory next door, but his father shook his had.

"You are smack dab in the middle of trying to get your giant flying jet built and I hear you are working on a small helicopter to go into that cavern you're putting at the back, so you might need that board. Neither of us do our best initial work in the CAD program, so I'll be satisfied to have my old one in here. Besides, that ancient drafting arm and I understand each other."

When two people from the Facilities department came in with it an hour later he showed them the spot he'd selected just opposite his desk and close to the windows overlooking the western part of the grounds.

From one of the many drawers set into the wall he withdrew a zippered portfolio and set it on his desk. Inside were numerous sheets of high-quality drafting paper along with a pad of practice sheets, and his case of drafting pens and pencils. He placed a practice sheet on the board, taped down the corners with some masking tape that had seen

better days, watched as the sheet nearly slid off the table, and then re-taped it using cellophane tape from his desk.

Next, he pulled the top of the case off and selected one of the pens. They had all been carefully cleaned for storage so he knew that all he needed to do was insert an ink cartridge.

That is where things started to go against him.

It turned out all the cartridges in the box had dried up either completely or to the point where the ink was so sludgy it would never flow. He sighed, rose to his feet and walked to the office door.

"Trent? Can I get you to order a small box of drafting ink cartridges from the stationary store downtown. Rapid-o-graph is the brand name."

Trent nodded so Damon went back inside.

Three minutes later a small knock come on the door and it opened letting the secretary walk in.

"Here you go," he said setting a small plastic tube on the desk containing three of the requested ink cartridges. "I had to get some for Tom a month ago, and have at least two more of these small sleeves of them whenever you need more. And, before I forget it, they are getting quite hard to find. Should I order as many as I can or will you two try to find an alternative?"

"I seem to recall the last time I pulled things out, for the *Pigeon*, I used up two cartridges on that alone. What I am about to undertake is likely to require twice that much, or more than this entire

set you've kindly stolen from my son." He grinned on seeing the look of shock on Trent's face. "And, I appreciate it. Go ahead and see if you can get us a dozen of these sleeves. I'll have a talk Tom and when we get a little break we'll look into the modern day alternatives. Thanks, again, Trent. Oh, remind me when you leave."

"Tomorrow is my last day for a week. You will have a temporary replacement during that time."

Trent had to have a small elective surgery performed that would keep him off his feet for at least five or six days and Damon had insisted he take a full week off. "It won't do to have you back here if you are hobbled. We'll miss you but get by."

He sat back down on the drafting stool that had also been brought in, unscrewed the top of his .3 mm pen—his set included every size from .25 up to .8 mm—and inserted a cartridge. It gave a satisfying click as he screwed the top back on and an even more satisfying sound of the small ball bearing inside as he shook it a few times to ensure the ink was evenly distributed.

It took a few scribbles on a small piece of scrap paper before he could make solid lines, but he soon had the drafting arm and its straight edge ruler swinging around as he made his first drafting lines in over three years.

He stopped and sat back. *This isn't the way it is done*, he told himself as he recapped the pen and put it into the holder. *I need to just doodle like I taught Tom to do until I have something that looks*

practical.

Still sitting at the table be pulled out a sketch pad from a drawer under the top. He flipped it open and kept flipping until he could find a blank page. He sighed and stood up. All the pages were filled with sketches.

"Trent? Another favor, please. It appears I have filled my sketch book–"

"Bottom drawer of right-hand cabinet over by the sofa," the young man said pointing with the pen he currently had in his right hand.

Damon walked over and bent down opening the indicated drawer. There, in a neat stack, were probably twenty sketch pads. He picked up the top one and closed the drawer again.

"What else am I going to come out and ask for?" he inquired, turning back to the secretary.

"Well, check the next drawer up near the middle. You will find a box of gum erasers. The one you have in your desk is probably far too old and stiff."

The inventor retrieved an eraser and thanked Trent one more time.

Finally back at the drafting board he opened the sketch book, removed the plastic from the eraser and picked up a mechanical pencil from the table's drawer.

Over the next several hours he made fifteen preliminary sketches of everything from a tradition stacked rocket—like those used by NASA and other

companies—to a futuristic flying saucer approach. Most were lacking a lot of detail, but that wasn't the point of this exercise. It was to come up with a selection of possibilities that could be studied by him, and possibly others, to see if anything struck his fancy.

One of the designs that he hoped he could do a better job on had a central capsule on a single rocket stage. That, in his mind, would stand about forty-feet high at the tip and be about fifteen-feet wide at the base. Actually, it would taper out from the tip to that width in the first fifteen-feet of the capsule then be a straight cylinder from that point to the rocket's bottom. Around the perimeter of the capsule he'd placed six smaller rocket shapes which he intended to be solid rocket boosters of about five-feet in diameter and thirty-feet tall.

As with the other designs he made some brief notes about its purpose. For this drawing it said:

> First 3—alternating—solid boosters act as 1st stage. They burn/drop at ≈ 2:30 to 3:00. 2nd set start as 1st drop away and burn another 2:30 to 3:00. They drop and center rocket (liquid or solid?) fires for over 5:00 getting into orbit.

It wasn't much but he would remember his intent from that little bit.

He sat back admiring the audacity of the design. Given the current state of solid booster technology he doubted his small external rockets would do the

trick so he made a smaller note to try upsizing the boosters.

A couple of his sketches he already disliked, but he would reserve final judgement for another day. As he had taught his son it just doesn't do to knee-jerk react to a design until you have taken a few days or a week away from all the possibilities. Then, and with a fresh eye, you could go back and try to see them as if they were brand new to you.

At home that evening he stood in the kitchen with his wife, Anne, telling her about the contest and some of the things he'd come up with.

She put a finger to her lips and walked softly to the kitchen door. After taking a peek out and finding that both their children were not in the living room she came back.

"You do know that your son wants to be part of this, don't you?"

He nodded. "I do, but rather than ask if he could be part of my team he immediately got it in his head to tackle the small rocket project. Of course I told him he has to finish this *Flying Laboratory* jet of his first, but you know how he is… how both our kids are. They get it into their heads to do something and it generally gets done."

Anne sighed. She was thinking about Sandy, their sixteen-year-old-daughter and her determination to hold them to their frequent promises that, "Once you turn sixteen…" That had included wearing makeup and pantyhose, getting

her license—which she stretched into both her driving and a pilot's licenses by arguing they'd never limited discussions to just using the car—wearing a bikini and dating.

Tom was a lot more practical, but he was also much more mature than his eleven month, one week and three day younger sibling.

"Surely," she said, "Tom will get that monster jet of his finished and spend a lot of his time making it better, flying it and making more improvements. That won't leave him time to tinker with any rocket. Then, when he finds time is slipping away you can ask him to join you. What do you think?"

"I think this is going to become a two rocket household whether we want to admit it or not. That boy is more of an inventing genius than I ever was. He's a lot like his great grandfather, the first Tom Swift. Always working on one thing with five other things going on in his brand."

They stopped talking when they heard Sandy's recognizable footsteps coming down the stairs. She walked to the kitchen door and they knew she was pressing her ear against it.

"I sure hope you two aren't making out in there!" she called to them before she shoved it open. "Oh. You aren't. Well, poot!"

Her mother gave her a withering stare which Sandy chose to not see.

"We were discussing whether to put limits on your driving privileges before or after the next

report card," Damon told her with a serious face. "Your grades are not great, young lady."

Sandy looked sadly at the floor. "I know. Not like the grades my dear brother got, or would have got if he'd not skipped a bunch of grades. Not good old Sandy. She's a dummy." She raised her eyes and he could see tears were brimming in them. "Take pity on the dummy?"

She let out a yelp when Anne snapped the tip of a rolled up dishtowel into her hip.

"Enough of the phony tears, Sandra Swift. Your grades need to come up or we will take away the car until they do. And, no flying… *or dating*. Now, put that lip away and set the table."

When Sandy tromped past them to pick up the waiting stack of dishes and silverware, and then tromped back out the door, Anne mouthed the words, "Drama Queen," to Damon. He had a difficult time not laughing out loud.

The only work related discussion at the table was around Tom's forthcoming little helicopter.

"Basically it will carry two people, like Bud and me, and fly at about eighty knots up to maybe five-thousand feet, and carry enough fuel for three hours. I want it to be able to extend the area the *Flying Laboratory* can cover like in forests or jungles."

"But," Anne asked setting her fork down, "I thought you told us the big jet could hover. Wouldn't that do the same thing?"

Tom shook his head as he speared another piece of chicken. “Not for a lot of things. Firstly, those lifters I’m developing are blast furnace hot. We’ll run a lot of ambient air through the atomic heat exchangers, add water vapor to become even more thrust, and what comes out is going to melt anything it doesn’t set on fire up to about three-hundred feet. Maybe higher if what’s below is highly flammable. As it is, we’ll have to make a special landing and take-off pad of heat resistant tiles unless we care to constantly replace an area of tarmac at Enterprises.”

Damon picked up the conversation. “Tom is correct. If anyone needs to observe things at close range, or land where they might otherwise set things afire, this midget copter will be his best bet.” Turning to look at his son, he inquired, “What is going to power it?”

Tom smiled. “I’ve found a small six-cylinder gasoline engine that works in a vertical orientation and puts out two-hundred horse power which will be more than enough to lift two people of up to two-hundred pounds, or even up to nearly four-fifty with a single pilot and some cargo slung underneath. It is only a liter-and-a-half but it’s turbocharged.”

Dinner ended and Anne suggested Tom help clear the dishes earning her a smile from Sandy. Damon excused himself and headed for the large den just off the living room while Tom went up to his room to read some technical journals after helping his mother.

Thirty minutes later the sliding doors opened enough to let Anne slip in with two cups of coffee. She set one on his desk and then perched on the easy chair to one side.

When he looked up and smiled, she asked, "Do you have a realistic chance of winning this contest? I mean, after all the fuss that has been made about Tom's jet project and how much of the company's funding it will take, is there enough to do this and not endanger the company?"

He picked up his cup and took a sip. "That is a valid question, Anne. The answer is this. Unlike just about every other possible entrant, Swift Enterprises stands a near perfect chance of success. And, I know we can do it without breaking the bank. I am going for simplicity and that means low cost. If I learned anything from my years at NASA it is how to *not* do a space project."

He pulled out a couple pieces of paper and a set of colored pencils and began sketching. His first one, which he slid over to Anne as he drew the next one, was the capsule with surrounding solid boosters approach.

"Will that get into space?" she asked. Anne wasn't well versed in rockets or even physics, but she was a well-educated woman with an undergraduate degree in Biology, a Masters in Microbiology and a Doctorate in Microbial Biology. And, while she had evidently given it up easily to become a mother, she had a quick mind and picked up readily on what her husband and son were

doing.

"Possibly not without upscaling those boosters, but the basic design is well within reason. And, that approach would cost less than half what the prize money would give back. Take a look at this other one."

She did and laughed. "What's that? Colored rings with an upside-down ice cream cone in the middle?"

When he nodded and did not join in her laughter she stopped and took a second look. "Really?"

"Yes. That one is an approach to multiple stages that is different from what is traditionally used, but only in that all the stages are the same thickness and height and then nested together in decreasing diameter rings. That ice cream cone is the command and cargo capsule with what would be the final rocket stage at the bottom."

He described how the outer ring would be the first stage and would get the giant craft a few miles into the air and traveling at several hundred miles per hour. Ring two would fire as the first one dropped away—probably to be parachuted down for recovery and reuse—increasing the speed and getting the rocket perhaps as high as fifty miles before it, too, fell away for recovery. The third stage would get the capsule near to orbit before dropping and burning up in the atmosphere while the fourth stage would insert the capsule into orbit. It would remain attached as it would also be the source of the retro-rocket fire to slow the capsule for re-

entry. It would detach exposing the heat shield and, like the third stage, burn up.

She studied the drawing for a few minutes while imagining the flight he'd described.

"Golly!" she said. "Just how big around it that going to be?"

"Well, across it might be as wide as seventy or eighty feet but perhaps only thirty feet tall. I would probably use solid propellant for the first three stages making it very powerful for the weight and also making it possible to build and store the thing ready-to-go. For fine steering and balance each of the engine nozzles, and I picture eight or more in the outer ring, would have the ability to constrict or expand slightly to modify the thrust. Given the computers we have available it would be a cinch to fly."

She gave him a kiss on the right ear then left him to his work and went to the living room to knit.

The following morning he took in the ring sketch as it was a little more detailed than the one he'd produced the day before.

Damon was normally a very patient man but for this project he had the feeling haste was called for. Besides, he had not yet entered the contest and would not unless he had a solid idea of what he might build.

He called Hank Sterling, his chief pattern and jig designer for anything needing to be mass produced. He was also one of the people Damon went to when

he was reviewing designs.

The man agreed to come to the office in about a half hour.

When he arrived and was ushered in by Trent, he found Damon sitting in the conference area with a stack of papers on the table turned upside down. “Looks like I’ll need a cup of coffee for this,” he stated before crossing to the side table and filling an available mug.

“Okay,” he said sitting down next to his boss, “show me what has brought me here.”

“Before I do that, let me tell you the reason for what I have in that stack.” He went into some detail about the X-Prize and the two different contests. It was all news to the big engineer.

“So, I sat down yesterday and drew up some rough designs. I’d like your opinion, good, bad or indifferent, on them all. And, I have no vested interest in any of them as they all came off the top of my head with very little thought. In fact, once you go through these if you have one or more design concepts of your own tell me and we’ll see if I can picture them enough to draw them.”

Hank looked thought the sketches giving each one about a minute of consideration. Some he placed face down and some went into a separate pile face up. When he’d finished he went back through each stack taking one from the face down pile and adding it to the face up one.

“Those,” he said tapping the face up pile, “may

have some good points. Not complete but you know that. The others," and he tapped the face down pile, "I don't particularly like. If you wish I can tell you why."

Damon nodded. "Yes, I'd appreciate your insight."

Hank picked up his rejects pile and turned them over. One by one he pointed out what he considered to be difficulties, omissions or even outright dangers he foresaw. Damon had to admit he had not seen some of what the engineer did, but could not disagree with anything.

Next came the possibilities pile. Again, Hank went through each one telling why he believed each design had merit. In the end he asked Damon what one he favored.

"That one on the top of your reject pile," the inventor admitted.

"Oops!" The design in question was the one with the nested rings and the upside down ice cream cone in the middle. "Tell me what I missed because that one looks impossible to control."

In the end Damon could not convince Hank of the steer-ability of the design, but he did make an excellent point about the weight-to-thrust ratio.

The engineer told him, "Then I'd suggest you tune that design along with the capsule ringed with boosters and the one that is wide and squat but is still a stack of stages."

When he left Damon sat down and redrew all

three adding more details. He ate lunch in the office courtesy of their chef, Chow Winkler, and went back to work. By the end of the day we had three viable designs but his eyes kept coming back to the nested rings.

He spent another half hour calculating thrust for given amounts of propellants so by the time he left work he'd come to the conclusion that design would probably look something like:

- Each ring would be ten feet thick and the same tall.
- The rings would be tightly nested but each inner one would be raised by one-foot to provide a gentle slope for air pressure to slide down and away.
- Rings three and the stage underneath the capsule would contain liquid propellants to offer the most control over how long and how hot to burn for any given orbit altitude.
- The capsule would need to be at least twenty feet across at the bottom (as would the space inside ring three) to provide space for the five tons of cargo listed in the contest plus room for a crew of at least three sitting above it.
- The recovery system would be a steerable parachute with initial drogue to slow descent.
- Although not proven, the rings would need to achieve the following altitudes—
    - Ring 1 = 5-9 miles altitude
    - Ring 2 = 40-60 miles altitude

- Ring 3 = 120-150 miles
- Capsule engines = up to 190 miles

Those altitudes, he knew, depended on the overall weight of the ship at launch, but would certainly satisfy the contest requirement of offloading cargo at 160 miles above the Earth.

As he packed up for the night he left himself a note to do the same thing for the other two designs in the morning. He also scribbled a note to call around to the three commercial launch facilities on the East Coast to inquire about availability and costs.

He left the office and got almost to the end of the hall when it hit him he was forgetting something, so he turned around and went back to the office. He picked up a pencil and made yet another note on the rings design.

Where the heck is the cargo/crew hatch(es)?

Separate for each?

That taken care of he left and went down to his car. On the drive home he had a few other ideas but decided to let them stew in his mind until he arrived at the house. By the time he'd parked he had dismissed three of the four items, and he wasn't so sure that last one was very important at this point.

Anne kissed him and gave him a hug before stepping back seeing the look on his face. "Why the smile? Surely it can't be from that hug." She wiggled her eyebrows.

“Well, it is, but it is also because I believe I’ve settled on the design I’d like to try out first, and it is that rings and cone one. Hank hated it at first but I may just bring him over to my way of thinking. What’s for dinner? I’m starved.”

Chapter 4/
A PLACE IS NEEDED

THE NEXT day, Damon arrived early, many things on his mind. And, to his amazement his secretary was in and sitting at his desk.

"The operation has been postponed for three weeks while the surgeon recovers from having to undergo his own emergency appendectomy last night. Fresh coffee is on the side table. I decided to wait to see if you needed anything to eat."

"Glad to have you here, but how in the heck did you know I'd be in early, Trent? Do you have some hidden camera in my house and keep watch on me?" He wasn't angry, just very curious.

"No, I needed to come in early today to cancel the temp and your wife called as you left the house to see if the night cooks could get you outfitted with, what she calls, 'morning stuff.' I had already notified the switchboard to route calls for you or from your numbers to my desk so I took it." He looked at Damon as if trying to decide whether to say something more. Finally, he gave a tiny nod and said, "I did promise her I'd make certain you didn't skip breakfast. Can I notify the kitchen to come over with some eggs and at least a piece or two of toast?"

Damon laughed. "The next time Anne calls to rat

me out you can tell her I will gladly accept a bit of food on mornings like this. So, the answer is yes, but rather than the eggs could I have creamed beef on that toast. Haven't had that for more than a decade and today seems to be the sort of morning that would go over nicely.

Trent got on the phone as his boss entered the office.

Before they faded from his mind, Damon made a series of notes in his computer. Chief among them was his concern over trying to launch anything larger than a jet from the grounds of Enterprises but especially a rocket.

"I can't imagine what would happen if we had a launch failure as it traversed over to the Atlantic," he said more to himself than to Trent who had just come in with a covered plate.

"Sorry?" the secretary said.

"Oh, just muttering, Trent. Since you are here may I run something past you?" Trent nodded. "Great. So, let's say we want to build a large rocket and launch it. How difficult do you believe it will be to get permission to send anything up from here?"

Trent tilted his head and thought it over. "I would say nearly impossible. Given that anything you send up would need to fly near or over Vermont, New Hampshire and Maine, and at least one major city, Portland, I would have to believe the authorities would deny permission with a single stroke of a pen. Or rubber stamp."

"Hmmm. That's what I have been thinking."

"May I ask if you are really going to launch a rocket into orbit? What I mean is, I know you have the technical knowhow, but NASA and those other commercial launch companies do it. Even then, they have about a ten percent failure rate."

