



SWIFT ENTERPRISES PRESENTS

**Tom Swift, Sr—
That's My Boy
A Proud Father Talks About His Son**

With T. Edward Fox

Tom Swift has seen more and done more than almost anyone else. From fixing up a motorcycle to creating the world's most powerful searchlight. From heading expeditions through the air and into mysterious caves. He even created the electric rifle that later became the TASER.

But, he is most proud of three very tangible achievements beginning with his wooing and marrying the lovely Mary Nestor and then the births of their two children, Tom, Jr. and his sister Sandra.

It is post World War II and he has recently opened the new Swift Enterprises complex. As he works to master an increasingly complex world of electronics and science, his son, Tom, is spending more and more time working at Enterprises.

Ask Tom Sr. privately about his son and he'll tell you how proud he is of the boy. Put him in front of an audience, and they can all tell just how much his son means to him.

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This story is dedicated to fathers and their sons. It is a relationship that can run smoothly, or it can be a hard, jagged trial by fire. For most, the end comes when both realize just how similar they really are. All it takes is a little time, patience and love. And patience. And time. And love. And a little bit of luck.

That's My Boy

FOREWORD

Tom Swift, Sr., the father of young Tom Swift, Jr., has had a dream for many years. Interrupted by the second World War, he has finally built Swift Enterprises, the four-mile-square super facility that will go on to change the world in ways even he cannot imagine.

At the same time he is opening the gates of Enterprises, his son is starting to work after school and on some weekends there. Tired of working in the now-cramped shed his father gave him a few years earlier, young Tom longs for a proper space in which to invent.

And, an endless supply of, well, supplies. Most of what he has invented—and it had been an impressing run of successful devices—have been cobbled together using spare and surplus parts. Young Tom even has had to make needed components himself using tools not suited for the job.

But, as proud of his son as he is, Tom, Sr., is determined that Tom will need to earn everything he receives.

“No child of mine will be allowed to such endlessly on a silver spoon!” is something he has heard for years.

This is the story of the start of Swift Enterprises and how young Tom began earning his way to bigger and greater things.

Victor Appleton II

CHAPTER 1 /

YOUR SON IS FOLLOWING IN LARGE FOOTSTEPS

“MR. SWIFT,” the voice of a reporter rang out from the crowd at the press conference. “What can you tell us about your amazing son? Is he going to follow his father into the inventing business?”

The tall, lean man at the podium smiled as he thought over his answer. “Good question, Mr. ...”

While he waited for the reporter to give his name, a trick Tom Swift, Sr. had developed years earlier to give him time to ponder things, he had a small, inward smile as he thought of his fourteen-year-old son, Tom, Jr.

“Uh, Dan Perkins, sir. The Shopton Bulletin. So, what do you think of him?”

“Thank you for asking about young Tom. I have to say at the outset that I am mighty proud of him. As you might know, he has been responsible for almost a half dozen inventions so far, and we believe he will be coming up with wondrous things for many, many years. If,” he said looking pointedly at the young reporter he knew to have recently transferred from the paper in Thessaly, “Tom wants to.”

“But,” Perkins persisted, “he was recently tested and scored one of the highest IQs in the nation. Surely talent and brains like that must be put to good use.”

“Dan, if I may use the familiar, it is entirely up to my son. Must I remind you that IQ is not entirely a measure of brains. It is more a measure of one’s ability to process and use information. To recognize patterns and extrapolate the next object in a line up. Albert Einstein was a genius even though he

never took an actual IQ test. Experts agree that he should have scored about 145 or so and that's well above genius. But, he was a failure at math. It's only numbers after all."

Another reporter Tom didn't recognize but believed to have come up in a bus with other New York reporters raised a hand.

"Yes. You have a question?" Tom said pointing at the man.

"Two questions, actually. The first is along the lines of the first reporter's questions... or at least your answer. You said that your son has been responsible for about six inventions. Can you guarantee that he actually came up with those himself, and that you didn't sort of seed those things using his name to give him a boost in the industry?"

Tom turned slightly red. "If you can see my face you might think I am blushing," he told the crowd. "Nothing could be further from the truth. I am actually greatly incensed at the suggestion made by that reporter. How *dare* you try to intimate that anyone by the name of Swift, or any of our employees for that matter, would lie about that sort of thing? How *dare you*, indeed. I will remind you that you are here by invitation and that invitation can be rescinded at any moment!"