Damon nodded. "Yes, that's correct. But, there is a special X-Prize contest that's just started. Actually it is a two-part contest. One part is for a non-commercial and non-Government-backed two-man ship to orbit the planet, and the other part is for the same sort of people to launch a heavy-lifting rocket capable of carrying at least five tons of cargo and three people. The commercial outfits do one or the other, but not in the same launch. I'm thinking there will be dozens or more nutcas— *people* or teams that will try for the smaller rocket, but not many would be willing to take on the lifting rocket. Event the big guys struggle lifting anything over four tons."

"I'll assume that means you intend to win that part. You will, you know."

The inventor smiled. "Absolutely. Thanks!"

After Trent left he sat at his desk for more than an hour eating his breakfast and looking over his list, contemplating the difficulties. Finally, as eight o'clock came he made a decision. He needed guidance from someone within the very Government who would allow or deny his launchings.

Damon only knew one person in politics very well in spite of the many times he had appeared in Washington to answer questions or present bids. He pressed the intercom button.

"Trent. When eight-thirty comes around can you please put in a call to Washington and the office of Senator Peter Quintana? If his secretary asks, tell him or her it is half social call and half the need for his political assistance. Thanks."

A few minutes past the appointed time Trent buzzed him. "Senator Quintana is at a breakfast meeting and should be back at his office by nine. His secretary promised to have him call as soon as he can but said he might need to defer it until lunch. It is a she, by the way… his wife."

It was understandable, and Damon had no option other than to wait. He was pleasantly surprised when the phone call came through ten minutes later.

"Well, Damon Swift. I hope today finds you well, and also hope you do not want me to try to secure you any more land in my home state. They are already wondering if it was a mistake to lease you that thousand acres."

"No, Senator. It isn't that."

"Listen. If I can call you Damon I think you can call me Peter. Okay?"

"It's a deal. What I called about has nothing to do with the Citadel or New Mexico. It turns out you are the only politician I have spent any time getting

to know, and you also happen to be on a very important committee. The Space Exploration Funding one."

"Hmmm. Interesting. Of course I am only a junior member. Pretty junior all around for that matter. So what is this about?"

Damon told him of the X-Prize and his desire to participate.

"I even have heard mutterings from my own son that he'd like to try, but he's only seventeen and already has a major project on his plate. So, here is my dilemma."

He outlined the need to have a stable base of operations, one with an airfield and plenty of room to build a launch facility. One that would ensure safe operations and be away from prying eyes.

"Most importantly, a place where we can be assured to receive launch permission without months of requests and hearings."

"Ahhh, I see," Peter told him. "That would not be your place in New York, is it?"

"I fear not even though it would be perfect for all but the safety of people should something go wrong. I'm at a loss, Peter, and hoped you might know of some place."

"Let me get back to you in a day or so. I do happen to know of a place, but it is way the heck out of the norm, unimproved to the point of being useless right now, but has the advantage of being under Federal ownership."

When he called back the next afternoon it was with interesting news.

"Damon. That place I was mentioning is available, can be leased from the Government, and my colleagues agree there would be no issues with making rocket launches there given appropriate notification. Care to fly down here and we can go look at it?"

"Hang on and I'll check my schedule. What is your availability tomorrow?"

"Except for a vote I can handle electronically—actually my secretary can vote for me—I am open. I'll hold."

Damon came back a minute later. "I can be at the DC Potomac Airport by ten."

They arranged for the Senator to be at the civilian terminal at that time.

Swift Enterprises made two aircraft, the original *Pigeon*—a front-and-back two-seater—and its updated sister, the *Pigeon Special*, but no jets, and that is exactly what Damon had needed when building the Citadel in New Mexico. So, he had leased a seven-passenger corporate jet. That is what he checked out the following morning and flew to Washington.

As he came in for landing the approach controller waved him off asking that he, and all other aircraft in the vicinity, clear the area so the President's Marine One helicopter could traverse the area. Then, because civilian aircraft had lower

priority than commercial jets, he had to wait in line to land finally pulling up to the terminal fifty minutes late.

"Not to worry, Damon," the Senator told him as they shook hands next to the jet. "When that blasted helo is in the air all ground traffic gets stopped as well until his nibs is safely deposited on the grounds of the White house. I only got here five minutes ahead of you. Shall we hit the sky?"

They got in with Peter taking the copilot's seat. Clearance for takeoff came within a few minutes and they headed out over the coast before turning to the South.

"We're heading for a spot off the coast of Georgia," Peter said. "One of those blink and you miss it places, but I have a hunch it'll do what you want."

After passing the Outer Banks of North Carolina they turned to a more southwest direction and flew on that course for an hour.

"Tell me when we are getting close to being even with Charleston and I'll give you a new vector."

That came seven minutes later and the Senator asked that Damon turn them to a heading of one-nine-two after consulting a note he had in his shirt pocket. "We ought to be over the thing in fifteen minutes."

A little bit later Damon pointed. "Is that it? That low brown spot down there?"

"Yep! That's the one. Historically used by the

Confederacy as a massing point for ships and an off-shore supply point. Called Fearing Island after the Civil War general, Benjamin Fearing. That is not, however, all that important. What is, is that little island hasn't been used for anything in a century and a half, is wholly owned by your United States Government, and is up for permanent lease at a very attractive price. Practically a snip."

"Just how much is a snip going for these days?" Damon asked cautiously.

Peter chuckled. "Would you believe me if I told you one-hundred dollars a year. In perpetuity to the entity who develops it for use by more than a resting and pooping spot for a bunch of seagulls?"

Damon was about to answer but they were just crossing the northern coast. He'd already noticed the island appeared to be about four times longer than it was wide, must only rise above the water surrounding it by twenty feet and was mostly rocks and dead grasses.

But, something else caught his attention.

"It has a runway," he declared sounding shocked.

"Never!" responded the Senator. "No way. Not on that deserted chunk of rock."

"Then, what do you call that?" Damon asked as they flew along a straight area some fifty feet wide and running nearly a mile right down the center of the island. It had obviously been plowed to be straight and level at some time.

"I'll be…" Peter muttered.

As they flew down the center of the island they were passing over what was obviously a runway, abandoned and in poor condition. If it ever had been covered with something like asphalt, that had long-ago eroded or been removed.

The jet cleared the southern end of the island and Damon popped the nose up and headed back to about a thousand feet. He made a sweeping turn and they flew all around the island.

"I like that cove," he commented seeing what appeared to be a natural harbor some nine-hundred feet wide and protected by a crescent of land extending out about four-hundred feet.

"Any way we can set down and look at that runway that obviously can't be here?" Peter asked.

"Not sure, but lets take a low and slow flight over it." He swung them, once again, into a southerly course and set the flaps to full extension and put the landing gear down. Their speed dropped to just above stall speed and they paralleled the runway about one-hundred feet to the East.

"No on the landing. That is too rutted and water eroded to be safe," Damon reported.

"That is a runway. That *shouldn't* be a runway. This island shouldn't have been used by anyone since the eighteen-sixties, but that *is* a runway. We have to get back to DC so I can find out what the heck is going on," Peter stated. "I don't like not knowing about these things nor do I enjoy surprises

on my back doorstep."

Damon suggested the senator take the camera he'd brought along and get a few shots as they flew around one final time.

That completed, they made a call to South Eastern Control and were granted a direct route to Washington.

The Senator got out at the downtown airport but not before promising to get to the bottom of the island's story.

As they shook hands, Damon said. "Just make sure that one-hundred dollar lease is still available. If it is, I think you have yourselves a new tenant."

It took two days before Senator Quintana called, but it was with a lot of news.

"Okay. Sit down and I'll tell you what I've discovered. That island was used during World War Two as a forward airfield—a *secret* airfield—looking for Nazi U-Boats. They had the airfield with about twenty planes including a dozen PBY Catalinas. And, that supposed natural harbor? Dredged and able to take tanker ships and supply ships. Had docking space for three ships at a time plus eight PT boats they also had stationed there."

"Quite the little base, then? Navy?"

"Yes. Built on the sly in nineteen-thirty-nine. How about that?"

Damon was shocked. "Surely they wouldn't have

built a base before we got involved in the hostilities, right?"

"No, Damon. Someone had the foresight to spend a little money during leisure times *in case*. And, here's the big thing, they actually did sink a pair of U-Boats in nineteen-forty-four. Then, as quickly and quietly as they built it, they brought out a bunch of ships in late forty-five, dismantled the base and docks and left it to be reclaimed by sea birds."

It was incredible to think a military base could have existed without the public being aware, and all just over the horizon from the East Coast.

"So, tell me, are there any gotchas we might need to worry about? Mines, munitions, et cetera?"

"Well," Peter said, "there are no promises, but I have in my hot little hand a map of the base with the ammunition depot and storage bunkers marked on it along with where they buried the fuel tanks. I have a suspicion they left those in the ground so there may be some contamination. And, I have no idea if the small submerged mine field they put outside the harbor to deter enemy submarines was ever decommissioned. If you decide to take on that island for your rocket launches, you will need to be extra careful."

"I know a man," Damon told him, "who might help us find out about the mines."

He told Peter about Admiral Hopkins, the head Navy man for the Atlantic fleet. He'd worked with

the Admiral a year earlier on a project to build high-pressure, lightweight SCUBA tanks to allow frogmen to remain under water up to four hours.

"Then, why don't I contact him on your behalf and suggest a little cooperation between Congress and the Navy?"

Damon thanked the senator and shortly after, the call ended.

Tom, who had been sitting quietly at his desk now looked over at his father. "What was that about? Something to do with a Navy base?"

"Well, if you recall a few weeks ago there was the announcement of the new X-Prize for sending up the first all-privately funded cargo rocket."

Tom grinned. "Yeah, and the other one for a small orbital rocket carrying a couple people… the one I want to go for!"

"Well, you still have that giant jet of yours to get completed before you take anything else on. In fact, you really need to get your absolute final internal design finished so it can all be costed out. But, that is another matter. Back to this."

He reminded Tom about the need to have a private launch facility, and Swift Enterprises would not be that site due to safety concerns.

"I decided to call our friendly New Mexico senator, the Honorable Peter Quintana to see if he might be able to help. We really couldn't have built the Citadel without his help and guidance, so I thought who better to ask about this matter?"

“From the sounds of your side of that call I’m guessing he is helping?”

“He is. In fact he and I took a little flight down to look over an island off the coast of Georgia that might just be as close to perfect as we can hope to find. It sits about twenty miles off the coast so it is over the horizon from casual observation, is about three and a half miles or so long and probably a mile wide. And—” he held up a finger to emphasize the importance of what was coming next, “—it has a dredged harbor where we can put in that submarine base you and I have discussed. Plenty of room for the construction building or buildings nearby.”

He described more about the island until Tom had a question. “Can we look it up on satellite view? I’d like to see it.”

Damon thought a moment and then shrugged. “I suppose we can. Come over here and I’ll call it up on my computer.”

Tom sat on the corner of his father’s desk as the older inventor typed away at his keyboard. He quickly had a whole-globe satellite view up and was bringing the view in over the East Coast. He located Charleston, South Carolina and then Savannah, Georgia.

“It is nearly straight out from Savannah,” he said as he moved the cursor over. “Hmmm? That’s strange. I don’t see it.”

He was right. In the spot where the island was

supposed to be was nothing but blue water.

"Could that mean it is underwater during high tides?" Tom asked. "If so I'd say that explains why you can't find it and also that it might not be the best place to set up shop."

Damon shook his head. "No. It has living scrub grass all over the island that wouldn't survive daily dunking in the salt water, and just a hint of rocks around the coastline. It was also dry when we flew over. No, it ought to be right there!" he declared as he stabbed his index finger onto the front of his monitor. "I need to talk to Peter Quintana."

Trent was able to connect him to the senator's office but his assistant, a woman Damon remembered Trent saying was the senator's wife, said he was making a speech in the Senate at the moment.

"He ought to be finished in ten to fifteen minutes, Mr. Swift, and then he will hang around to see if any of the other senators badmouth him over him telling them they don't know what they are doing with the new appropriations budget for keeping Wallops Island up and running. So, I'd say he'll be back here in forty minutes or so. I'll have him give you a call. Can I give him a heads-up what this is about?"

Damon told her to say it was about the place they had visited a couple days earlier.

Peter called thirty-eight minutes later. Before Damon had a chance to say anything he said, "Bet

you're calling about not finding that island."

Damon was momentarily stunned. He managed to regain his voice and asked in wonder, "How the heck could you know that?"

He was rewarded by a bellowing laugh coming over the phone line. "Because I tried to find it on satellite imagery last night and *it isn't there*!"

"Is there a good reason? Tom thinks it might have something to do with tides."

"No, it isn't tides. What it is happens to be an interesting and short story. Turns out that island was designated as a Class A Secret Location. Like Los Alamos and the nuclear-proof archive caves in the Rockies and about fifty other locations around the globe. That started back during the second war. The interesting thing is Fearing Island was never removed from that list, so when satellites started mapping the globe, it was purposely obliterated from all images. And, it turns out that area, or a band of about a hundred miles to the North and South of that spot, are rarely visited even by Russian and Chinese satellites. Something to do with orbital vectors and rotational influences I've been told."

Slowly, Damon said, "So, it is there but to most observers, unless you fly over it in a plane or jet, you just don't see it?"

"Exactly! Makes it kind or perfect for you, huh?"

The inventor had to agree. "What about commercial flight lanes?"

“They miss it by fifteen miles on the inland side and a couple hundred on the outside. And–and this will go to your wanting to use it for launching whatever rocket you build–there are at least three times each and every day when there is a two-hour window with no commercial traffic flying to the East of the island. One is in daylight, late morning, and the other two are at night. Oh! Before I forget to tell you, that lease deal? Well, it is still in effect. If you sign the papers and begin improvements within three months, you can have it either on a ninety-nine year lease or in perpetuity as long as you continue using it and agree to annual increases in the lease amount of one dollar. That’s each and every year so in a thousand years you will be paying one-thousand one-hundred bucks. Think it’s worth it?”

Now, Damon let out a belly laugh. “Peter, you have a deal! When can I go back there with a survey team to make certain the place is stable enough for our needs?”

“I thought you might want to do something like that, so I have obtained a permission slip for you. And, that is a serious thing. It will be a declaration paper giving you free access to the island for a period of sixty days. Make certain whoever is there has it with them as the Navy evidently overflies it on a random basis and will stop by to chase you off.”

The weekend came and Damon, along with a team of three others flying in pairs in two *Pigeon Specials*, landed on Fearing Island just after one on

Saturday afternoon. The runway was overgrown but it had never been plowed up making him believe it had never been paved. The landings were a little rough, but once down he walked the length of the runway and determined he could land the corporate jet there as well after filling in two small lines of erosion about a third the way in from each end. The *Pigeons* had touched down between them.

Hank Sterling was one of Enterprises' top engineers as well as the pattern maker for all large-scale products and, as it turned out a skilled surveyor. He soon had his equipment out and was setting up to take a GPS start mark. The other two, Tom and the company hydrologist, Bob Avers, were still assembling the small portable coring machine they hoped to use to drill down to check what the island was built from and how stable it might be.

To accomplish that last part Tom had a small device built from a laser and a small mirror that would be lowered into each core hole. The laser would shine down to the mirror and back into a receiver which sent data to a computer module.

In fact, he'd brought along six of them since each one required a full twenty-four hours to determine if there was even a millimeter of shift in the ground.

As Bob finished his work Tom and Damon pulled out the large but lightweight tent they would sleep in that night and set it up. Finally, their food cooler was pulled out and set next to the tent in the shade.

"I've got the spot," Hank declared in a loud

voice. He had, during the past hour, been moving around to find an exact spot from which to make all measurements. There was now a small spike surrounded by a plastic ring stuck in the ground at that point and his theodolite was on its tripod, a weighted plumb line dangling and just hovering over the exact middle of the spike.

"What can we do to help?" Damon inquired.

"Well, if someone will be my data taker and the carrier of the other spikes and transmitter rings I can set up the first grid in about three hours. Then, we take the data and set the next grid. We ought to get two grids done today and the final three tomorrow. After that we'll know just how much land we may have here. The only thing missing will be an exact outline. If we had one more person he or she could walk the shoreline with a transmitter to do that."

Damon looked at him. "What do you suppose I ought to do while you three have fun? Give me that transmitter and I'll hike this island. Should only take me four or five hours."

Five minutes later Damon headed due east from their location to start his little walk.

Ten minutes later everyone froze in their tracks as an explosion rocked the island.

"That came from where dad went!" Tom yelled in horror.

Chapter 5/

WHAT A DUMP!

THE THREE men raced off in the direction the older inventor had and straight toward the column of dust rising form the ground.

Hank skidded to a halt grabbing Tom's arm with his right hand and Bob's with his left. "Wait! If that was a land mine there might be more. Hang on a sec." He let them go and cupped his hands into a makeshift megaphone. "Damon," he shouted. "Can you hear me?"

"Yes," came the call back. "I seemed to have stepped on a mine. It didn't go off until I was a good fifty feet away, but I got hit with a lot of debris. You all stay there and I'll retrace my steps. I think my island stroll will need to wait until we get something out here to sweep for more of those mines!"

He cautiously moved back in their direction finally rejoining them a half hour later. The three men running to his rescue had scuffed up the ground pretty well so they could all see the safe path back to their camp.

As they approached the tent next to the runway Damon made a decision.

"We can't take any chances. We'll leave the center spike in place and get the heck out of here

until I can get the Government to come sweep this whole island."

As soon as they were in the air he placed a call using his cell phone. Senator Quintana was just leaving the office but Damon was adamant about him taking the call.

"Better be good, Damon. I've got a NASA funding committee to get to."

Damon said two words. "Land mines."

Senator Quintana said a very rude word, followed by, "The committee can wait. Was anyone hurt?"

"I took a few rocks to my back and arms but only a few small cuts." He told the politician about the explosion delay. "That might be built-in or just because of the age. In fact since it wasn't all that strong of an explosion I have to guess it must be old age, but you have to get someone in there to remove or explode all of those."

"I have just the group. The Navy's SeaBees have a large tractor with a rotating drum in front meant to beat the ground so much it literally shakes the mines into exploding. I recall they can clear a mile stretch by three-hundred yards in five hours. I'll get back to you later today. Sorry, but for now stay off that island."

Damon was about to say that was not advice he'd take lightly when the senator said he had to run.

They stopped off at the Mount Pleasant Regional Airport outside Charleston to refuel before heading

home. There, Damon also called Enterprises and his house to tell them the team was coming home early. He did not mention why to his wife.

The two planes were parked at Hangar 3 at Enterprises and the four men headed for their cars.

Damon and Tom went to the Administration building so the older inventor could clean up his small cuts before going home. The lab Tom used next to their shared office had a small bathroom with a shower. Damon changed into some clean clothes left there for such occasions.

As they walked back past the outer office he noticed Trent's phone was blinking with an incoming call.

"Swift Enterprises," he answered.

"Good, Glad I caught you. It's Peter. I've had a talk with Admiral Hopkins and he agrees to not only check the waters around the island but to get his Construction Battalion folks in there to de-mine the grounds. They will be on site from Wednesday through Friday. I'll call with the okay once I get it."

Damon told him about the central location spike they'd put in the ground near the middle of the island, and the senator promised to pass the coordinates along. As the Enterprises team had trampled all over that area it was very doubtful there would be anything dangerous there, especially that close to the old runway.

In the meantime, Damon decided to take advantage of both the time and his young model

maker, Arvid Hanson, to create a flyable miniature version of his nested rocket design.

Arv, to his friends, had come to Enterprises the previous year after nearly eight years working in and around Hollywood making miniatures for television and the movies. Of course his work had graced many a science fiction shoot, but he also excelled in working and finely detailed miniature cars, trains, airplanes and even a "runaway" stagecoach that had lost its horses.

He was Enterprises one and only Academy Award winner and had his statuette on a shelf above his desk.

When he got the call, he rushed over to the large office.

"What can I do for you?" he inquired as he caught his breath.

"Well, from now on you can *not* run like a crazy man to get over here unless I say it is an absolute emergency. Then, I have a little project you will be perfect for."

He described the X-Prize contest and his desire to build a full-sized rocket to enter. He also pulled over a color printout of the design he had in mind.

Arv whistled. "Wow. Will that fly?"

Damon chuckled. "That's the point, but I won't know how well until I can get a test version in the air. The computer tells me it is stable but can't fly very fast or very high before the fuel is used up. So, I need one of your scale models."

"How large is the real one?"

"Right now I envision it as being about seventy-two feet wide." He began placing lines and notations on the drawing regarding various dimensions. "You see, each of those three rings—the three main stages for this rocket—are ten-feet wide and ten to twelve feet tall. The bottom of the capsule which is technically the fourth stage is twenty-two-feet wide and sixteen feet to the bottom of the heat shield."

Arv looked closely at the drawing. It didn't show the rings fully nested, but it also didn't show them connected in any manner. He asked about it.

"Fully nested at takeoff for maximum rigidity and strength. Standard explosive bolts to hold and release."

"I see," Arv said sounding dubious. "Well, what scale do you want to test?"

"Let's see. If we put in those new Class-L stubby model rocket engines, perhaps six of them evenly spaced around the perimeter, and those are thirteen inches tall, then we leave an inch gap at the top and that means this needs to be about a one-tenth scale model. So, seven feet plus at the base. You know, that doesn't sound like it needs that large a set of engines. So, is there an H or J-class that is the same height, or less?"

"I believe many of the J-class are under a foot these days. A bit wider than earlier versions, but I'd feel better sending this up with six, or even four, of

those for starters."

It was decided that Arv would build the model with only the outer ring providing propulsion. It would not be necessary to test the ability to shed rings at this point.

"I'm going to put in mounts for a four-engine configuration as well as a six engine one," he said before departing. "I hope you can give me a week on this because of everything needing to be perfectly round."

Damon agreed. Two days later he was sitting at his desk reading through several of the emails that Trent allowed him to see when the intercom buzzed.

"Senator Quintana for you on line one."

"Thanks!" He punched the button. "It's Damon."

"Well, the Admiral certainly wields a lot of power and influence. He actually had his people there first thing Tuesday and they did the entire island by ten this morning. Worked all night as I hear. He says they found three other mines and all very near the hole the one you tripped made. Good thing you didn't stumble around or you might not have been as lucky as you were."

Damon gulped. "Uh, so is it safe to return to complete our survey?"

"It is, but it might not be totally necessary. The Admiral sent over a detailed chart of the island. Much more detail than that drawing I had earlier. It was taken by a helicopter hovering at five-thousand

feet and used a very high resolution camera. You can see individual rocks. You can also see the ghost of the runway markers. Three-four at one end and one-six at the other. Oh, and he had their big tractor level out a few bad spots in the runway so your jet may kick up some dust, but be safe to land. This chart I have also includes the latest water depths for a space of one mile around the island."

The inventor told him he still needed to check the stability and composition of the island, and thanked the senator for his fast follow through.

"Not me; it's the Admiral who sends his regards and hopes to come visit the old island as you get started with the rebuild. Tells me his great grand uncle, or someone like that, was stationed there as a young man in nineteen-forty-five and was part of the decommissioning team."

It was arranged that Damon and his people would return to the island the forthcoming Friday, and the senator asked if he might tag along.

"If you fly down here to DC, I can arrange for a C-130 transport plane to take us all and any equipment you have down there."

Damon arranged for a truckload of equipment to be sent down to Washington on Thursday and he and his now seven-man team climbed into the corporate jet and flew down Friday morning. They were directed to land at the old Andrews Air Base to the southeast of downtown where the senator, a pair of men who must be Secret Service, and a dull gray transport plane with U. S. Navy markings were

waiting for them.

Unfortunately, it turned out Senator Quintana was unable to join them for this trip.

“We’ve loaded all the things the truck brought down and it is load balanced and strapped in. If you gentlemen would head in and up the forward ladder to the seating area we can be off the ground in ten minutes,” a young flight petty officer told them.

They were in the air only a little over an hour when the pilot called back they were approaching the island and to make certain they were strapped in.

The descent was steep and the plane only flared out just above the ground making a bumpy landing. They taxied to a halt about where the Enterprises men had set up the first camp, Once outside it was easy to see why they had come to this point.

Along with the stake Harlan had planted, there was a tall orange traffic cone with an orange flag sticking out the top right next to it. They were to find out later the Navy people had marked the stake like that so they would not drive over it and had not removed their marker when they departed.

The six-person air crew–four men and two women—had the plane open and everything offloaded in five minutes. After that they lent a hand to unpack and set everything up. They returned to the aircraft and brought out a bulky bundle of camouflage canvas. It was unrolled and

erected into a large tent in minutes.

The two youngest crew persons brought out folding cots and a portable bathroom.

In less than an hour after touching down, the big plane carefully turned around and headed to the end of the runway. It passed well over their heads waggling its wings in salute to them. Things had been arranged to have it, or a similar aircraft, on standby, but it would definitely be back in three days to pick them all up.

Hank and Tom set out on their mission to survey the island. It wasn't as necessary as before, but this time there would be detailed GPS coordinates added to their chart.

Bob Avers had brought along an associate and an even larger coring machine so they began taking their first sample. The others spread out in twos with Damon and a young woman, Yvonne Slade, heading for the dredged harbor area.

As they approached the ocean, Damon had to ask her a question. He'd notice she was constantly looking down and around as if slightly disgusted by what she saw.

"What is your honest opinion of this island?" he asked as he watched her try to scrape seagull droppings off her shoes for about the twentieth time.

"Have you ever seen an old movie called *Beyond the Forest*?"

He thought for a moment but it did not ring any

bells. “I’m not sure. Why?”

“Well, Bette Davis said that immortal line she’s known for in that movie. You know… ‘What a dump!’”

Damon laughed. “And here I thought that was from *Who’s Afraid of Virginia Woolf*,” he said. “Shows what I know.”

“Oh, it came from that as well. And another movie I can’t recall the name of right off hand. Anyway… yuck!” She kicked furiously at a rock with her shoe trying to dislodge a particularly large clump of the offending substance. “This place is a real dump. Oh, don’t get me wrong. I think it will clean up nicely, but today it is dirty, poopy and dumpy.”

He had to silently laugh, Right now she reminded him of his own daughter.

There was a nice gentle slope down to the harbor where it was obvious a lot of work had happened to make it workable for hosting large ships. The sharp dredged cutoff had softened with time, but the nearly clear water still looked deep, perhaps as much as fifty feet within ten feet of the water’s edge.

He took a look around them imagining where buildings may have been, and where new buildings would soon be. After checking his watch he pulled a barbed metal stake from his back pocket and a small plastic ball from his front pocket. The stake he shoved deep into the soft ground right at the

water's edge. Next he gave the top half of the ball a twist and extracted a small knotted string. This he tied to the stake before setting the ball next to it.

"What's that?" Yvonne asked.

"Well, according to the tide tables and my watch we are about at low tide. That ball is a float that will record just how high the water comes up at high tide. When someone comes back later and picks up the ball the amount of line that came out plus the stake length will give us our high water mark."

"Oh, and you need that to know where to build things and how high the docks should be. Right?"

"You are a very smart young woman, Yvonne. I understand that your father was a rather well known Navy submariner. You ever think of taking after him?"

They turned to leave the area as she answered his question.

"My father loved the sea. I loved the sea, and my mother hated it. She knew it would take his life, and it did. I was eleven. When I told her I was thinking of joining the Navy she hit the ceiling and forbade me from doing it. It hurt and I sometimes think I should have defied her, but I didn't. I went to college and got my degree in Geology and then came to work for you. But, yeah. I kinda do wish I'd gone into the service. May I ask why *you* ask?"

"Well, I believe I am going to need someone with your education here for the construction–and clean up, of course—to build this island into a base of

operations for a new type of submarine Tom and I have discussed and he is about to build, and then we will want qualified people to pilot those submarines. Test them at first and then crew them should we do more than build them for others. I won't ask if you are interested right now. Think it over for at least a week and then we can talk. In the meantime, don't step— sorry. I was too late."

She looked down at her right shoe and sighed. "I'm going to chuck these out of the airplane as soon as we take off!"

By dinner time the next day Harlan had the entire island charted and positions every five-hundred feet marked with stakes and those GPS locations in his computer. Now, by triangulation any work done would be accurate to within half-an-inch.

The coring was going slower but that was because Bob was driving down to a point a foot below the surrounding water line. In the shallower ones Tom's shift measurement lasers were finding a very stable island under their feet. That was good.

The core samples showed a tightly compacted mixture of sand tightly bound with calcium carbonate—from centuries of shell deposits—some volcanic rock pointing to this having once been the top of an underwater volcano, and a top layer of two feet that must have been shipped in when the island was turned into a military base.

Yvonne agreed with that theory.

"There are some things that are reminiscent of the sort of dirt moved in to help build out Hilton Head Island. That was trucked in from a former hill near Macon, Georgia. There's no hill there now, but it had a good deal of feldspar and bauxite, and that is what the spectra-analyzer we brought shows is in the topsoil of this island. It is not something you'd get out of a volcano."

In all, the trip was a great success. Damon's tidal ball showed a rise of just two-point-three feet between low and high tides, and that would make it possible to have stationary docks rather than ones that floated up and down on deep pilings. The core samples showed a very stable and solid ground on which just about anything might be built, and an experiment in shaking the ground using a single stick of explosive and a seismograph set up two miles away told them the ground would resonate but not shift in case of a tremor.

When they arrived back in Shopton, all of them badly in need of showers and clean clothes, Damon made a call to Senator Quintana and told him to send the paperwork.

"We will take that island and make it a paradise!" he declared. "Well, not exactly a paradise, but a working, livable base for our rocket plans and for submarine development and construction. And, we'll take it in perpetuity even with that terrible rising cost thing."

"Yeah, about that. I got word from the Navy that as long as you promise to take care of the island

and the surrounding waters so they don't have to make all those trips out and back, or around the island with subs, and pay in hundred-year increments, they will save so much money that you can have the island of Fearing for the hundred a year with no annual rise. How about that?"

"Sold."

* * * * *

Three days later Arv called to tell him the scale model of the rocket was ready for testing.

They agreed to meet at the unimproved area at the east of the grounds, a place about a mile long and five-hundred feet wide where the native plants, shrubs, rocks and even the occasional snake could still be found. When Damon arrived Arv had a small launch platform constructed with a guide rail sticking up about fifteen feet.

The model was resting around the rail, evidently ready to fly.

"I've put in adapters for the first flight," the model maker explained as they shook hands. "For this one we'll be using H-series engines. I got the weight down to the point where six of those ought to get her up high enough for the chute to pop out of the central cone. That's on an inertia trigger. Once she stops moving up out it comes with no delay."

"Then, I suppose the thing to do is get this out of the way. I have a hunch my design is not going to be a truly great flyer, although I have faith in the

basic nested rings approach as opposed to a very tall stack."

Arv handed him a hand-size control box wired to the launcher. "Standard pin to arm, switch to energize, and single button to activate the firing system."

Damon handed it back and walked over to the model. The square tops and bottoms of the individual rings abutted one another tightly. The overall model was between seven and eight feet across and under thirty inches tall. It almost looked like some sort of giant hat his grandmother might have worn.

He returned to Arv and took back the firing board.

"Let's go. We have about twenty minutes of time before we have to notify the tower to extend our windows. So," and he pulled the pin and flipped the power switch noting that the green light came on, "in three… two… one…" and he pressed the firing button.

A whooshing sound came from under the rocket and it headed up. In a half second it cleared the top of the rail and continued upward, but awfully slowly. All too soon the engines burned out and the top of the capsule opened. The chute was pushed out by compressed air but didn't get fully open before the model hit the ground.

Damon looked at Arv and shook his head.

"I was afraid of that. Let's see if it is flyable then

try it with larger engines."

They checked it over and found that other than a small crack in the outer ring on one side, the model was is good shape. Arv pulled the old engines out and put in new, higher-capacity ones while Damon refolded the chute and replaced the compressed gas charge. With five minutes to go in the flight window they had the rail disconnected, the model in place and the rail inserted back through and locked down to the platform.

"Three... two... one..." and he pressed the firing button again.

This time the rocket flew straight up until it reached the top of the rail at which point it began to accelerate but also picked up a wobble that was visible in the exhaust smoke pattern. It managed to get to about three-hundred feet before the parachute came out lowering it softly to the ground.

"Not what I hoped for but it's just about what I expected, Arv. I'm going to need to rework that design. I believe the center module is salvageable, but I have a new idea for those rings, so you may not be able to reuse them. Thanks for the hard work, though. It really proved how difficult it is to fly something like a disc straight up."

"We'll see," was all Arv told him. "Those rings are just machined balsa that can be reshaped or even added to if necessary. I'll send over the telemetry info to your computer. I put in a small package to give acceleration, tilt, wobble and altitude."

When he reviewed the information Damon knew his instinct had been correct. The tight nesting was working against the flyability of the craft. He performed numerous calculations before coming to the conclusion the rings had to feature some space between them to allow a certain amount of the pressure that built up to escape. It could be the perfect way to utilize the explosive bolts that would detach spent stages.

To aid in the passage of air he also made a note to curve the tops of the rings. It would make them individually more aerodynamic and allow more air to move downward.

He had another notion he made a detailed note about, but wanted to have Arv build another scale model, this one with rings that could be taken off one-at-a-time. The next one he intended to take into the wind tunnel for a number of tests to try to find the best configuration for his rocket's ring.

Now that he had a place to build his rocket base he was more determined than ever to have something to launch from there. And, even if he missed out on the X-Prize he wanted his new giant lifting rocket to be something he might go into a little competition with his old bosses at NASA.

The more he thought about it, the more convinced he was that he wanted his space rocket to show his ex-employer how you could do things safely and for billions of dollars less than their approach.

Perhaps, rubbing their noses in how he could do

things safely and listen to his employees might be a small added bonus.

Perhaps!

Chapter 6/

STRENGTHENING A POLITICAL FRIENDSHIP

WORK ON the new island base was moving steadily ahead when the first autumn storm hit. It wasn't a hurricane, but it was categorized as a fairly fierce tropical storm with winds as high as ninety miles-per-hour.

The only loss was a large metal panel on what was to be the first of the submarine construction buildings. It had not been fully attached to the solid steel inner structure when the alarm was sounded and had been ripped off and flung into the ocean where it could be recovered later. Fortunately there were no workers or equipment inside, everyone having been sent to a shelter under the dormitory building that had gone up first.

But, it did point out the dangers of locating just off the coast in an area known for strong storms at various times of the year.

After the storm passed and Damon flew down to survey the damage he determined his initial plans to deeply anchor each and every structure into the bedrock of the island some thirty feet down had been a smart decision.

While he was on the island he received a phone call from Admiral Hopkins.

“I heard you were down there, Damon. How did things fare? We lost a tanker aircraft at the Dobbins Air Reserve Base in Marietta. Got flipped over and tore a wing off.”

“Very well, all things considered, Admiral.” He mentioned the siding piece.

They spoke about the work the Navy had been putting into the security of the island over the years. “At times it has been a real pain in the keaster,” the Navy man admitted, “but we’ve long believed if we simply ignored it, that strip of land might turn into a drug distribution base. As it is we have chased off at least three foreign submarines from the surrounding waters in the past four years.”

Damon told him of a plan to place listening devices under water to surround the island. “Like the old SOSUS system they ought to pick up anything within hundreds of miles. “

Admiral Hopkins snorted. “If I know you, your folks will figure out a way to listen all the way around the world! But, on a serious note, have you given any thought to protecting the skies around Fearing? I hear it will remain on the list of ‘unknowable’ places and I hope it will be declared a no-fly zone, but I’d hate to see some bad guys swoop in and take it over once you get the airfield nice and pretty.”

It had occurred to the inventor, but he told the Admiral nothing had been done about it. “Tom has a design in the computer for a remote drone, but

nothing has been built."

"Well, word to the wise and all that. Anyway, when can I come see how you're cleaning up the old seagull bathroom."

Now, Damon laughed. It turned out, much to his relief, that the seagull population actually didn't live on the island. They flew out from the coastline, crossing the twenty miles of open sea before alighting for a rest. Then they hunted and ate from the surrounding waters before another rest and eventually heading back to the mainland before the sun went down. A few might remain overnight, but they were not nesting there.

They did, however, leave an incredible amount of "deposits" behind. The positive about that was the soil was quite fertile.

"The gulls are keeping at a distance from us, Admiral. It seems they do not like having us here. We want to keep it like that so we've set up several propane cannons that go boom at irregular intervals and keep them from landing. But, to your question, come any time. Just give me a day's notice so I can be here."

It would be several weeks before the Admiral had the time to come down but he promised to let Damon know a few days ahead of any opening he had.

Damon's ringed rocket had gone from rough sketch to 1/10th scale model to a 1/5th scale multistage rocket in just four months.

Arv's smaller model showed many of the possible ways to improve the design, but the fact was the small size limited the amount of valuable data they could collect. For instance, the level of pressure build-up on a seven-foot model was not in direct scale proportion to what would be encountered in a full-size ship.

Of course Damon had accounted for a lot of this in a computer program he'd designed to predict the final values for all aspects of a real launch, but it just was not the same as sending up the real thing.

That brought the notion of an unmanned rocket, somewhat larger and fueled with the same liquids the final one would carry.

To shape the outside panels Hank had created a sliding jig that could be set for the outside and inside curves of each stage, including the much narrower fourth stage. This let workers insert pre-heated polycarbonate sheets that were immediately pressed and cooled into their final shapes, each one as near perfect as possible, and that meant assembly was a breeze.

"I assume that can be upsized for the final rocket," Damon told him at lunch one day.

"Of course! Would I ever make something that teased a possibility only to yank it away when reality comes along?"

The necessary fuel tanks were being welded together from aircraft-grade aluminum sheets that had been stamped into the proper shapes, and

would contain separate tanks of liquid helium to force the real fuel and oxidizers into the motors rather than using fuel pumps. Around each tank would be spray-in insulating foam.