The reporter who had been smirking as he sensed a "story" suddenly paled. He was already on probation by the New York Sentinel, his third employer this year alone, for badgering the Mayor of New York City three weeks earlier.

He quickly apologized, adding, "It is just that everything up here is so hush-hush and the things he is credited with are so astounding—"

"I think you had best ask your second question," Tom told him curtly. "Then, we'll move on."

Fumbling with his notes, the reporter finally asked, "You've told us about the reason for splitting your business into two

companies, but can you tell us specifically what this new one, uh, Swift Enterprises, will be doing that differentiates it from your Swift Construction Company?"

"Well, I can tell you a few things, but much of what we are beginning to do here, and probably a large portion of what is to follow, is classified by the U.S. Government. Some of it is merely confidential and some top secret. Obviously, I can't tell you about anything specific, but let me tell you the biggest differences."

He looked the crowd over trying to judge how much time he could and should take. He wanted to give them enough but not bore them.

When in was just The Swift Construction Company, we did everything in one set of buildings. That included the facilities to do the inventing, drafting and design labs, fabricating all of the components that could be made by us, purchasing and distributing those pieces that are best made by others, and all assembly and shipping of everything we make."

Many in the audience were nodding, but a few were furiously scribbling notes as if this were all brand new information to them.

"While the older facility will continue to build much of what me create, all of the design, development and testing of new products will take place inside of these secure walls." He pointed to the imposing, gray walls that seemed to go on forever.

"Part of the reason is because of the aforementioned security concerns. And, part of it is just a matter of space. The old Construction Company sits on a piece of land about a half mile wide and just over a mile long. That is barely enough room for all the buildings plus a short air strip. Enterprises, on the other hand, is four miles on each side. This building I'm standing in

front of is our Administration building. Now, I know that you can only see one other building right now. The one over there houses most of the design and development labs and offices.”

The crown murmured appreciatively.

“By this time next year there will be three other buildings in this central area. And we envision that in five years time, there will be at least ten buildings here. And, surrounding us all,” he swept a hand around to indicate the entirety of the Enterprises complex, “will be a series of at least three and perhaps four proper runways. Runways capable of handling any type of aircraft currently operating in the world, and any we can dream up right now but haven’t built.”

“You’ll get those made next year,” a voice called out from the middle of the crowd of reporters. Everyone chuckled at that, but Tom Swift knew that is wasn’t far off from the possible truth.

“Mr. Swift. Can you tell us *anything* about what will go on inside these walls?” a young man with a noticeable New Jersey accent asked.

“Well, I *can* tell you that it will be a combination of the Government types of projects that I can’t tell you about, even if we had one that were are working on now, which we do not. With those, and in actuality the larger part of our business, is going to be the design and development of a new class of private aircraft, some electrical and electronic devices that will be used in the home and also in offices and manufacturing, plus some really way out projects that you’d just laugh at today.”

He knew what he had planned, and that included traveling far beyond the confines of the Earth’s atmosphere. Ever since he had been introduced to Dr. Robert Goddard in the years before the war, Tom Swift had dreamed of being the first man

to rocket into space.

Toward that goal, he already had three different rockets on the design and drafting tables at Enterprises. But, today wasn’t the day to discuss those.

“Sir? Without getting into sensitive areas, can you tell us a little about what your son is doing these days. Unlike some of my colleagues I understand the efforts he put into those inventions of his. At least, the ones we’ve heard about.”

This press conference had been called specifically to introduce the public to the new Swift Enterprises. Tom had hoped to avoid talking specifics about both the company as well as his family, but he now recognized that there was little to do but answer a few questions about young Tom.

“My son, who turned fourteen a few months ago, has created some things you all know about and a couple that have just been of local or even Swift family importance. The recently declassified dual-channel video camera he devised during the war was a boon to our troops and to the whole Allied effort over in Europe and the Pacific. I’ve very proud of what Tom did there.”

“Is it true he never knew about the success of his camera until just now?”

“I think I recognize you, sir. Aren’t you the reporter from Chicago who wrote a very unflattering article about my father a few years ago?”

The reporter hung his head. It was evident that he recognized that his article had been ill-received. And, as had been proved in court, full of made up facts and suppositions.

“I have to apologize, Mr. Swift, and admit guilt there. I received a demotion after the trial and am working my way back up the chain. If you would provide us with any answer, I

will regard it as a favor.”