In only three weeks and a day the mini-rocket was finished and had been loaded into the back of the Swift's cargo jet. On arrival at Fearing it was unpacked and taken to the assembly building for final checkout.

"What goes into the capsule besides the guidance and telemetry equipment?" Bud asked. He had taken the opportunity to volunteer to help pilot on this trip. "And, do you have a name for that thing, yet?"

All the older inventor could do was shrug. The truth was he'd spent zero time in the past month or more thinking about what to call the rocket.

"The *RingThing*?" Bud ventured. "Two words pushed together with a capital T in there?"

Damon chuckled. "Keep trying, Bud. Maybe someday you'll come up with a winner, but it will not be *RingThing*!"

"*Ring-o-Saurus*?"

"No, Bud. Now stop with the pun names and help us get this mounted on the moveable platform."

Under his breath, Bud muttered, "*Ring-o-Soar*?" that Damon chose to ignore. "*CosmicSoarer*?"

The launch would take place the following

morning with all work up to moving to the launch pad happening before dinner that day.

Damon left the others to connect all the supply lines to the rocket and headed for the base Administrator's office. With nobody actually filling that position yet it had defaulted to becoming his office when visiting.

He was about to sit down when his cell phone vibrated in his pocket.

"Hello. Damon Swift here."

"Am I ever glad I caught you. It is Peter Quintana. I hear from your secretary that you are down on Fearing about to launch something. True?"

Damon admitted it was but not until the next morning.

"Thank heavens for that. Is this thing capable of getting into orbit? Even a tiny bit above low Earth orbit. Maybe a hundred and ten miles?"

"Well, we are only going for eighty miles up this time, but technically the rocket could carry enough fuel to get there. Why?"

"There is a rather sensitive package that needs be taken up in the next three days. It has its own booster to get it to insertion, but it needs a ride."

He described it as being roughly four feet square all folded, weighing in at five-hundred-three pounds, and simply needing to be shoved outside pointing in the correct direction, namely away from

the planet.

"I'd love to accommodate you, Peter, but our capsule is not outfitted with a hatch that can be remotely opened much less built to push cargo outside."

"Damn. I was afraid of that." He paused as if trying to decide what to say or do next.

Damon came to his rescue. "We might be able to rig something up, but it would take a couple days. Perhaps three. If we launched on Sunday, that is three days from today, would that do it for this mystery package?"

"Any time before twenty-one-hundred hours East Coast time. Not the final placement, just the launch. And, it needs to be in correct orbital orientation by midnight."

The inventor promised to call back within the next few hours with the feasibility answer.

He raced back to the assembly building and pulled Hank Sterling aside. After describing the cargo and the need to eject it, softly, along with the need for secrecy, he asked the big question.

"Can we handle that?"

Hank laughed. "Well, probably better than you might think. To aid in installing our dummy cargo container and then getting it back out I engineered in a sort of sled-on-a-track arrangement. Give me ten hours and I can add some sort of hydraulic ram, probably powered by a CO_2 cartridge, that can shove the thing back out. That just leaves adapting

the hatch to open. Hmmm?" He thought about it a minute before suggesting they find a place to sit and sketch things out.

Half an hour later they had the answer. The same CO2 cartridge—now a small tank—could be used to turn an enclosed gear mechanism to spin the hatch control to the unlocked position and then allow the sled to push it open.

"All we need to do is keep the pressure relief valve open all the way up so there will be no pressure or air inside when we shove this package out," Hank decided.

"What about getting the hatch closed again?"

"Well, when the sled comes back in it pulls the door closed and a separate cartridge spins the mechanism the other way."

Telling his engineer to get on the job, and to let everyone know of the extra two day delay in the launch, Damon headed back to the office making his call to Washington as he drove.

"Okay. We are almost certain we can carry that package up and shove it out, but I have to warn you that we only figured out a dummy cargo load of four-hundred pounds. We will see how much extra fuel we can get in but I'm not totally convinced we can give you one-hundred ten miles altitude. Does that kill this?"

Peter cleared his throat. "No. It makes things terribly tight but I am begging for your help on something that either goes up now or never. Even if

it is a failure the money has been spent. I will have the package shipped up tomorrow for you; it will come from Canaveral. I'll be there late tomorrow evening. I hope you can fit it in and take it up but this won't change our relationship one way of the other. Well, maybe if it succeeds it will change things for the much better. Thank you, Damon. You may be a career saver!"

Damon was about to ask what that meant when the line went dead.

The package arrived in an Air Force cargo jet complete with ten fighter jet escort. The large jet touched down and had barely halted by the end of the runway as each of the fighters came in; all would be in need of refueling before departing. The only issue with that was the fuel tank for aviation fuel was not built and the supplies on hand were barely sufficient for emergencies.

Swift jets were being fueled in Shopton and had the range to make it to the island and back with plenty of reserve.

The loading ramp at the rear of the cargo jet lowered, and a boxy truck trundled down onto the tarmac. The driver opened a small window on his side and asked a nearby technician where Damon Swift could be found.

"Probably at the launch site. Whatcha got in the truck?"

"I have something you don't have a need to know about, but point me to this launch site."

The tech pointed to the access road running east from the runway and said, “Down that until the only intersection, left and about a mile. And, you don’t have to be such a jerk about things. This isn’t a Government installation, you know. It is private property.”

But, the truck was already moving away as he said this.

Another vehicle came out of the jet. This one was obviously a troop carrier and it quickly followed the first truck.

The technician was about to call when the base’s only Security jeep showed up. The Air Force jets had not called for permission to land and the Security man, Phil Radnor from Enterprises, had placed a call before coming out.

When he pulled up the pilots from the fighters were all massing together in front of the first two jets.

“Have to ask you to move those off island,” Phil said. When the military pilots laughed, he added, “That goes for the big jet as well. By United States Congressional Order sixteen dash four-thirty-two stroke Alpha-seven, dated the fourteenth day of May of this year, I quote, ‘No aircraft whether civilian, commercial or military shall set down on Fearing Island without the express permission of the owner, The United States Government represented by Senator the Honorable Peter Quintana, or that of the primary lessee, Damon Swift of Swift Enterprises, Shopton, New York.

Violators except in times of pre-declared emergencies shall be subject to monetary penalties and forfeiture of their aircraft at the discretion of the lessee.' End quote. Now, fellows, and I see at least one lady, I hereby notify you that your aircraft have been impounded pending payment of a release fee."

He looked at them to see if they were taking him seriously. At least half of them were.

"Okay, I see confusion. Here's the basic problem. You all landed without permission on private and protected property in spite of our constant auto-transponder stating that this is a heavily controlled airspace and prohibited landing zone. And, don't say 'We never heard that,' because it is broadcast on all frequencies including the one you use for aircraft to aircraft comms.

"The aforementioned Senator Quintana has been notified and is rushing down here right now. He is also getting into contact with, now let me see if I get this name right, Lieutenant General Thadeus Barnes, to let him know of your little boo-boo."

"We don't have enough fuel to leave," stated one flyer wearing the gold oak leaf of a Major.

"Oh. That's not an issue," Phil told him. "As I stated you leave and the aircraft stay. Parked jets do not require fuel. Besides, we don't actually have any JP-8 fuel to supply you. That is what those take, right?"

"You can't hold our jets!" a man with the double

bars of a Lieutenant shouted.

Phil was about to state that was exactly what was happening when Damon drove up.

“Troubles, Phil?”

“Just explaining that by coming in and landing unannounced, fully armed and with zero permission to land, these fine aviators are losing possession of their jets. At least temporarily.”

“You can’t do that,” another pilot stated.

Damon smiled at him putting the angry man off his guard. “That is a matter for Senator Quintana, a sitting member of the committee that approves monies for your very jets, and the man who I hear is in charge of all Eastern States Air Force Operations. Both will be here in an hour. For you comfort I’d suggest heading into that big, if a little outdated, C-17 of yours. I’ll have refreshment sent out. Besides, I don’t know if Phil told you but we can’t refuel you and I doubt you have ample fuel to get back to even Robbins or Moody air bases.”

When another jet did ask permission and touched down fifty minutes later it let four angry men out.

Peter Quintana came up to Damon while the other three, all with Air Force senior staff insignia went to speak with the pilots.

About that same time the first truck returned but the troop carrier did not. When the driver and his armed guard climbed out General Barnes pointed to the cargo jet and ordered them to march up the

ramp.

An hour later Damon let the military people off the hook.

“While you did all land without even the courtesy of a radio call, and you landed with visible armaments, something we absolutely do not allow on any of our properties, I will not force the issue of forfeiture. As soon as you can get some fuel out here, or a tanker to stand off by at least ten miles for in-air refueling, the jets are free to depart.”

General Barnes came over to Damon and grumbled and growled, but he did so with a twinkle in his eye, a sly wink and the understanding it was for show for his pilots.

Although the pilots would not be capable of leaving until the following day, Damon would not keep them prisoner in their cargo jet. Each man or woman was given part of a shared room in the dormitory building and fed. They just did not have freedom to roam around the island.

The secret cargo was, as suspected, some sort of top secret satellite and Damon figured it to be a surveillance one of military importance. It was kept under lock and key, with military guards, until the cargo hatch and sled had been adapted for this mission. The evening before launch it was loaded, checked, re-checked and finally sealed inside the cone of the rocket.

Peter Quintana had remained on the island to witness the launch.

As the time approached he and Damon stood behind a shield watching from a mile away.

“Ought to be going up in two minutes,” the inventor said. It was one hour before sundown.

“The sooner the better for my money. How many fingers and toes can you cross before it no longer means good luck?”

As they discussed the options, and urban myths around that, the final ten-second count came.

Right on time the rocket nozzles belched smoke and flame and the rocket headed skyward. Damon was afraid it might still be rising too slowly but it was obviously gaining speed. Soon, it was only a trail of smoke high in the sky arcing to the east.

At the three-minute fifty-second mark the explosive bolts went off and the first stage dropped away. Then, as the stage two ring fired, triple parachutes could just be discerned as they billowed out to lower the initial ring to the ocean.

A retrieval boat had already been dispatched to the vicinity of where it might touch down.

“That was magnificent,” Peter stated as he lowered his gaze from the sky.

With a smile, Damon agreed. “It certainly was. That, by the way, was with traditional fuels. For the real thing we have something else a little more exotic in mind. Let’s get over to the launch room and check the telemetry. I’d say it looks good, but it is the numbers that will tell the tale, Peter.”

“By the way. I think we are going to be friends for a great many years, so call me Pete. At least in private. My mother called me Peter and my father called me Petey. Right up until the day he passed, *Petey*. Okay?”

Damon chuckled. “I’ll be honored. Of course, in public and especially in DC it will be Senator.”

“Fine. And, forget about filing that Petey thing away for future use.” He was grumbling but he also had a smile on his face.

“Okay, but you mentioned something the other day about your job being on the line or something like that. What was that about?”

“I sort of made a big thing of funding for that payload. As in I stated that if it couldn’t be launched within a certain timeframe it didn’t deserve to be funded. That somehow got twisted around to making it seem I guaranteed the launch. You have helped me greatly and I will not forget it. You shall always have a friend in a high place as long as I can hold my seat on the Senate. So, what’s next for this place?”

“Next? Get the rest of the place built and get my full-sized rocket put together and in the air.”

On arrival in the control room they both could tell from the smiles that the rocket was on its way to a successful launch and deployment.

For the best part of a year Damon’s son, Tom, had been designing and building his Flying

Laboratory—now christened the *Sky Queen*—at first within Building Three at the Construction Company and then, once in flyable if bare-bones condition, finished at Enterprises. And the final month had been a whirlwind of outfitting the giant three-deck jet with everything imaginable.

It absolutely warranted its nickname of Flying Lab with its set of nearly two dozen individual lab spaces. Anything from a small plastics foundry and another one for shaping and producing metal products, to spectra-analyzers for anything solid, liquid or gas, and many things in between. All could be found on deck two of the *Queen*.

It could be flown by as few as two people, but could handle a crew of two dozen in small, individual sleeping cabins, and carry enough supplies for nearly two months.

Damon took some time off from working with the new rocket to celebrate Tom's eighteenth birthday and a few weeks later his daughter, Sandy's, seventeenth. Both were joyous occasions.

Then, the unthinkable happened.

With little to do toward either the new base or his forthcoming rocket, Damon and Tom had agreed to head to South America and meet with other scientists to try to find out if the nation of Montaguaya had riches deep beneath her portion of the Andes in the form of uranium.

Damon and the scientists had been kidnapped and Tom, his best friend Bud, and a small crew in

the *Sky Queen,* came to their rescue.

It had been a tense couple of weeks for the older Swift. To while away his time in captivity he'd gone over the entire project for Fearing Island as well as the design of his rocket in his mind many times. Several things were noted—a few on a scrap of paper he kept hidden in his shoe—and the others committed to memory.

Fortunately, Tom and his giant triple-decker jet had been able to rescue them all and the bad guys were put behind bars, but Damon had been away from his new pet project for too long.

It had been about the most complete proof of concept test for the *Sky Queen* and Tom's ability to handle a major operation like the rescue.

Now back in Shopton the two inventors had returned to work almost immediately.

Damon took up the two projects that had barely missed his absence while Tom turned his attention to the design of a small submarine he hoped to build to explore the depths of the ocean.

Because Tom was still hinting he would like to try his hand at building a rocket for the contest, Damon authorized two launch pads be built on the island. One, for his… well, he would come up with a name at some point, and the other smaller one for what Tom envisioned would be a more traditional rocket.

"I could go ahead and build a stack of tubes," he'd said at the dinner table a few weeks before

their South American adventure, “but I’d rather see what can be done with the old notion of cigar shape with maybe one large first stage, or even an elongated teardrop shape.”

No matter what, it would require a staging area with all the necessary services such as electricity, data, and fueling.

Damon decided to not tell Tom about the second launch pad for the time being, or at least not the reason for it.

But, the subject was not to be forgotten by the younger inventor.

At dinner about two weeks after returning home. Tom asked his father what he thought about the X-Prize contests.

“Well, I am dedicated to getting that larger cargo rocket built and that, of course, means completing Fearing Island. You have other things to do with the *Sky Queen*, and this little submarine project appears to have caught the attention of the Navy, so I am afraid you will be too busy with that to try for the two-man rocket prize.” Seeing Tom’s disappointment and remembering a conversation with Anne months earlier, he added, “That does not mean I can’t use all the time you have available on my project. Or, our project if you will.”

“Yeah, I know, but I really have a couple great ideas that can only be proven if I build my rocket.”

“You can’t use them in mine?”

Tom shook his head. “I don’t think so. One of

them has to do with handling the oxidizer. But it also requires the rocket be really high up in a very short span of time. You've already said it could take ten minutes to get into low orbit and I need that to happen in something just over four minutes. So," he sighed, "I'd better get this submarine finished and then jump on the rocket contest."

Chapter 7/

A CHANGE OF DESIGN

THE LATEST scale model was finally ready, so Damon and Arv headed to the wind tunnel for a series of tests. This one had been built to be taken apart when desired by pressing hidden releases and sliding the outer rings up and off.

He'd also made it so each inner ring stood three scale feet slightly higher than the one outside it.

Cones representing the actual rocket nozzles stuck slightly out the bottoms of each sealed ring. It would provide the best test results of the design.

They discussed the major drawback of the wind tunnel as Arv mounted and connected the model to the central pedestal.

"It's a pity this thing can't give us better than about three-hundred knots of wind on the nose," Arv commented.

Damon had to shrug. "When we built this over at the Construction Company it was to wind test wings for lift and stall speeds on propeller aircraft. Three-hundred seemed more than adequate. Now that we wand to get into supersonic jets like Tom's Flying Lab, and eventually small, fast jets, it may be time to think about making it more modern. But," he said with another shrug, "it is what we have at the moment."

They stepped out of the wind chamber and locked the door before retreating to the control panel.

A moment later the big fans at one end began spinning and sending their gale-forces through a series of louvers to take all wind swirl out of what would hit the model.

“Before this gets too loud I wanted to tell you I put that first model in there last week,” Arv admitted. “Turns out that tight nesting was a real drawback as you suspected. Never would have held together in the full-scale version.”

The noise rose as did the wind speed and they were forced to put on ear protectors.

Soon, it became obvious that when the rings were fully nested, their tops set at the same height yet spaced by a scale foot, far too much air pressure still built up and tended to spill over the sides unevenly.

On the positive side, the total amount of pressure was reduced by the ring spacing.

Arv slowed the fans and finally brought them to a halt. He entered the wind chamber and inserted a long hex key in one side of the outer ring. As he turned the key, Damon smiled at seeing the next ring inside rise about a scale foot. Then the next one rose above that by the same amount.

When the model maker came back he’d put the key in his shirt pocket.

“Pretty handy bit of modeling there, Arv,”

Damon complimented him. “Is that the full change level?”

Arv shook his head. “Nope. If I put that key in the opposite side I can raise each ring another scale foot. I figured it was easier and only a matter of an extra couple hours to build that in. Gives us more flexibility.”

The second test showed that the entire craft was more stable yet the air resistance was still fairly high.

They agreed pressure would never be totally gone unless there was at least a full ring’s worth of space between each circle, but this was a move in the right direction.

Test three with the additional offset of the rings was a success. This time the wind spilled though the gaps and the overall rocket became much more stable. When a little smoke was added directly in front of the cone, it flowed outward not touching the third stage ring but a good amount of it flowed between stages three and two.

Another large portion of the smoke/air mix flowed between stages two and one with what Damon determined to be less than twenty percent of the overall air making its way out and around the outer stage ring. That might change at higher speeds, but the rocket would then be in thinner air, so it might be a wash.

By the time they had finished, Arv felt they had a winner. Damon wasn’t so certain.

He headed back to his office with three pages of notes he'd taken along with several graphic displays of the airflow results.

The remainder of the day was spent comparing the charts against probable thrust and available fuel capacity.

By the time he packed up and drive home, Damon was absolutely sure his full-size revolutionary rocket would utterly fail to make it high enough to go into even a low-Earth orbit.

At home he accepted a glass of wine from Anne, something he rarely drank except when they went out to dinner or to friends' homes.

"How did you know?" he asked.

"You came in the front door, kissed me like I was your grandmother and went upstairs to change, but you came back down in exactly what you had on minus your tie. I figured something wasn't truly spectacular, and so… wine. Take a small sip for thine infirmities and also for thy health."

He did. Several sips, in fact, before he set the half-empty glass on the dinner table and turned to her.

"I love you, Anne. And, you are perceptive. Things with the rocket project are not speeding along in a positive direction."

He told her about the test results and his computations.

"Can you upsize the rings or find another fuel?"

she asked.

"Well, without changing over to something truly dangerous like a monopropellant, my choices are various dual cryogenic liquid combinations such as hydrogen and oxygen, or kerosene and hydrogen peroxide, or that sort of mix, or going with one of the numerous solid propellants. I'd planned on going the solid route for its fuel load to thrust capabilities in at least the first two stages, but your suggestion about upsizing things is about the only way to make even that work."

He explained the plusses and minuses of them both. She listened carefully but said nothing.

"There is one other consideration that Hank Sterling brought up the other day. Crew comfort. One of the advantages of solid propellants is they burn full strength right from the start. They give a lot of thrust in a split second. But, people do better when the acceleration is slower and builds. So I may need to go the liquid route at least for the first and second stages. Then, and once the ship is at a good altitude and traveling at a couple thousand miles per hour, stage three could easily be tolerated as a solid stage. Stage four has to go back to liquid propellants because it needs to be started and stopped, perhaps several times."

These were all things he'd considered more than once, but now facing the probability of upsizing everything, that meant the G-forces felt inside could be too high to be safe.

After dinner he spent some time on his

computer trying different fuel combinations and checking their thrust to weight/volume ratios until he found the one he liked most.

Something he had considered but ultimately didn't follow up on was a hybridized system featuring a liquid oxidizer and a semi-solid propellant. It would have the advantages of being throttleable, which would help with crew comfort, but was just not as powerful as a cryogenic or monopropellant alternative.

What he liked was a new approach to an old mixture. Liquid oxygen was a wonderful oxidizer if a little difficult to use because of the need to be stored extremely cold and only being fueled into a rocket shortly before takeoff. The burnable part was a new ultra-pure kerosene that was pressurized, and thus infused, using hydrogen. Enough liquid hydrogen was percolated into it to remove the need for any pumps to deliver it to the motor(s).

It burned with thirty percent greater power and was about half as dangerous as straight liquid hydrogen.

When he got into work he called several people in the new Propulsions department for a meeting.

He described his need for the partially cryogenic system and asked for questions or opinions.

Dianne Duquesne, manager of the department, raised a hand. "How much of that are you going to require? I ask because as far as I know the U.S. Government has a clamp on that particular mix

until it can be proven to be safe. Some company out in Arizona that tried to launch a sounding rocket a few months back used that and they had a catastrophic failure."

Damon had heard about that and read the reasons behind the explosion. "The rocket didn't explode because of the fuel; it exploded because the delivery valve froze and then burst releasing all the tank contents into the interior of the first stage body. It went up like a skyrocket. From what I've read that valve was made by a low bidder in southeast Asia and analysis showed the metal had too many impurities. I'm trusting our own people to deliver a better valve.

"Now, as to the Government, I will make inquiries with a senator who has been helping us along on this rocket project, and indeed the whole Fearing Island part of things."

The discussion turned to configuration of the tanks and it was decided that at least three arced tank sets—with the larger liquid oxidizer tank being on the outer part of each ring—could each feed a pair of motors safely and efficiently.

Sharing tanks would cut down on the mechanics of the motors greatly and save perhaps two tons of weight in the first and second stage rings.

Dianne also stated that she liked the idea of going with a hybrid rather than totally solid system for the third stage.

"It can be started and stopped a few times, and

the solid bit, the grain as it is called, will be about one-half the weight as another large tank and the liquid propellant."

Everyone agreed to the plan.

When they left he called Hank and asked if he might drop over. The answer was, "Absolutely!"

"I need your advice," Damon said as he walked into the engineer's office. "I've pretty much come to terms with the propellant issues and Arv has been helping me with the configuration of that ringed rocket you really didn't like—"

"But have to admit is has been growing on me as I see the progress you are making," Hank said smiling.

"Right. So now comes the issue of overall size." He asked Hank to pull up the latest wind tunnel and solid rocket trials on the scale model.

As they reviewed everything Hank made a page-and-a-half of notes frequently writing as he was scanning though things on the screen. It was multitasking in a way that fascinated Damon.

An hour later they reviewed his notes and both ran some calculations on their tablet computers.

"Well," Hank said leaning back in his chair, "it's going to have to be larger, that's for certain. I have some preliminary results in what I believe will work. How about you?"

"Yes. I did the same things and came up with some new size details as well." He sighed. "It's

going to get a lot larger, I'm afraid."

"Which might not be a bad thing," Hank stated.

It turned out their individual computation had arrived at nearly the same dimensions, with Hank's being slightly larger than Damon's because he factored in a greater margin of error.

The rocket's rings needed to be upscaled so that each ring was at least fifteen feet wide and eighteen feet tall.

Damon's work had included the same raised stacking as Arv's model—as did Hank's—but the engineer had figured the base of each ring to be even and not offset by being raised a few feet.

"It'll mean greater storage for rings two and three, Damon," he explained, "plus my guess is it will make the thing more aerodynamic with less air swirling around behind the thing adding drag."

"I like it!" the inventor declared, "But, Arv will need to build another model to prove that."

"Hank is correct," Arv said as he and Damon reviewed the wind tunnel results five days later. The amount of drag induced by the swirling vortex of air and partial vacuum behind the craft had been cut by close to forty percent.

Since the stage one ring would now be fifteen feet wide and eighteen feet tall, the next one the same width but twenty feet tall, followed by fifteen feet by twenty-two feet. The gap between rings

would be set at eighteen-inches.

It now appeared that the craft Damon once envisioned as being less that seventy-five feet wide was going to be a real monster at one-hundred twenty-four feet. Even the final stage had been upsized to handle enough fuel needed to get the heavier capsule and cargo into orbit. It was twenty-five feet wide and—not including the forth stage under it—was thirty feet tall to provide the best aerodynamics. All total the rocket that once might have been about twenty-seven feet tall was going to come in at fifty-two feet when everything was said and done.

Hank made one suggestion Damon decided would be a great thing to do and not add an excessive amount of weight. The rocket motor cones for each stage not in use ought to be covered. This would mean the outer ring would, at launch, have the only visible motor cones. As it came time to shed that spent stage the cover for the second stage motors would drop away exposing them.

"That's also going to reduce a little more drag," Damon told Anne and Sandy that evening over dinner.

Sandy rolled her eyes. When Tom was away, as he was right now, she had to bear the brunt of what she considered the dull, science talk at the dinner table. At least when her brother was there she could ignore what was going on because nobody ever asked her opinion. When he was not there, she had to pay attention because her father might just turn

to her, which he did now.

"What do you think, Sandy?"

"Yeah," she said absently, "it does sound like a real drag to me as well, Daddy."

"Sandy, you are not listening to your father," Anne hissed at her.

"Mother, this is really boring stuff. Talk about clothes or movies or even books and I'm there, but this rocket to Mars stuff is way over my head and gives me a headache."

Damon laughed. "It's okay, Sandy. I just wanted to find out if you were here at the table with us, or someplace else."

"Here, physically, Daddy, but not mentally. Sorry."

Since she seemed genuinely sorry he reached over and patted her hand. "It's okay."

The next morning he arrived a little later than normal to find that Senator Quintana had just called. He had Trent return the call and took it at his desk.

"Damon, I just had some surveillance photos delivered to my desk showing the work you are doing on that little island. Incredible! It turns out the Central Intelligence Agency does not honor the rules about not taking photos of do-not-take-photos areas. The result is you got overflown by a high-altitude drone yesterday morning. I see you have the airstrip paved and even have started a

taxiway along side it, and is that another runway you have got in progress parallel to those?"

"It is. The first one has been lengthened to six-thousand feet from the original forty-eight-hundred and the new one will be nine-thousand feet long and offset from the other one so its threshold at the north end will start fifty feet in from the coast. That way they terminate at about the same point."

"Well, it is impressive. It appears that your docks are in and you have at least one ship in the harbor. Building supplies?"

"Yes. A lot of asphalt mix and steel I-beams for the skeletons of buildings. The next one in port will contain a lot of the pre-fabricated wall systems to finish the five main buildings and two construction structures for our rockets."

"As in multiple rockets?" Peter asked.

"Yes. My nested rings approach and then Tom has decided he might like to join in all the fun once he gets this new miniature submarine of his underway. That's the next building to go up down by the harbor complete with a special slipway to get things into the ocean. Back to the rocket, Tom wants to claim the smaller of the contest prizes, and I think he has a good idea of what he wants to do, but he hasn't put pencil to paper."

They talked about a few other things before Damon brought up the subject of the propellant. He began by stating he know most of what had been publicly announced about the Arizona rocket

explosion.

"Is it true you D.C. folks have put a hold on anybody trying that mix again?" he asked.

"By that simple question I'm guessing that you want to use exactly that in your rocket. How am I doing?"

"Spot on, Pete. We believe it will provide us the best mix of fuels and allow us to fly this thing without upscaling it once again."

"Well, and this is just between you and me for now, that hold was never officially and legally put in place. The threat of it and that explosion seemed to be enough. So, you are free to try it as long as you can provide one of the committees I just happen to sit on with a demonstration of how safe it is. Can you do that?"

The inventor in Damon pondered the possibilities for a moment before the businessman spoke.

"We can provide you and your committee with a demonstration launch of a test rocket in three weeks time. It will happen on Fearing so you will need to fly down for it, but the answer is yes." *I hope*, he thought to himself.

Once he hung up he called for a meeting with Hank, Arv and Dianne Duquesne.

He described the test that needed to happen in fairly short order and hoped they could support that commitment.

"If that is too aggressive then tell me straight, and I will call the senator back."

Hank spoke first. "From my point of view, we can do it. We already have a complete design for that thirty-foot sounding rocket we made a couple years ago. I can crank out the shell and tanks in less than two weeks."

"I can have the flight systems and servos ready in that same time or perhaps sooner," Arv told them.

Dianne sighed. "I suppose that means I have to get off my duff and get the fuel prepared. Well, it's actually a pretty easy part of the work. We have the U-P kerosene and I hear the LOX tank out on the island is ready and has been pressure tested, but is not filled. That may not be necessary. For this run how much do I need to provide?"

Hank answered. "The LOX tank takes fifteen-hundred pounds at four-hundred psi and the kero tank is currently a hydrogen tank that I may need to modify a little, but it holds about seventy percent the load as the oxidizer tank."

"Oh, then we'll premix and tank it here and fly that down to fuel on site," she told them. "Must be a pretty small rocket."

"Thirty feet tall without payload and nineteen-inches wide with a capacity of carrying thirty-five pounds of payload up to fifty miles altitude!"

Senator Quintana and a seven person delegation

from his eleven member committee—plus their Secret Service detail—arrived in an Air Force jet capable of carrying thirty-five people an hour before the scheduled launch.

Damon met them at what would eventually be the front of the combination Administration building and terminal for visitors to the island. There were currently fifty utility vehicles—jeeps and pick-up trucks—on the island to aid in the construction but nothing large enough to carry them all, so he'd arranged for three of the larger jeep-type cars to be there.

One female Congressperson from New York looked at the jeeps with disdain. She then looked around. Obviously the limos would be coming for them…

Peter Quintana saw this and walked over to have a word with her. Her attitude didn't change but her coming complaiant about a lack of preparation to host important persons such as herself—"and the rest of the delegation, of course"—had been quieted.

At the launch site there was a small covered area set up with chairs for them all. At the back and sides were heavy, clear plastic walls and they could see there was a heavy panel over their heads.

Damon stood before them and told them what they were about to witness.

"In the history of unmanned and manned flight there have been numerous propellants used, some safe and some so deadly that anyone handling them

had to wear so much protective clothing that it hindered the safe handling of that same liquid. This newer mix of propellants gives a great deal of thrust with little or none of the dangers."

"Is it true that your company had something to do with the explosion of the other test rocket?" came a question from the woman from New York.

He looked at her a moment before answering trying to decide if he ought to be direct or sarcastic. He chose direct.

"No, it is exactly the opposite from being true. I wonder if you might share how you came to believe my company had any association with that completely different company?"

She looked around for help from her fellow politicians but there was none. She sputtered a little, but stated, "Well, aren't you all working together?"

Peter came to his rescue.

"They most certainly are not. And, unless you can ask questions that have some level of facts behind them, please allow our host to get on with his describing this launch we are here to watch."

Damon decided to try to mollify her a little, but he wanted to set the record straight. His tone softened as he said, "Swift Enterprises is a wholly-owned company unto itself, madam. We have no associations with any other company in the United States other than as a supplier of certain components to several of them, but that does not

include the rocket company in Arizona. The only tenuous connection is that they were the first to try this new concept in mixed fuels and we are the second. It is an unfortunate fact that they chose to utilize certain components that were not strong enough for the task. We believe ours are."

He turned to look over to the launch platform where a small gantry had been built to support the launch. The rocket was sitting there, ready to go, and a technician was giving him a thumbs-up sign.

"I see we are ready to proceed." He made a motion to five workers standing off to one side and they picked up a clear shield piece about ten feet wide.

"I was about to ask if we were in any danger here with the open front," Peter said with a smile, "but it looks like you've thought of that."

The men were erecting the front panel now and a circulation fan set in the back wall was turned on to provide fresh air.

A small flat screen monitor to their right was showing the countdown. It came to three minutes and paused while the last of the workers drove their jeep out of the immediate launch area. Those final four men came to stand behind the clear sided observation booth that was two-thousand feet away from the rocket.

The countdown resumed and finally reached the ten-second mark. For whatever reason, it seems to be a very human thing for people to audibly count

down that last bit of a launch and so the group was counting down from…

"… five… four… three… two… one…"

With a roar that took just over a second to reach their ears, the rocket belched smoke and then flames as it rose from the launch platform and headed skyward.

Damon looked at the delegates and had a small grin on his face when he saw the New York politician had covered her face with her hands and turned away as if it might help save her in case of a horrible accident.

She completely missed the majestic sight of the rocket arrowing faster and faster into the sky.

Even the cheering of the others didn't register with her. In her mind all rockets exploded, and that was based on just the one instance that she had been in Arizona to watch.

It still gave her nightmares.

Damon got on his walkie-talkie and ordered a boat to depart the docks to pick up the rocket that had reached the planned altitude of twenty miles and about a mile off the coast as it had just popped out its parachute and was drifting down for recovery.

He felt a hand clasping his shoulder and turned to see the huge smile on Peter Quintana's face.

"Damn fine bit of rocketry!" he said in an emotional whisper.

Chapter 8/
VISIONS OF GRANDEUR

PETER QUINTANA asked Damon if he might hitch a ride back to Washington later in the day. “I’ll send these others back in the jet, but I want to have a private conversation if you have the time.”

“Certainly. I wasn’t going back until about four but I will be happy to drop you off in DC. Any hint what this is about?”

Pete grinned. “Certain delusions of grandeur I have been feeling lately. I need a reality check but want the chance to plead my case in full.”

The other witnesses came over to congratulate Damon, even the woman who had covered her eyes.

“I need to apologize to you. I witnessed that other disastrous launch and feared this one would have the same outcome. I ought to know better. Senator Quintana lectured us on the way down about how you take no chances and we should expect this to be a spectacular success. While I’m not certain if that rocket reached the altitude you wanted it to, I applaud the fact it evidently went up straight and true with no problems.”

Damon motioned a woman who had been recording everything with a high-resolution video camera to come over.

“If you want to see the launch, now that we all

know it succeeded, Katrina here has the video you can watch. Do you have a VR headset with you, Kat?"

The redhead nodded and pulled something looking like fogged, oversized goggles from her shoulder bag. "Here you are."

"Great. If you will slip these on like you might if you ever go skiing…" and he handed the older woman the headset. She had it in place a moment later.

"Should I see nothing right now?"

"For the time being, but when Katrina starts the video you will possibly be overwhelmed with the image. Stand by." He nodded to the videographer and she pressed PLAY on her camcorder.

"Oh, jeeze!" the Congresswoman said, her hands shooting up to the goggles. Damon intercepted her before she could tear the apparatus off.

"Blink a couple times and relax your eyes. That camera takes 8-K video which is disturbingly realistic. It's a bit intense at first but most people get used to it in five to ten seconds."

Panting a little, the politician nodded. "Yes. It's better now. Sorry for the momentary panic. Ooooooooo…"

Obviously, the rocket had just launched. He watched as her head tilted up as if to follow the flight into the sky. Standing next to her Damon and Katrina could hear the audio coming from the stereo speakers in the earpieces.

A minute later she removed the goggles, a broad smile on her face.

"If the real launch was half as exciting as that, I'm now sorry I missed it. But, thank you for allowing me to witness that."

Damon told her it was a pleasure and motioned for Pete Quintana to come back over.

"We are going to take a quick whip around the island so you can all see what we are up to, but I understand that your jet will want to get into the air in an hour. So, if you can all go to the jeeps, we'll take that whirlwind tour of the new Fearing Island."

At the end, and before everyone departed, the delegation agreed that Damon ought to make plans to host several larger Congressional groups.

"I know at least fifty men and women in Congress who would really get behind what you are doing here if only they could see it as you've shown it to us," one junior Congressman from Kansas told Damon. "And, heck. I'm really new so I don't know but about a third of the people I work with. There are probably a lot more!"

The Secret Service trio who had escorted the delegation to Fearing was in a quandary. They were never supposed to be a detail of fewer than two when safeguarding members of Congress on a trip to any public place such as this, but with most of them heading back for Washington, except Pete Quintana who was going to remain a while, they

didn't know what to do.

"We're supposed to be two for four and another per additional four dignitaries, Mr. Swift. With eight Congressional responsibilities, that means a minimum of three agents at all times."

"If I may," Damon suggested, "my own Security people have been trained by an ex-Secret Service man and can keep the Senator safe while you escort the others back to D.C. Then, if it is absolutely necessary, you could come back down except by the time you did he and I will likely be on our way back up there. It isn't my place to tell you what to do, but all you could do once we fly out of here is to tag along in the air behind us."

The Senator had a quiet word with the lead agent who reluctantly agreed to go back with the others.

"An overabundance of unnecessary caution," was his judgement of the situation when he came back to Damon's side to wave goodbye to the others.

"They only want to keep you safe so you can run interference for us for many years to come."

"Yeah, that's probably it now you mention it!"

As the others took off Damon and Peter walked to the jeep.

"What is this 'I have to talk to you,' about?" Damon asked as he slid into the driver's seat.

"As I said, I have been having delusions of

grandeur. Visions that include your organization becoming a major player in things involving the Navy and even the Air Force. No, not things with weapons as I can see that argument coming. Some things NASA can't help with or can't do at any sort of reasonable cost. Things the Government wants to do but won't until they are affordable, and that is where I see your company coming in."

He told the inventor there are thousands of contractors who create small parts of a greater something the end up costing the taxpayers more that three times what they would if the entire thing came from a single source.

"It was designed to keep costs down by inviting competition but does the opposite. For instance, that rocket you sent up today. How much did that launch, that simple *demo* launch, cost?"

Damon thought about it. "The rocket is an off-the-shelf model I believe we build for about fifty-thousand dollars. That fuel actually cost us about the same, so let's round that up to just under one-hundred-thousand including the people to made it happen."

"Right. For the Government to do that same thing, it would cost us over five-million bucks! Probably closer to six. That is no exaggeration. The rocket would have come in at about three-to-four million and all the personnel another million and fuel a million or even more. That, in case your internal calculator is not running, is a factor of fifty times more… at the low end!"

They were pulling up near the Administration building Damon let out an appreciative whistle.

"So, our Government is responsible for something like thirty launches a year of various things. If we assume fifty percent of those are small packages and the savings are similar to today's launch, that means potential savings of more than one-hundred-forty million dollars. Oh, sure, some of that would go back to you as your profit but even if we saved just half that, seventy-million, each and every year we could do a lot of good with the money. That sort of money could double what we spend on cancer research alone!"