Tom Swift had been brought up by a father who was as inventive as he was nervous. Barton Swift had been responsible for many inventions and improvements in previously existing devices, most of which he created in a series of sheds on the old Swift property near the shore of Lake Carlopa.

The article in question had been written during the final month of World War II and had accused the old and now somewhat feeble inventor of failing to provide the U.S. Government with a promised improvement to his torpedo turbine engine.

The only thing wrong with the article was that it was based on a letter Barton Swift had written to the then President Woodrow Wilson. An incomplete copy of that letter, missing the date of May 17, 1915, had fallen into the hands of the Chicago-based reporter who immediately wrote a story chastising the old inventor and pointing out several other inventions that had proven to be less than successful.

It had not gone down well with the Swifts and the lawsuit not only demanded an immediate and world-wide apology—which was grudgingly issued by both the reporter and his editor—but the dismissal of said reporter. That last item was not demanded by the court, but the reporter had been relegated to writing obituaries and want ads immediately after the trial concluded.

“I will give you all an answer to that question. Do not, however, consider it a favor to you,” he said pointing directly at the reporter. “Because of the top secret nature of Tom’s invention, the Government placed an absolute need to know seal on the camera. That included Tom as it was believed that someone that young might inadvertently disclose information about it. Innocently, to be sure, but still... shared secrets are no longer secret.”

He considered whether he should mention the next part, then decided it would help complete the story.

“All of the money the government paid for the invention—and don’t ask... that is still classified—went into a secret bank account in Tom’s name. It is true that he only was told about the success of his first major invention just a few weeks ago.”

“How did he take it?” came a call out from the back of the crowd.

“He... um... he took it very well. His mother and I sat down with him and explained the entire situation to him. He was curious and I think a little saddened that we hadn’t been able to trust him, but in the end he took it like a man.”

“Can I ask how your wife felt?”

“You would have to ask her about that, and she isn’t here today. All I can say is that she is his mother and felt for him as only a mother can when her child believes they have failed at something.”

“What else has he done, Mr. Swift?”

“Tom actually had a byproduct invention from that experience. We sold it to an appliance company and they came out with it last year. It’s the RADAR Range. Tom didn’t immediately realize it—actually none of us did for a few months—that a phenomena occurred when his camera was transmitting. Without any special shielding, it sent out a type of radio wave that caused food to heat up.”

Dan Perkins raised a hand.

“Yes, Dan?”

“Did they pay him well for that? I hear that almost nobody is buying the things. After all, they’re huge and require a lot of electricity. The only one I know of here in Shopton is in a café

down on Third Street, and they had to get an electrician in to add a whole new fuse box.”

Mr. Swift smiled. He knew all about that initial installation. He also knew that the owner of the café had been cautioned against using the device without beefing up his electrical circuits. Every fuse had blown the first time he turned the machine on.

“Tom received a payment that we consider to be more than generous. He also will receive a small amount for each of the units sold, all the way out to about 1977. That’s thirty years. We’ll see. The best part of that story is that Tom also created a special circuit box that can be used with those ovens. It uses no fuses and can be quickly reset if too much power drain trips the device and shuts things down. It also, I’m happy to say, keeps the initial shock drain on the electrical system of the café or restaurant contained. Sort of like a bumper. Or, better still, a damper.”

“Are you happy that he seems to be following in your footsteps? You’ve made some mighty big tracks for anyone to walk in.”

“I would be proud of my son if he decided to become a short-order cook running one of those RADAR Ranges. He is turning out to be a fine, upstanding young man. He’s kind to people around him, loves his little sister, and is respectful of his elders.”

He stopped and thought a split second before concluding, “We couldn’t be more proud of him!”

CHAPTER 2 /

ALL IN A DAY’S WORK

TOM, JR. finished his homework and jumped onto his bicycle. He pedaled as fast as he could the two miles from the Swift home to the gates of Swift Enterprises. Arriving at the gate a little out of breath, he nodded to the security guard manning the booth by the archway cut into the twelve-foot-high concrete wall that surrounded the entirety of Enterprises.

“Afternoon, young Tom,” the guard greeted him. “Got your security pass?”

The nature of much of the business that was and would be conducted at Swift Enterprises was of such a sensitive nature that only employees and escorted visitors were allowed inside the confines of those walls.

Tom pulled his wallet out and extracted a small card. It featured his picture, name, age, address and the signatures of both his father and the head of Security, Mr. H. Ames. Mr. H. Ames had a special photograph printing machine that he used to make these passes. The entire thing was actually a photograph with the picture of the employee’s face in full color.

Tom hadn’t yet met H. Ames but imagined him to be a very tall and imposing man who most likely carried a hidden gun. H. Ames was the entire current security department for Swift Enterprises, but when necessary had assistance from the security team back at the Construction Company,

The guard made a big show out of looking over Tom’s pass. Finally, he handed it back, saying, “About time you got a new picture, isn’t it. Boy your age grows so fast that we ought to require a new one every week.” He winked at Tom and motioned him through.

“Wonderful boy,” the guard muttered as Tom pedaled away.

After getting off of, and locking up, his bicycle, Tom took the picture pass back out and looked it over.

Somebody with a photograph printer like ours could make phony ones of these! he thought with the realization that something such as that might allow spies or criminals into the grounds of Enterprises. *Some day I'm going to do something about that!*

Stashing the pass, he entered the side door of the administration building and walked up the two flights of stairs to the floor where his father kept his office. It was an enormous space, easily three times as large as the spacious living room at their house. Mr. Swift had a large, mahogany desk in the far corner with three chairs placed in front of it.

In the closest corner to the doorway sat a low and wide coffee table surrounded by six overstuffed leather chairs. Each chair had a small table next to it with an ever-present note pad, mechanical pencil, and water glass on a cork coaster. The rest of the office space, specifically the walls, were covered with drafting storage cabinets, file cabinets, and shelves.

It was the contents of those shelves that always got Tom's attention. On them were scale models—most made from carved wood or shaped metal—of his father's and grandfather's major inventions. Of all of them, his favorite was the bright red model of his father's airship, the *Red Cloud*. The aluminum helium container on top could be removed, the wings swung around and out, and even the propellers could be spun with the flick of a finger.

The door opened behind him and Mr. Swift walked in.

“Still dreaming about flying, Son?” he asked.

“Gee, Dad. Of course I am. And, some day I'm gonna fly

airplanes and even jet planes. And, you're gonna build them right here at Enterprises for me. Right?”

Mr. Swift had to laugh. Tom was the most enthusiastic boy he knew. Nothing was impossible in the boy's eyes and mind.

“I'll tell you what, Son,” he said to the boy. “If you help me design it, I'll even make you a rocket ship to travel all the way around the Earth in. Deal?”

Tom's eyes widened. He had secretly dreamed about just that. It all had started when the family had watched a newsreel at the local cinema that showed a launch of an American version of a V2 rocket.

While his sister, Sandy, had just squirmed and was waiting for the movie, *Black Beauty*, to start, Tom and his father had been transfixed by the sight of the cigar-shaped rocket as it first belched smoke and then rose on a column of fire. It had been a turning point for both father and son.

He nodded vigorously at his father. In a whisper, he asked, “Can I take a friend with me?”

“Hmmm? Who would you take, Son?” Tom, Sr. asked. He hadn't considered that his son would go alone, but thought that he would be the one accompanying the youth.

“Well, you would have to come. I'm not old enough to drive let alone fly something like a rocket ship. I don't have any really good friends right now, but there's got to be someone. Maybe now that I'm going to be entering high school I'll meet someone.”

Changing the subject, Mr. Swift inquired, “What's on your agenda today, Tom? Still working the bugs out of that electric go-kart of yours?”

“No. I keep trying to get back into that, but I run into a wall with lack of efficiency of turning sunlight into electricity. The

best I've been able to do is get a couple volts out of the thing. And, the whole thing is just too heavy to move without a lot more electricity."

Mr. Swift knew how disappointed his son was. He had been trying for two years to build the thing. What he had ended up building was a method of taking the low levels of power generated and using it, along with special electrodes, to separate out hydrogen from oxygen, and then recombining them to burn in a specially-converted lawnmower engine.

It was crude, but it worked. At least on Tom's small scale. It could power his go-kart at about five miles per hour for almost fifteen minutes before things slowed down to much to continue.

Some day, he was certain that Tom would perfect it. It might even be used to power automobiles!

"Remember when you taught me about uranium and about radioactivity, Dad?"

"What little I know about it right now. Certainly. Why?"

"Well, the other night I was thinking. About radiation and how it is a byproduct of both decay and the vibrations of the atoms."