He spoke about even larger projects that might utilize the capabilities of Damon's new *CosmoSoar* rocket. "Launching ten tons of cargo into orbit can cost as much as two-hundred-fifty-million bucks. Launching interplanetary probes double or triple that. You've already told me you can build that rocket for twenty-five-million. *A tenth*! And, yours is mostly reusable."

Their conversation continued for the three hours they remained on Fearing Island and even when they were in the air flying to Washington. By the time they landed Peter had excited Damon to the possibilities nearly as much as he was himself.

Once he arrived home Damon told his wife about their discussion.

"Small jets—not fighters of course—all-terrain vehicles, even a variation of the cargo jets we are starting to manufacture and all on long-term

contracts. Peter—the senator—believes working with us can conservatively save the taxpayers more than half a billion dollars a year once we get building everything he imagines."

Then, he mentioned the potential use for his *CosmoSoar*.

There was nothing for her to say. She hoped it would all become a reality but secretly had her doubts. Anne Swift genuinely liked the senator from New Mexico and she liked his wife and daughter whom she'd met on more than one visit out to the Citadel, but she was very wary of political promises no matter who they came from.

"What about Tom's rocket?" she asked, concerned for her son. "Can they use that?"

"Well, Tom's rocket is a small people carrier and more of a technology demonstrator. There could be future uses for the basic form factor. Even he admits it barely has the oomph to get its two passengers into a fairly low orbit with enough fuel left over for the landing burn and maneuver. I suppose if he were to reconfigure it so the capsule detaches from the lower seventy percent and parachutes down, that extra fuel could be used to get something relatively lightweight into a reasonable orbit. I'll talk to him about that once he gets his first rocket off the ground."

A couple days later the first signs that someone might not like what was going on at Fearing Island, or at least had the sort of curiosity that just didn't

feel healthy, reared his head.

It was Tom who had an encounter that had him talking to Harlan Ames about what happened beginning when a freelance photographer piloting a somewhat unsafe rocket belt from a private yacht made a landing on the island. He freely admitted who had hired him, a very wealthy Greek son of an even wealthier Greek man, and claimed the man was just helping him get a picture of the rockets for a publication.

But his landing appeared to have been cover for someone in SCUBA gear who snuck onto the island.

Harlan thought he had a good grip on what was happening, and promised to send a Security detail to the island to patrol the shores. To keep others from freely flying in, Tom took two weeks early in his time on Fearing to complete his design for a few jet drones to secure the skies above the island.

But, everyone felt the wealthy Greek wasn't finished, and it put some people on edge. The most unfortunate thing about it all was that a Brungarian agent called Rotzog seemed to be behind or at least connected of many of these events.

That bothered the Swifts, their Security people, and most especially the United States Government who had an unfriendly relationship with that renegade Eastern European nation. Most of the world's governments had a bad relationship with Brungaria.

But, with little of no actual damage being done

Ames suggested everyone go about their business as per usual and leave things to him.

This meant that Damon could get into finishing the island's installations along with herding the workers who were constructing the various pieces that were about to be assembled into the *CosmoSoar*.

"*CosmoSoar*?" one of the men checking over an explosive bolt that would be mounted between the outer and second ring asked one afternoon. "Where did that name come from, Mr. Swift?"

Damon laughed. "You know Bud Barclay and his habit of giving things silly names?" The other man nodded. Bud was becoming famous for it along with his other puns and practical jokes.

"Well, he was spouting off a number of names, oh… it must have been a couple months ago, and as I shot each one down he got quieter and quieter until his final suggestion of something like *CosmoSoarer* came out. I'd actually forgotten about it until I was asked at a meeting in Washington last week what the rocket was going to be called. Our friendly senator wanted us to make a public announcement about it and suggested it would be best if it had a name people could identify with."

"Oh. I guess it's kind of a catchy name. I can't believe Barclay came up with it because it actually makes sense. *Cosmo* because it goes up into the cosmos, sort of, and *Soar* because… well—"

"Right. At least we hope it soars up there. I will

let you get back to working with that bolt. You need to pay absolute attention to what you're doing and I'm just a nuisance at the moment."

As he left the assembly building Damon stopped and looked to the North. A high-pitched whine got his attention.

A huge aircraft, something he recognized as being the latest version of what was called a "*Guppy*," was on final approach. It was very tall and didn't look like something that ought to be able to fly. And, in a way it did look like the fish of the same name. It seemed to hang in the sky as if on wires, barely dropping down and moving forward at a snail's page as if battling headwinds.

It was, of course, an illusion. One look at the windsock half a mile away showed that there was little prevailing wind coming from the South.

He smiled at the sight. The manufacturer of that aircraft had agreed to loan it to Enterprises in return for the rights to license a new avionics technology Damon and Tom had invented to be part of their newest small airline jets.

Now, what was called the *Guppy Bear*—a sort of nod to an old nickname for Russia who had built and flown the world's largest cargo jets at one point in history—lowered its landing gear and finally appeared as if it were going to touch down.

When it did, it was on the longer runway and the illusion of slowness disappeared as it rushed down toward the terminal and control tower building.

The thrust reversers popped out and the turbines let out a mighty roar, slowing the huge jet quickly. Thirty-seconds later it came to a halt right in front of the building.

By this time Damon was in his jeep racing along the access road in the direction of their latest visitor.

Inside that jet he knew would be enough pre-manufactured building components to erect two dozen more single-family houses for the eventual permanent base staff. They would join the fifty current duplexes that would house married couples.

Unmarried employees would have individual rooms in the dormitory building which meant more that four hundred people could be accommodated.

He arrived in time to watch the front twenty percent of the jet rise up on four heavy hydraulic rams and a special ramp extend out.

It would be several hours before the jet was empty and a few pieces of unnecessary heavy equipment were placed inside and completely strapped down for the return flight to Shopton, so he went to his office again.

There were about a hundred small details that required his attention, or at least his signature, so he spent the rest of the afternoon “buried” under paperwork. He did take a break as he heard the whine of the four monstrous jet turbines starting up signaling the imminent departure of the *Guppy*

Bear. Standing at his office window he watched as the behemoth turned around practically on a dime and headed, ponderously, to the taxiway and then out to the end of the North/South runway.

With no other scheduled aircraft expected he assumed correctly that the pilot received takeoff permission almost immediately. The jet moved forward, slowly at first and then with increasing speed until the nose wheel lifted about halfway down the runway, The rest of the jet quickly followed and by the time it passed overhead it was at greater than four-hundred feet above the building.

It would soon make a turn toward the shore and head back north to Shopton where it would be picking up one of its final payloads, everything necessary to outfit the duplexes with furniture and other household goods.

It was the final load scheduled for five weeks from now that would be getting his complete attention; the fourth stage and its payload and crew capsule was being finished at the Construction Company and in final testing. Once it was delivered the real work to build the huge rocket could be started, and the *Guppy Bear* would be flown back to its home base in Washington State.

Everything else could be managed in the, now, two brand new Swift cargo jets with some assistance by Tom's *Sky Queen*.

There was still a lot of work to be completed and some other things that needed to get underway

before Fearing Island would be up and running, but the changes happening on the once barren thumb of land in less than a year were astounding.

Looking out over the northern half of the island from his office, Damon could almost envision several additional launch pads to handle a constant stream of Government launches as described by Peter Quintana. As he shifted his gaze to the east and the harbor, his mind's eye pictured multiple rows of docks each with multiple submarines, and not just the first one Tom was finishing, but other types.

He sighed and returned to his desk. Time to get back to the work at hand.

Dinner time came and went. With nobody like Chow to bring him food, Damon finally pushed the last of the paperwork aside and forced himself to get up and walk to the cafeteria. Most of the day shift had finished work and already had eaten so there were only a few small groups of people still in the dining hall.

"Mr, Swift!" called out Yvonne Slade, the Geologist. "Care to join us?"

Damon took his tray with the pot roast, baked potato and cauliflower he'd selected over to the table with four young people.

"If you'll have an old guy like me, I'd be delighted. So, let me get a bite in my mouth and then tell me what the subject is so I can try to keep up with you."

As he cut a large chunk and began chewing, Yvonne pointed at the man across the table from Damon. “Bobby was telling us he was down at the docks this afternoon with binoculars and thought he spotted that rich guy’s yacht out just on the horizon. I was telling him he needs to report stuff like that.”

Damon nodded. “That’s right. Are you fairly sure it was the same yacht and was it really on the horizon? I ask because our protected zone only extends out six miles for the time being. It will go out to ten in a couple months, but we have to give time for the word to get out to the maritime world.”

“Well,” Bobby, a reddish-blond man of twenty-four said, “It was certainly outside six miles and it did sort of disappear over the horizon for a little bit, then it came back. It was heading north when I first saw it and then south the next time. Sort of like it was patrolling around or looking for something. That puts it outside the zone. As far as what yacht… that Greek guy’s has a flying bridge two levels above the deck, and so did this one.”

Damon said he would report it to Security himself and thanked Bobby for his report. “Of course, Yvonne is correct. This sort of thing needs to be brought to someone’s attention quickly. So, next time…” and he winked to show the man he had no ill feelings over this delay.

“What else are you discussing that I might be able to add to?”

Bobby answered, “We were also talking about

your crazy... Sorry, I mean," he said blushing furiously, "the *CosmoSoar* rocket. I'm really sorry."

Damon laughed. "That's okay. If I didn't know the flight figures I'd think it was a crazy idea, too. Go ahead."

"Somebody said it is supposed to go up, drop something out in orbit and then land back here." Damon nodded. "Well then, what is going to happen to whatever it takes up and shoves out?"

"That is an excellent question. The X-Prize committee won't tell any of the entrants what they will be carrying until one week before a declared a launch date. It would appear that part of the ability to earn the money is being able to cope with last minute cargo changes. I think they want rockets to be capable of carrying just about any payload up to their maximum weight whether it is round, square, a dodecahedron, or a mass of jelly in a bag."

Seeing what was coming next he raced to get ahead of them. "It would be grape jelly."

That made them all laugh.

After they ate he offered them a personal tour of the *CosmoSoar*. They all jumped at the suggestion and soon were driving in one of the larger jeeps over to the assembly building.

As they entered the fifteen person team working on the start of the skeleton of the rocket's second stage ring paused and greeted them. Hank Sterling was working on the island this week so he came over to give Damon and the others a status report.

"The first stage shell is about ninety percent complete other than attaching the actual motor nozzles and combustion chambers. Jake at the Construction Company tells me those are a week away. So, we got started with ring two this morning. As you can see the basic ribs are starting to make it look like we're actually doing something, but it is three weeks away from getting to thesame point the stage ring one is."

He asked if Damon had any status update on the capsule and final stage.

"Nothing other than what I was told before coming down here, Hank. The fourth stage is the easy part and is probably somewhere between your first and second stage rings to completion. It is the capsule that's the time consumer."

They all talked about the cargo carrying and handling aspects of the capsule.

"What if they give you something too wide to fit inside, or that means the hatch needs to be so wide it affects the strength of the capsule?"

"Well, Yvonne, we have been told that the cargo will not be wider or longer or taller—whatever their longest dimension is—than eight feet. We know the weight will be ten-thousand pounds. I have designed the hatch to accommodate something ten-feet wide and eight feet tall. That should handle just about anything that has traditionally been carried aloft to supply the various nations' small space platforms. Even the old International Space Station before it was decommissioned never received

anything that couldn't fit through a three-foot circular hatch.

"At the size of our capsule and hatch, we had a small issue of structure but we've designed a special internal cage that could support the upper crew area even if we had three of the large hatches spaced around the lower area."

"Any plans for using this to put up our own space station?" one of the other asked.

"Whoa! You're getting *way* ahead of the game, Steve. First we prove we can get something into orbit other than on top of one of our small rockets, including people, and then we can bring up the subject of a space station. Of course, I'd obviously love to do that… someday in the future."

Hank offered to show them a computer simulation of the fine nozzle control that would make stability perfect even if the *CosmoSoar* encountered high-altitude turbulence. He explained how the nozzles were being built of overlapping arched pieces that could be brought closer together for a more direct and therefore stronger thrust, or loosened a little to spread the energy from the igniting fuel out a little to lessen that nozzle's thrust.

"In all, we ought to have the level of control without using fins or attitude mini-rockets that the big guys get, all with just our array of eight nozzles on stage one, six on the next ring, then three and finally two on the last stage."

Everyone was very impressed and said so as they left for their quarters.

Chapter 9/
COMPLETING FEARING

WORK ON THE island had truly begun picking up ten months earlier as soon as the dirt and rutted runway had been smoothed out and a thick coat of asphalt applied. It had improved even more with the addition of runway number two that allowed the first of the Swift cargo jets—not yet outfitted for vertical flight—and the *Guppy Bear* to land fully loaded. Twice daily flights from Shopton continued around the clock and seven days a week.

The pair of black of the runways stood in very sharp contrast to the grayish-brown dirt surrounding and between them, but as each day passed more and more of the area was worked, stones removed to be used to add to the curved protection crescent at the harbor, and a low ground cover was planted to aid in erosion control.

At the southern end of the runways and their shared taxiway was the large, finished and marked six-hundred by twelve-hundred foot rectangle of asphalt that was the parking spot for all aircraft that would be kept outside. To one side would eventually be a hangar large enough for a couple jets, but for now it was *al fresco* parking.

Everyone knew that two or three severe storms, some hurricane-strength, came through each year

so things were built to be very sturdy and at angles to known wind patterns to allow strong air currents to pass around things and not knock them over. But, there would always be a few aircraft that might not seek shelter and so huge tie down rings were deeply embedded at various locations around the parking apron. These were rated to be capable of holding down a typical airline jet in a force three hurricane.

If something harder than that was expected, all aircraft and family members of workers would be flown off the island.

It was hoped this might never be put to the test, but nobody, least of all Damon Swift, wanted to take any chances.

In all, everyone felt that all possible measures were being taken to make Fearing Island an all-weather base.

Damon had no intention of paving over the entire island but to keep down dust he sought to have most of the unimproved ground areas plowed, leveled and planted with ground cover. He'd had the immediate area between runways and the taxiway done first to keep down any dust stirred up by incoming or departing aircraft. He also needed quite a bit of the area around the parking apron to be cleared and leveled for the places where the control tower would be erected, the hangar and a large machine shop built. Plus, the island's Administration building was now planted with some of the same flowers and shrubs that gave him

hay fever bask at Enterprises. He'd hoped to avoid that, but it turned out they were perfectly adaptable to conditions on Fearing.

Other locations, some complete and some still in process, were seeing other buildings such as housing, a medical center and even a forthcoming store for the employees to shop at without the need to go back to the mainland.

A crew was back working on the dock area. Bad weather handling also played a part in the design of the harbor. Although they could be reconfigured with relative ease, each of the dock sections were soon to be held down to the sea floor using strong cables that auto-winched themselves down in times of extremely rough water. Those cables passed through rings of stainless steel that were, in turn, drilled into the ground and into solid rocks.

Damon wanted to be able to host at least one large cargo vessel at a time, but the entire dock area would be reconfigured after construction ended so it could be a base for multiple smaller boats plus a number of submarines.

The entire dock area could be reconfigured to accommodate just about anything they needed to by unhooking, moving or changing sections.

Other than three cargo ships that brought in the asphalt and several pre-filled gasolene and diesel tanks for the vehicles, the harbor had stood mostly empty for two months. This would change in a week with the final asphalt delivery plus a prefabricated concrete mixing facility and enough

cement, sand and rocks to put in all the curbs, sidewalks and stairs into buildings that were necessary to finish most of the construction.

For now, only the first building was up and usable at the harbor, and that held the workshop Tom wanted to use for his little submarine project. It held most of the necessary tooling and some supplies, but was mostly empty. Tom would come down in a few days to start the build in earnest.

The dormitory and dining hall had been among the first completed followed by the Administration building with the temporary air traffic control room on its roof. This would be replaced by a taller and permanent concrete and steel tower very soon.

Three-hundred men and women lived and worked, temporarily, on Fearing Island with about sixty percent being construction people hired just for the job. That total number would, he believed, swell to about four-hundred once things were complete, the actual personnel hired or transferred, and the new base was in full operation.

Damon flew in on the business jet and swung around the island. He landed with a satisfied smile. Everywhere he knew something would be built was showing signs of activity. Even the second, smaller rocket launch pad area to the north of the large one he intended to use had been leveled and staked out.

To the matter of rocket fueling, the three huge tanks could be seen a quarter mile away. These would house the liquid oxygen, liquid hydrogen,

and also ultra-pure kerosene and were built seventy percent in the ground and the rest out of it. The surrounding soil and rocks maintained a forty-four degree constant temperature that would aid in keeping the liquid fuels cold.

Damon came in for a featherlight touchdown on the shorter runway and taxied to the apron where he stopped. A minute later he'd shut down the jet and had the side door open.

"Greetings, Damon!" came the shout from Hank Sterling who was just pulling up in a jeep. "Welcome to Fantastic Island!"

"Fantastic is right, Hank. The place is really shaping up. I go away for just thirteen days and you all make incredible progress. I hope being here isn't making you too homesick for Shopton."

"Yes and no. The days are long and the nights lonely, but we're ahead of schedule by about a week and I only see an improvement on that as the next few weeks race past."

Damon slung his small suitcase into the back of the vehicle and climbed in. Hank had them shooting in a wide circle and off to the dorm building in a flash.

"So," the inventor asked as he got out and reached for his case, "honestly, how are things going?"

Hank paused for a moment. "Oh, you want *honest*? Gee, well in that case things are going better than hoped, but we still have the occasional

'drat it' moment. For instance," he said seeing the coming question on his boss' face, "the day before yesterday we hit one of the old fuel tanks they left in the ground. It wasn't on the chart so it may have been either a forgotten one, or a secret one. It was a thousand gallon steel tank, rusted pretty much through and only sturdy enough to support two feet of dirt over it. Our geologist, Yvonne, drove one of the jeeps over it and plunged down twelve feet. She's okay but we airlifted her to Savannah for a day just to make sure."

"Do I need to go see her?" Damon asked alarmed.

"No. She's back now and only has a couple black and blue marks on her chest where the seat harness held her in. She said she's embarrassed, but I think she did a great job. Remained steady as a rock, called in on her radio and reported exactly where she was. You couldn't see the hole until you got within twenty feet of it."

"How the heck did the Navy's mine clearing tractor not cave that in?"

Hank shrugged. "Possibly just a fluke that it put its tracks on either side of the weakest area."

He said it had since been filled in. "I also detailed three of our underutilized people with metal detectors to do a complete walk of all unimproved areas. Guess what they found."

Damon raised an eyebrow but shook his head. "No idea, but I hope it wasn't more land mines!"

Now, Hank shook his head. “No, not that. A steel coffin. Complete with skeletal remains of what must have been one of the German captains of those U-Boats we’ve been told they sank. He was wearing an Iron Cross First Class decoration. I turned it all over to the Navy day before yesterday and they are returning the remains to Germany.”

“No other surprises? No more coffins?”