"I'm with you so far, Son. Can I ask where all this is going? I'd like to get there about the same time as you do, and if you are going to charge ahead of me I may need to beg for a little instruction from you"

Tom laughed. His father was the most intelligent man he knew.

"Anyway, I was at the library doing some reading and I found an article about how to measure the vibrations of the atoms. It takes a really sensitive tool, but it can be done."

Mr. Swift nodded. He knew of the concept. "Again, Tom, I'll ask where all this is heading?"

"I'm pretty sure I can build the device to measure that vibration, Dad. And, if I am right, and if the scientific paper is right, then I should be able to count those vibrations. Also, since the vibrations remain absolutely constant for any one type of atom, if I count them accurately and then divide them into, say, one second groups, then I could make a clock that is so accurate that the old recording they use at the telephone company would become a joke!"

The implication of such an atomic-based clock hit the older inventor like a lightning bolt. He immediately sat upright in his chair and stared at his son.

"By god, Tom! Do you know what you're talking about? The perfect clock. The *absolute* timing mechanism!"

Young Tom stood in front of the desk. He had thought it might be a nice way to build a special clock, but hadn't considered the bigger picture. Slowly at first, and then with incredible speed, it became clear to him

"Gee! It could be accurate down to maybe a hundredth of a second."

"Try thousandths or millionths of a second, Tom. The universal clock. The clock that beats in rhythm *with the universe*."

"Should I tell Mom about it?" Tom asked.

"I think it best to tell nobody about this, Son. You tell me what you need to work it out and I'll try to get things for you. The best thing we can do is to come up with this and then let our Government know about it before announcing it to the world."

Tom agreed. Even though he had been a little angry about he

secrecy of his first invention's success, inside he understood the vital importance of keeping secret information and inventions out of the public and safely away from the prying eyes and grabbing hands of individuals and even nations that would use such things to gain power and to even kill people.

The one thing Tom, Sr. suggested was that Tom talk with the security chief. "Harlan Ames is a good man, Son. He'll need to know what we are keeping secret so that he can devise ways to protect it. I'll call him now. Maybe you two could talk before you go home. Okay?"

So, H. Ames was Harlan Ames. Now that Tom knew the man's first name he revised his opinion of what he must look like. Tall, for certain. Broad-shouldered. Naturally. But Tom couldn't see a man with the name of Harlan as someone who would carry a gun.

Ten minutes later the security man arrived. He fit Tom's idea almost to a T. Plus, the boy noted, he carried a snub-nose .38 pistol in a holster attached to his belt.

"I understand that you've come up with another whiz-bang invention, Tommy," he said.

"Uh. If you don't mind, sir, would you please call me Tom?"

Ames laughed. "Well, it's going to make it difficult to keep you and your dad separate, but sure. Tom it is. So, tell me, Tom, about this new invention and why it needs to be safeguarded."

Tom described some of the basic physics behind the clock and then the actual mechanism. His father assisted in detailing some of the uses for such a clock. In the end, Harlan's head was swimming with details and he was a bit overcome by the enormity of the impact that an atomic-based clock would have. However, he rallied and made a few initial suggestions about securing all drawings and test circuitry.

"I'll have two new cabinets installed in the little lab you have downstairs, Tom. One will be a filing cabinet with a lock that can only be opened with a single, and very special key. I'll keep that key locked up in my office so you will need to come get me to unlock the cabinet for you. You will need to be very responsible and ensure that it gets properly closed and relocked whenever you leave that room."

Tom agreed. He knew he could be trusted and wanted to show his father.

"The other cabinet will be larger and will contain a hidden safe for you to put any circuitry you build into. Both of the cabinets will be bolted to the walls so they will be practically impossible to remove."

When the security chief left, Tom told his father how amazed he was.

"It's something we all will be putting up with in the near future. For instance, let me show you something." The older man got up and walked over to a table against one of the walls. Taking out something that looked like a large pocket watch, he pressed the single button on its top. A soft chime sounded—actually a chord of at least three tones that Tom could recognize—and the table began sliding away from the wall.

Tom could see that the wall was also sliding away. To his amazement, behind that wall was a large drawer filled with numerous drawings and even a couple of models of devices and at least one airplane that Tom didn't recognize.

"That is my secure design safe. It only opens to the exact tones generated by this special controller. And, only if I hold it at a specific area in this room. Anywhere else and an alarm is sent down to Harlan's office and to the main gate."