“No. The walk around finished last night and we are all fairly certain we’ve caught everything. So, what can I show you once you get unpacked?”

Damon suggested a complete tour of the island.

“I could see the overall progress from the air, but I’d like to peek into the buildings and walk down on the docks. That sort of thing. Oh, and Senator Quintana will be down tomorrow so fill me in on everything important so I don’t sound like a dummy when I give him the same tour.”

Over the following three hours they went everywhere there was a building or where some sort of work was being done. The final control tower was nearing completion on the ground—it was being assembled on its side in sections of reinforced concrete that were tipped on their sides and connected. All that was left was to tilt it upright and lift the octagonal control room to the top, then outfit it with the equipment.

“We’ll have an old Erickson Sky Crane flying out here from Savannah tomorrow morning to put it all upright on the slab you see over there, drop in the

pre-fab elevator and stairs and put the hat on. Ought to be happening while the senator is here so he should be impressed."

"It'll impress me as well," Damon admitted.

He was well pleased with the progress being made in all location on Fearing Island. No more so than in the larger assembly building within the launch complex where the third ring of his giant *CosmoSoar* was starting to take shape. Rings one and two were finished and set to one side.

The curved ribs as well as the top spar and bottom assembly were about three-quarters complete. Soon, the different fuel tanks would arrive from the Construction Company, and the bottom spars—only tack welded to hold things together—would be un-welded so those could be installed. The ring would be lifted up, everything slid into position underneath, and then lowered.

The cradles for assembling all the stage rings plus the capsule—still to be shipped down—were being finished on the far side of the building. Right in the middle of it all was the staging area for the forthcoming capsule.

The decision had been made to not bend and form the outer walls of the fourth stage on site. It would come down as a completed set mated to the capsule.

Damon had originally thought that to be unnecessary given the now eighteen-inch gap between rings but Hank campaigned for the work

to be finished at the Construction Company to ensure absolute matching connections with the capsule.

"We can do them all here after we get this first *CosmoSoar* up, but I'd prefer the safety measures of doing it this other way for rocket number one."

Damon could not argue with him. After all, three lives would be involved in the launch, one of them being Damon Swift's. Safety was tantamount.

The finished capsules would always be built at the Construction Company as they required a certain level of clean room work and immediate access by the departments creating the internal equipment and systems. Not that there would be many to build. The capsule was supposed to be fully reusable but there might always be a second or third *CosmoSoar*. Or, more.

People needing access to the capsule included a new team of women who would be hand-making the special coverings for the three acceleration couches. Those would be pneumatically adaptable to fit different body types and sizes and adjust instantly to different accelerations so the coverings had to be nearly custom for the three men or women who would take the first manned flight up.

The lead for the group was a formidable woman of Native American decent by the name of Marjorie Morning-Eagle, but whom Bud Barclay had immediately dubbed "The Major" for her no-nonsense demeanor and near military dedication to perfection.

Ms. Morning-Eagle had taken the youth to one side and whispered in his ear, “I like you, kid, so I won’t hurt you, yet. Just don’t go broadcasting that stupid name around.” She’d backed up a little, winked at him, and said something he never expected from her. “Please? Not until these ladies and the rest of you people at Enterprises realize I’ve earned it!”

Back on Fearing, Chow had come down the previous week to inspect the cafeteria and declared it to be a total mess. He’d gone back to Enterprises and met with Damon.

“Them folks need better’n a slop line, Mr. Swift. Gimme a week an’ I’ll design them a real mess hall where they can get as good a meal as we give ‘em up here. More like a restaurant. Okay?”

Damon had eaten a number of meals in the cafeteria and found nothing to complain about, but he’d agreed to give the cook freedom to make “reasonable” changes, and as he and Hank stepped inside the building it was obvious the western cook had ordered a lot of new equipment. Gone was the old five-position steam table out front and the single large oven and twin steam kettles behind. Now, a modern kitchen was taking shape with a large grill, a glass-enclosed rotisserie for meats, both a large double baking oven and a new pizza oven, and one of the largest mixers Damon had ever seen. There was a new serving line that appeared to be suitable for twice the foods. New partitions would separate the work area from the dining space.

In the back were four huge refrigerators and freezers waiting for installation. And, out front there was a new salad bar going in next to a soft drinks dispenser, the milk machine, a trio of coffee urns and another that dispensed hot, freshly brewed tea.

"Looks like Chow plans on spoiling our people," Hank commented with a chuckle.

"Good. The hard work they are giving us and the isolation once this becomes an active base deserves a bit of good food. Speaking of comforts, I had a discussion with some of our Shopton people a few months back and they asked about an exercise facility at Enterprises. You know that is now the lower part of the guest quarters. I want something like that out here. Perhaps not with the pool but maybe a half basketball court."

It was agreed and after they had a bite to eat they went outside to see where it might be placed.

"Well, here seems to be a likely spot," Damon said as they passed between some of the individual housing units near the southern part of the island. "Far enough away from the working areas but close access for people wanting to work out before or after their shifts."

On the way to get their jeep they passed what would be the multi-grade school for employee's children complete with an athletic field.

Next, they headed for the harbor to see what progress was being made on erecting the second

assembly building. The reinforced concrete pad had been poured and steel beams buried under it that would be connected to the rest of the building.

Everywhere they walked Hank provided a status update often pointing out things that were not yet built or installed and a few things that were not evident on first glance.

By the end of their tour it was beginning to get dark, but Damon had a very good feeling about the progress and looked forward to entertaining the senator the following day.

To everyone's surprise, Peter Quintana flew in sitting in the second seat of an old AH-1 Cobra attack helicopter.

"I thought those were taken out of service back a decade or more ago," Damon commented as the senator thanked his pilot and suggested the man find the cafeteria and have some coffee.

Pete smiled. "Most were but there are about thirty of them that were *reimagined*. Re-engineered if you will, to be a little less deadly and a lot more speed and distance capable. It might shock you to know how many more miles you can get out of one of these without hauling a ton-and-three-quarters of weapons systems along. The lighter and more powerful turbines help as well."

"What about your Secret Service detail?"

"Don't need one with a military pilot," came the smiling reply.

The tour was shorter than the one Hank gave

Damon mostly because what Peter wanted to see was progress on the launch site and the *CosmoSoar*.

Overnight, special hoists above the assembly floor had lifted the second stage ring and lowered it down into place inside of stage one. Technicians were making the electronic and explosive bolt connections and testing their work as they proceeded.

Pete stopped and asked one of them how things were going.

The tech didn't know the senator and looked to Damon to check if it were all right to answer. Receiving a nod, he said, "Well, with the whole thing about 'check everything five times before you build it,' it all fits together like a fine Swiss watch. We haven't found anything more than a sixth of a millimeter out of perfect so far and that was on something with a quarter-inch spacing margin."

As they walked out of the large building the senator inclined his head toward the other assembly building. "What have you got in that one? A flying box?"

"No," Damon responded with a chuckle. "I doubt even my son could make a box fly." They both laughed. "Come on and you can take a look at what he has put together. Actually, it isn't a rocket. Not yet at least. We'll head down to the harbor and I'll show you what just might be the submarine runabout for the future."

When they arrived at one of the two buildings

now sitting by the small bay, Tom was just exiting it and wiping his hands on a rag.

"Hey, Dad. Hello, Senator Quintana. How is everything? I heard there was some sort of brouhaha last night, but I worked right through it. Was it important?"

"I haven't heard much about it," his father said looking curious.

"Nor have I. Listen, Tom, and please call me Pete or Peter when we are on your home turf. Your father brought me down here to see what sort of speedster you are building. But, tell me about this brouhaha."

"Well, some of the workers were talking about that strange yacht that keeps coming around. Said something about a small drone being spotted coming from that direction, circling overhead and then crashing into the ocean on the way back out."

Damon slowly shook his head understanding what his son meant. "The boat remains outside the no-go zone and the drone did crash so whatever it was meant to do failed thanks to Tom's interceptor drone jets."

"So, no excitement? Just came and took a swim?"

"Yes. So, do you want to see what I'm working on, sir… er, I mean *Peter*?" When the senator nodded vigorously, Tom took them back inside and again the senator stopped dead in his tracks and stared.

Looking nearly complete at the moment, the sub

contained its small nuclear reactor, had most of the hull in place and with a clear nose piece mounted, it looked like something out of a steampunk designer's dream.

"It's so… short!" he declared.

Tom grinned, "Yes, it is stubby but it will shoot under the waves at up to thirty-five knots if things work right, and dive to below what Navy nuclear subs can manage by maybe a thousand feet or more."

"With that glass nose in front?"

"That is clear tomasite plastic and I still have to thank my father for allowing me to use that much. It's pretty expensive stuff, and it's the clear version of what we have around our nuclear reactors in New Mexico and the small one in this sub as well."

"When will you have it finished?"

"It was finished two weeks ago and we had a fun adventure on the shakedown cruise. Now I'm installing a few refinements. But, I'm also working hard on my rocket project over at the launch facility. I still intend to beat dad to space!"

By the time Peter and Damon left, the politician's mind was dazed by what he had seen so far during this visit.

The final couple stops in Damon's tour with Pete Quintana went well. The politician was impressed by the thoroughness of the base layout and said, perhaps a bit kiddingly, "You ought to go into the business of designing our military bases. This

layout makes sense where nearly no base I've ever visited has a concrete plan or design. They seem to just spring up randomly and then fill in empty spaces with things like buildings, marching grounds, unwarranted statues, and the like."

They shared a laugh at that notion. Both knew of examples where bases had been built with the only possible consideration being, "How far can we make our soldiers/sailors/airmen/marines march in the course of trying to get through their work day?"

As they ate lunch with Hank and two other site managers—courtesy of Chow—the discussion turned to the *CosmoSoar*.

"Do you really believe something as big as your giant's child's toy is going to fly?" Peter asked.

"Not just fly, Senator Quintana," Damon replied remembering to call him by his title in front of others, "but it will carry more than the five tons of cargo the X-Prize folks want into space along with a crew of three. Five people if outfitted with more couches and still get that load to orbit, only just a few miles closer to the Earth."

"Have you had any more problems with flyovers by the airlines?"

"Other than that small drone, and the CIA's photo recon plane a while back nothing since the official no-fly zone was made public. The biggest issue for me, and for my Security man is that things like the drone may have been a warning or simple spying, but we just can't figure out if this Greek

billionaire actually has ill will toward us."

Hank added, "It seems he is more intent on Tom's possible rocket project and a bit of technology he is working on. I can't talk about it but it could revolutionize rocket travel. The going opinion is this rich guy wants to steal and exploit that, and not perform an outright attack on the island."

"Is this device or thing of Damon's son ready to go?" Peter asked.

Hank shook his head. "Not for a month or more. He has performed some high altitude tests using his *Sky Queen* because he needs that height, but as for something he can put in a rocket, that is a ways off."

One of the other managers, Manny Lingstrom, looked perplexed. "I thought it was those nasty Brungarians. The name Rotzog has been bandied about out here for weeks. What gives with the Greek stuff?"

Damon wondered how far to let the conversation go on. He stood up and everyone looked at him. "For the record, the rich man is Demetriou Odysseus but it is his son Heliax that we apparently are of interest to. And, it seems now that my son is working on his rocket, he has been the one to run afoul of whatever Heliax's intentions are. I believe he is no longer interested in something like the *CosmoSoar* that looks like it could never fly. Heliax has attempted to gain employment with us and has stated he wants to be an astronaut, but nobody

believes he has the skills or the temperament to do that." He looked at this table companions and frowned. "Sorry to do this, but as for now, I am putting an end to this discussion. I advise you all to keep this under your hats for the time being, or until Harlan tells us it is okay to discuss it."

It was agreed and although Peter Quintana planned to have both the FBI and CIA looking into the situation the moment he got back to his office, he said nothing more about it. The truth was that Heliax's father was a thorn in the Government's side as were a number of extremely rich men who believed their wealth put them above the law.

The biggest question on his mind was, "When do you see this base being finished?"

Damon looked at Hank and they both looked at the senator.

"Never!" came their chorused answer.

"Oh, we'll have things well and truly in full working order in another few weeks," Hank stated, "but I think the idea is that we will never put a stake in it, so to speak, and declare we're finished!"

As Peter Quintana boarded his helicopter for go back to Washington he promised to finish work on the limiting of all aircraft and even surface vessels around and above the island out to the full ten miles. "Give me two more weeks," he stated.

Chapter 10/
A ROCKET IS BORN

THE PHONE on Damon's night stand rang. He opened one eye, frowned at the offending device and reached out for it.

"Yemmmsss," he muttered not having full control of his mouth or tongue yet. He'd only been home one day since his last tour with the senator and was exhausted.

"Sorry to wake you at his ungodly hour, Damon," came Hank's voice, "but we just had 3:00 AM overflight of about twenty military jets and a radio message telling us to prepare to have them land. Something about trespassing and Government eminent domain."

Damon swore. The permission slip Pete Quintana had provided months ago had expired so it was brought back to Enterprises to be filed away. Now, he realized, they had no paperwork proving they had the right to be there on the island; the lease papers were at Enterprises.

"Turn off the runway lights and any other lights on the island. If they radio back tell them to call Admiral Hopkins before they do something stupid. Make certain they understand we are the legal lessees of the island and that they need to wake the Admiral up so he can wake up a U.S. Senator who

also knows we have the right to be there. I'll be on my way down in less than an hour with our paperwork."

He jumped from the bed, slipped into his pants and shirt from the previous day and kissed Anne before heading to the car, racing off into the early morning darkness. He'd no sooner reached the front gate of Enterprises than his cell phone rang.

"Yes?"

"It's Hank, again. Our military friends backed off their demands once I passed along your message and say they'll be back at eight. When I tried to ask if they had contacted the Admiral they cut the connection. Pretty rude if you ask me."

Damon pulled into his parking spot and thought a moment. "Could you tell or did they identify themselves as being with one branch of the military? I ask because if they were Air Force they might not know who the Admiral is."

"No idea. What do you want me to do?"

Damon pulled back out of the parking spot and headed to the hangar area.

"Keep those lights off and park some of our vehicles every four-hundred feet all up and down the runways and even the taxiway. They likely have electronic counter measures that will render the drones useless, so we can't count on them. Until I get a personal explanation I do not want them on our island!"

Nine minutes later he was racing down the

runway and taking off in the corporate jet. As it climbed to cruising altitude he silently wished the new SwiftJet Mark One was completed. It was a sleeker design and would outperform this jet by at least one-hundred knots.

As he passed over New York City he started to relax a little. It was just turning four in the morning and already the streets were packed with a steady line of headlights.

Soon flying over neighboring New Jersey, he made a decision. He placed a call to the office of Admiral Hopkins. Because the man was in charge of the entire Atlantic Fleet there was a better than good chance his phone was always manned.

A pleasant but tired-sounding young woman answered.

He explained the problem in as few words as possible before she asked, “What do you want me to do, sir. I can’t just have the Admiral awakened for something that might be a hoax.”

Gritting his teeth, he replied in an even and slightly growling tone, “I do not know your rate or rank, but rest assured the Admiral will be displeased you have been rude to me. I am not a normally vindictive man but I will ask that he discipline you for not taking this call seriously. So, I will hold while you wake the Admiral. Be absolutely certain to say it is *Damon Swift* of *Swift Enterprises* on the phone and there is a military problem at *Fearing Island*. Got that?”

"Yes, sir," she said sounding a little more polite than before.

He had to wait seven minutes before the call was connected.

"Damon. What the heck is this about Fearing and an invasion?"

After a brief rundown of what was happening the Navy man swore several times then promised to get on the matter immediately.

"If those are Navy pilots I'll have their commanding officer's bars. If they are another service, I'll make their lives miserable. Keep those vehicles of yours on the runway until you need to land. If they are still hanging around head back to Savannah and wait for me to join you!"

But, Damon didn't need to worry. By the time he crossed the Atlantic coastline just north of Myrtle Beach, South Carolina, the Admiral was back on the phone.

"Taken care of. It's the Marines and they evidently don't read their reports. Pull your people off the runway and allow the lead jet and his wing man to land. The others are heading back to the mainland. I'm at the airport getting ready to take off and will meet you there. I'll explain what I know later."

That explanation began with an apology from the Marine Major flying the lead fighter jet.

"Sorry, Admiral and Mr. Swift. We had a report from an anonymous source saying that they'd flown

over the previous evening and became worried it was a foreign incursion into U.S. waters. That jet was twenty-six miles off course. We traced the call and it came back as an airport phone in the pilots' lounge for Universal Airlines in Atlanta."

Admiral Hopkins had flown in in a fighter jet similar to the ones the Marine pilots arrived in.

The Admiral added, "The woman who operated the call desk there identified the voice–and yes, they do record everything that comes in—as a Captain Ralph Robbins, one of their newest pilots and a man she says is given to seeing flying saucers and that sort of thing. I'm guessing he is not long for this world of flying with that attitude and poor sense of direction."

Damon nodded. "Well, I would have thought the word might have been broadcast about what is going on, or at least the idea this a no fly area. Would it be possible, Admiral, to re-notify all services and airlines? It might have more weight coming from your office."

He thought a moment before answering. "I don't see why not. It isn't on a direct flight path for any legitimate military aircraft runs. We all stick closer to the shore as a rule. Besides, we probably have to do something about lookie-loos coming out from shore. Ah, there is the Air Force jet I'll bet has the good senator from that far western state."

It was Peter Quintana who got out, shook hands and received a brief explanation. "Yes. I will scratch at this particular scab over this being declared a

military 'keep out' spot as well as for all commercial and private traffic. It will take Presidential approval for the military order, but it should be in place within the week."

They adjourned to the cafeteria where Chow Winkler was spending the week cooking for the construction crew from Shopton and finalizing his kitchen remodel work.

Over a breakfast of blueberry pancakes, scrambled eggs and homemade sausages, they agreed that Fearing Island and what it was about to become, was going to be a major asset to the country.

Breakfast over, the five men headed back to the parking apron.

The Marine pilots and the Admiral departed but the senator stayed behind.

"I don't need another tour, but I did want to talk to you about Demetriou Odysseus and his son. Now, I know you want your own folks to handle security here, but I went ahead and called the FBI and CIA. Both are very interested and especially so the CIA when Odysseus and Rotzog are named in the same breath."

"Okay. Where do we stand, and should we get Harlan on the phone to be part of this discussion?"

"Not necessary. Right now," he said looking at his watch, "he is in a deep conversation with the FBI. They are filling him in on many things neither you nor I need to be concerned with. They are also

informing him that I am giving you a brief briefing. Let's walk."

They left the apron area headed down the access road toward the harbor. As they walked slowly along Peter told him everything he knew about the Odysseus situation. About how the Odysseus family was one of three Greek families who had made their fortunes over one or more centuries through ruthless control of various shipping lanes and companies. The occasional murder and lots of bribery had played a part on all three sides.

"His major competition today is a man named Samson. Atlas Samson. I don't know why but these Greek ship guys always are named for Greek Gods."

"Odysseus wasn't a god, Pete, he was just a Greek hero and star of *The Odyssey*, sort of. But, go on."

"Smart guy! Anyway, the number three people are the old Onassis family but their riches have been squandered by various squabbling family factions, so they don't really count any more. Odysseus is not as public as Samson, but he is also quite ambitious. I know it sounds laughable, but he's actually sued NASA for using outer space above his shipping lanes. Of course it was tossed out of international court, and he was informed that he didn't even own the water, he only used it like everyone else, but he tried it again taking about a hundred astronauts to court demanding they pay huge sums for their trespassing."

Damon stopped and looked in wonder. "Let me

guess. Those cases were tossed as well?"

Pete started walking again, answering, "They sure were. After that he went sort of quiet on the whole space thing, but there is apprehension now that he might try to do something out here to keep your *CosmoSoar* from being used to launch things."

Damon was stunned. "Do you mean he might try to destroy the rocket before or even as it is taking off?"

Now the senator stopped. He shook his head. "Not his style. He is more into seeing it go up and come down the first time, then hiring mercenaries to go in and make certain it can't go up again. Or, steal it if he thinks he might be able to use it."

"We thought it was his son and Tom's rocket in jeopardy."

"Not so much as far as we know."

They started back up and were now within sight of the dock area. Pete had seen the *CosmoSoar* in all its partly-finished glory just a few days before but it had been a few weeks since he'd been to the submarine construction shed.

They made mostly small talk as the two approached the large building and only paused before heading past it.

Once again he stopped, nearly tripping up Damon.

Before them tied up to the dock was the most fantastic little submarine he'd ever seen. Of course

he had seen it when it was mostly finished, and on dry land it looked more like a large toy, but in the water it had become something else. It was an honest-to-gosh submarine.

"It's like something out of a Hollywood movie, Damon. Everywhere I look on this island I see incredible things. The buildings here and again next to those two rocket launching pads are now complete and there is some other stuff going on over there. Spotted that on the way in. Even the greenery around the place is so far from what this place was when you and I first took a flight around it. Your rocket is incredible but it is on a scale almost too large to take in. Now this. Wow."

Damon thanked him and admitted it was all coming together.

"Tom is back in Shopton for the day or else I'd have him let you inside. The view out that nose is breathtaking, even in port. I won't do that because I am not sure what can be stepped on, over or around in there. All the same, I agree with you that his sub, he's calling it a Jetmarine because it doesn't use screws but rather jets of water shooting out the drive nozzles, it is something to behold."

After walking along the dock next to it, Pete asked about two oval-shaped cutouts, the tops of which he could just spot above the waterline on the starboard side of the little sub.

"Tom has built a pair of deep sea diving suits that fit in there. You know his friend, Bud Barclay?" Pete nodded. "Well, Bud says the drawings

reminded him of Humpty Dumpty and says when he was young he called that egg a Fat Egg Man. I believe the Fat Man part stuck."

Half an hour later the helicopter he'd come in on an earlier trip asked for permission to land. Pete had sent it to escort the Marine pilots to make certain they didn't come back.

The pilot was told to go ahead and set right down on the parking apron. A call to Damon's cellphone advised them the senator's "ride" would be on the ground shortly.

"Just one more question," Peter said as they walked toward a waiting jeep that had been delivered to the dock area. "Where the heck are you getting your water? I mean, you've got a few hundred people here and now you've planted grass and some shrubs. Where is it coming from?"

Damon smiled. "We dug down about four-hundred feet intending to use the surrounding rocks as a partial saline filter but we a hit nearly fresh water aquifer. Our geologist says it is technically an artesian well coming from as far away as the mountains in Tennessee. It does pick up some salinity but we have a wonderful solar-powered purifier getting that out as it comes to the surface so while it isn't unlimited, we believe it will do for as many as five-hundred people."

Pete Quintana shook his head. "I shouldn't wonder. Can I see that solar thing?"

“Certainly, but first I want to show you what is going up next one of our vehicle launch pads,” he said.

When they got out of the jeep, and walked between the two large structures, Pete Quintana stopped and stared.

In front of them was the first of two smaller launch pads and towers.

“What the heck?”

“Well, you said you thought we might be able to help with smaller launches so I’m having two dedicated pads built to send up a modified version of that sounding rocket we used for the fuel demo. The new one will stand forty-eight feet high, have an extra stage on top of the main one and be capable of putting two-hundred-ninety pounds into orbit between one-thirty and one-hundred-sixty miles up. We’ll make the pieces in Shopton and cargo jet them down to be assembled in a smaller building that will be about where we are standing. Then it is a quick trip on a platform running on a wide gauge rail system with a switch to send it to one or the other pad, and it can be in the air an hour later.”

“Please forgive the gift horse and mouth looking in this next question, but what if the thing we want to send up weighs, let’s say, three-hundred-fifty pounds?”

“It either goes up a dozen or so miles less, or we stack another small stage on top of the main and its

second stage. That small stage would be a solid motor and just eight feet tall. Of course, the added weight lessens what the first one can get up, but we believe even a payload of four-hundred pounds to one-hundred-eighty miles is possible."

"And, I suppose for anything larger we'll have access to your *CosmoSoar*."

Damon smiled.

On their way back to the helicopter they passed the larger assembly building.

"I know you want that *CosmoSoar* to be finished, as much as I do even, but what if the same scenario were applied. You say it can lift five tons, but what if someone asked you to put up six tons? Can it be made larger to do the job."

"Yes it can, but do it without the need to be larger. We had to upsize things from my original concept and make it so air can move down between the rings, but it will not only fly, it should be able to lift fifty percent more cargo than the X-Prize is asking for. Well, nearly that. They want ten-thousand pounds to go up and this will lift fourteen-thousand six-hundred plus a crew of three."

"I should know better than to ask."

"Never be afraid to ask," Damon told him. "It's how we learn. But, there is one other thing."

"What now? It all opens up into a beautiful flower once in space?"

Damon thought a moment "Not a bad idea. Not a flower, but with solar panels all around for power. It gets into orbit, they come out and we have more than enough power for anything. I'll have to see about that…" he trailed off as he made a mental note. "Oh, what I was about to tell you is that if we have an absolute need to carry something larger than the current capsule will hold, we will build an even wider outside ring, remove ring three and insert a widened capsule in there. We could even add that extra ring to get a heavier cargo up in the existing capsule, but only by about one more ton. Probably not worth it."

He stopped the jeep and they got out. The helo pilot was leaning against the fuselage filing out his flight log book. When he saw the senator approaching he shoved in into a pocket on the left leg of his flight suit and snapped to attention, giving Pete a smart salute.

"Knock it off, Major. In DC, okay, but out here we are on civilian turf and don't want them to think we are *all* military. Okay?"

"Yes, sir. Okay, sir. Ready for takeoff whenever you are." He took a look at the politician's face and added, "Sir!"

"Do you have enough fuel to get back?" Damon asked.

"Uhh, your flight line people brought out a truck and topped us off, Mr. Swift. Thank you for that. We'd have put in at Savannah for fuel without that. You guys are great."

“Send me the bill,” Pete told him with a smile as he pulled on the flight overalls the pilot handed to him.

Four minutes later the helo was sealed, the rotor was spinning up to speed and a moment later it jumped into the air.

Damon stood there watching it make a sweeping turn and heading to the north west.

After checking out with the base manager Damon also got into his jet and left the island, heading for home and a well-deserved nap.

Over the coming weeks arrangements were made for the first of the mandatory two inspections by the X-Prize committee. When they arrived Damon had to grin on seeing Dr. Hirshfeld leading the group of five.

“I thought you’d hung this all up,” Damon said with a smile as they shook hands.

“Yeah, so did I. I wanted to but my darling wife had other plans. Doesn’t want me underfoot or even in the house until I get some sort of hobby to keep me occupied. Can you imagine? A *hobby*.”

The team had already seen two of the nine entries in the previous month. None of the others had been anywhere close to half complete, so they were a bit taken aback on seeing the *CosmoSoar* sitting on the moveable platform with the capsule/ stage four hanging overhead.

One member was so shocked into disbelief he asked where the rocket was.

"This," the inventor informed him, "is our rocket. It is listed in the entry packet that we have eschewed a stack of stages in favor of nesting ours. Didn't you see that in the paperwork?"

"Well, I never thought you'd go through with that. Is this thing even able to get off the ground?"

Dr. Hirshfeld tutted and tapped the man on his arm. "Stop it, Davidson. Damon Swift is probably the only entrant who will succeed. Never question him or any other person or company trying to win one of our contests. We don't want the traditional; we want the exceptional and the oddball. Got it?"

"Yes, sir. Sorry, Mr. Swift. No insult meant."

"And, none taken. But, your question deserves an answer. Yes, we already know it will fly. We've made enough scale models and launched most of them. It will work."

The group left three hours later all shaking their heads. They were not disbelieving anymore, they were stunned that even the capsule seemed to be of a higher quality than those used by NASA and the five other aerospace companies who regularly launched rockets.

Their second inspection was not necessary as the rocket was already past that point in development.

Damon received a Notarized document stating he had passed the inspection and would be cleared to launch once he and the others were provided the

launch window notice.

That, he knew, would not come for another month. As "finished" as the *CosmoSoar* appeared, it was far from ready. A lot of the individual stage systems still had to be installed and the capsule would be going back to Enterprises for some finish work including the acceleration couch covers the Major and her ladies were just completing.

He drove back to the launch complex, as he was now calling it, and entered the smaller assembly building.

Tom's forthcoming rocket, what he wanted to call the *Star Spear*, was about half finished. The lower third of the one-and-only stage was an array or spars, wiring, ducting, tubes, pipes, tanks and the single motor at the bottom. He knew the main fuel tank was just above the motor and once complete the liquid oxygen tank would be above that. Neatly mounted just under passenger area with a special bypass pipe running into the cabin before it headed down, using a combination of G-force and a accelerator special pump, to be flung with great force back to the combustion chamber.

Tom was on his way back to Shopton to do some more work and to make good on a promised date with his steady girlfriend. It was a constant source of amazement for Damon and Anne that the girl, Bashalli, actually allowed Tom to get away with only occasional dates, some of them missed.

Sandy Swift, who was dating Bud Barclay, was similarly forgiving although she made certain Bud

knew of her displeasure.

Damon walked over to a hydraulic lift and rode it upward until he was even with the cramped cockpit. As amazed as he was with Tom's dating habits, he was more amazed that his eighteen-year-old son was accomplishing so many important things, including this rocket. The controls would be minimal with most functions being handled by a hand-built computer system.

Knowing how busy Tom was he had offered to have the ladies in Uniforms make the necessary coverings for a pair of acceleration couches he also suggested Hank and his people could turn out.

"Sorry Dad, but my cabin won't have that sort of room, and the rocket won't have that extra lift. It'll be a reclined sort of padded board for the flyboy and me. Remember, we have to be able to get up and float around doing whatever it is the committee says we need to do and couches would be hard to fold away. The board can be shoved into the back wall leaving us a few extra cubic feet of space."

Now, Damon smiled at that memory. Secretly he had done what any father in his position might; he had run a simulation of the forces and how it would affect the boys' bodies. Surprisingly, the thirty-degree of tilt Tom hoped to use was enough to keep the G-forces from making them black out.

He had, however, suggested that their spacesuits feature the sort of inflatable air bladders that fighter pilot used to squeeze legs and the lower torso keeping blood from running down and

making pilots lose control.

With a sigh he took the lift back to the ground and walked from the building.

Only the future would tell if Tom finished in time to try for their personal wager of who would get into space first.

Because he knew that even a disappointment would be better than a hollow victory should Damon hold back, he never thought about slowing things with the *CosmoSoar* down.

It was going to be a fair and honest fight to flight for them both.

Speaking of which, he drove quickly back to his office to put a small finishing touch on one of the control programs he was developing.

There were just so may little things to do and so few days before he really wanted to utter words like, “We are go for launch…”

Epilog

Damon looked out over the expanse that was Fearing Island and at his *CosmoSoar*. Standing slightly taller but completely dwarfed by the gigantic lifting rocket was his son's *Star Spear* sitting on the second launch platform.

Both rockets were so close to completion the father and son could practically taste their individual victories. Not only were they competing for their respective X-prizes, they were competing against each other.

Certainly it was a friendly competition, but both wanted to win. The only real difference was that Damon wanted his son to win as much as he wanted to win the race between them. It was a parent/child things that was not, and never really could be, reciprocated.

Tom might cheer his father on, but deep inside he would be a little crushed if he were not the one to prevail.

The following day, or the one after at the very latest, one or both of them would press their respective red buttons sending either the *CosmoSoar* or the *Star Spear* into space where both would surely set records.

Damon's with its incredible cargo capacity and Tom's with his revolutionary fuel kicker system to super-energize the oxygen in his tanks to provide

incredible power for a small amount of fuel.

He had a small chuckle as he imagined how his wife, Anne, would take to cheering for both of her men. Would she be a wife or a mother first?

With a shrug he returned to his checkoff list and ran his finger down until he found the next item. Number 87 of 119.

<•>–<>–<•>

The full story of how the *CosmoSoar* came to be launched and how it affected the launch of Tom Swift's own rocket, the *Star Spear*, may be enjoyed by reading the Scott Dickerson reimagined version of ***Tom Swift and His Rocket Ship*** available for online reading from:

http://www.tomswiftlives.com

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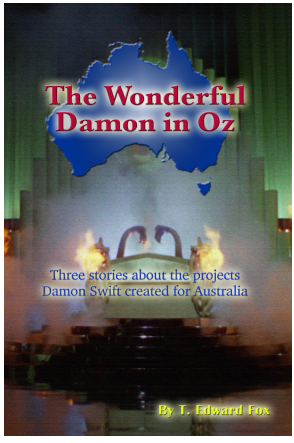

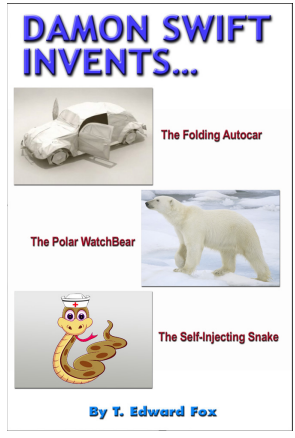

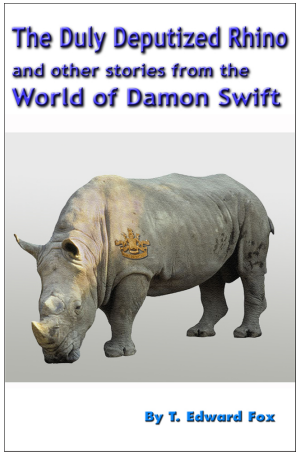

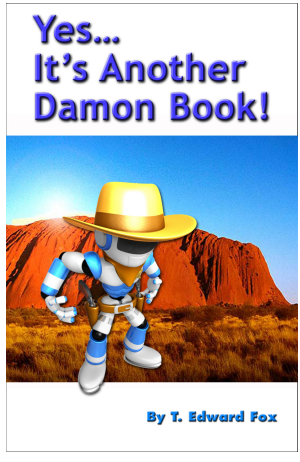

Each book is a collection of novellas filled with the inventions Damon considers to be his favorites, or at least the strangest ones he's done in recent years.

Written by Thomas Hudson under the pen name T. Edward Fox.

Thomas Hudson's Books:

THE TOM SWIFT INVENTION SERIES (2009-2016)—

01 *Tom Swift and His EnvirOzone Revivicator*
02 *Tom Swift and His QuieTurbine SkyLiner*
03 *Tom Swift and the Transcontinental BulleTrain*
04 *Tom Swift and His Oceanic SubLiminator*
05 *Tom Swift and His Cyclonic Eradicator*
06 *Tom Swift: Galactic Ambassador*
07 *Tom Swift and the Paradox Planet*
08 *Tom Swift and the Galaxy Ghosts*
09 *Tom Swift and His Martian TerraVironment*
10 *Tom Swift and His Tectonic Interrupter*
11 *Tom Swift and the AntiInferno Suppressor*
12 *Tom Swift and the High Space L-Evator*
13 *Tom Swift and the IntraEarth Invaders*
14 *Tom Swift and the Coupe of Invisibility*
15 *Tom Swift and the Yesterday Machine*
16 *Tom Swift and the Reconstructed Planet*
17 *Tom Swift and His NanoSurgery Brigade*
18 *Tom Swift and His Thermo-Ion Jetpack*
19 *Tom Swift and the Atlantean HydroWay*

PLUS in 2017-2018:

20 *Tom Swift and the Electrical Vampires*
21 *Tom Swift and the Deep Sea HydroFarm*
22 *Tom Swift and the un-titled future volume*

… with others to come

Collections of novellas, many dealing with some of the individual characters in the novels and/or the lesser known inventions coming from the mind of Tom Swift:

- *Enterprising Characters*
- *Swift-ly With Style*
- *The Spirit of Enterprises*
- *Enterprises Extras*
- *Tom Swift's Pocket Book of Inventions*
- *Tom Swift's Another Pocket—More Inventions*
- *A Newer Pocketbook of Swift Inventions*
- *Tom Swift's A Fourth Pocket of Inventions*
- *Tom's 5th Symphony of Swift Inventions*
- *Ten Tom's: A Collection of Invention Shorts*
- *The Operator's Guide to the Fat Man Diving Suit*

In addition to the teen/adult Tom Swift stories he also has a book of stories about young Tom Swift as a pre-teen as he starts to find his way into the world of inventions:

- *The Young Tom Swift Stories*

The *Anne Swift: Microbial Detective* series contain novellas about Tom Swift's mother's secret FBI work. There are three collections in this series plus a biographical novel about how it all began.

The Damon Swift Inventions Stories series contains four trilogies starring the father of Tom Swift as he develops devices for a variety of customers including the Australian Navy. A fifth book is in the works.

…Check out and download this little freebie, a short story— 600 words—written for a contest back in 2011:

- *Tom Swift and the Frictionless Elf*

http://tomswiftfanfiction.thehudsons.com/TS-Yahoo/TS-Elf.pdf

Mr. Hudson has also written a few strange novellas that are available as Kindle and NOOK ebooks. Neither are serious and were only written to amuse the author. Even so, he decided to share them. **Do not** expect life-changing literature for $.99 (US) each:

- *The Fiendish Bucket List of Dr. Fu Manchu*
- *Up On The Housetop, Click, Click, Bang!*
- *The MassiveMart Murder Mystery*

And a collection of odds and ends (also a 99¢ Kindle book):

- *Don't Write Fan Fiction Until You Grow Up, and other short stories too short to sell individually*

On a dare, he wrote a strange story about a young girl with both a physical and emotional difference to 99.99999% of people out there. It is an adult autobiography/biography and features her life story starting when she was a young teen.

This is NOT a Tom Swift story in any way, shape or form!

- *The Life of BI: Complete*

And, he has written a trio of novels staring Tom Swift as he takes on the rescue of a secret slave colony on the Moon, Called the Tom Swift Lunar Sage, it includes:

- *Tom Swift and His Space Battering Ram*
- *Tom Swift and the Cometary Reclamation*
- *Tom Swift and the Lunar Volcano*
- *Tom Swift and the Killing Moon (coming in 2017)*