Over the next three weeks, young Tom attended the final days of the eighth grade between 8:00 and 2:30. After that, he

came directly to Enterprises where he worked on his clock device. He continued working five days a week just as soon as the summer break began.

As the summer progressed, Enterprises became busier and busier. New employees were being hired almost daily. Two new buildings had been excavated for and were taking shape.

Still, Tom worked on. It was frustratingly slow work as some of the equipment he required was either cost-prohibitive, or simply did not exist so he was continually having to stop work to design what he needed. Fortunately, many of these tools, test boards and other components could be fabricated by the staff at Enterprises and at the Construction Company.

In late July, the first of the incidents involving intruders occurred. Someone had, as Tom had thought might happen, been able to forge photographic passes for two intruders who had gained enough time to ransack several offices, including Mr. Swift's.

Obviously informed by someone on the inside, they had tried to pry the table and wall out but had succeeded only in tripping the alarm. Fortunately, they were caught in the act by Harlan and two men he recently hired as part of his growing security team.

They spilled the beans on their accomplice once the police informed them they were facing federal charges of espionage. The young employee, a man who had been hired despite having almost failed the psychological exam, was angry and violent when confronted. In the end, however, he confessed to the crime.

"I'm not sure what we can do, Tom," Harlan and his new number two man, Phillip Radnor, were saying to Mr. Swift when Tom walked into the office that afternoon.

The older Swift filled his son in on the robbery attempt.

"I've been thinking about that, Dad," Tom told the threesome. "It's great how all the information and the picture goes onto the one piece of paper, but anybody with a photographic printer, even old Mr. James at the drug store with his dark room, could make one of those once they saw what it looks like."

"The whole idea was that a set of carefully screened employees would be given the passes and they could be trusted to keep track of them. That way we hoped that nobody outside of Enterprises would get a chance to copy them," Ames stated. "At least for a couple of years or until we can come up with something better."

Tom looked from Mr. Ames to his father and then back again. Finally, he spoke up. "I've been thinking about that, and I believe I know a way to make the passes more difficult to copy."

Mr. Swift looked at Tom interest and indicated with a nod that the boy should continue.

"Well," Tom went on, "right now you use standard photographic paper. Right?"

Ames admitted that this was the case.

"Alright. Then we need to use something better. Just like the U.S. Mint uses a special paper that is all but impossible to fake, we need to print the security passes on something that is so hard to fake, or so invisible that only a few know about it, that we make them uncopyable."

"Not really a word, Son," his father chided him good-naturedly, "but we get the drift. What do you propose?"

"For starters, I thought we might see if we can buy paper specially made for us. With a really thin strip of metal, maybe even magnetized, in between the layers. Then, when people

come to the main gate, they rub their passes over a special detector that immediately registers if the strip is in there.”

“Couldn’t someone just find out about that and glue a little strip to the back of a forged pass?” Ames asked.

“That’s why it needs to be inside. Maybe the employee has to hand the pass to the guard, just like now, and then he puts in onto the detector. He gets the chance to look at both sides and then to see if it has the special strip inside.”

Ames nodded at Tom, Sr. “He has a great idea. I’m certain I can get the Kodak folks over in Rochester to make us up some special paper. I believe it is already made in two layers so putting something in between should be a snap!”

“Tom,” his father began, “how long have you been thinking about that solution?”

“Uh, I first thought about how easy it would be to forge something back in May, but the metal strip thing came to me this morning. Why?”

“Just wanted to make sure that you haven’t been spending too much time on this. Hate to think we pay you to sit around and solve all of Harlan’s problems. I’d say,” he went on giving Harlan Ames a slight wink, “that you’ve earned your pay today!”

CHAPTER 3 /

THIS WOULD MEAN A REAL DIFFERENCE, IF...

IN THE few years since the Second World War had concluded, Tom Sr. had spent an extraordinary number of hours teaching himself the intricacies of the more modern age of invention he suddenly found himself part of.

Things had been much simpler, he thought, when all you had to do was jazz up a motorcycle or build a flying machine or even invent things like his father’s special turbine engine that powered the torpedoes used by ships and submarines during the First World War.

Today, it was all electronics and radioactive power plants and the likes.

The past had paid off for him, however. His pre-war and wartime inventions had helped win that conflict. Now, he was running the company that made the news almost daily for the wondrous strides they were making.

Young Tom’s invention of a dual-channel long-distance video device had allowed pinpoint targeting of weapons and reconnaissance that had saved thousands of Allied Troops. That had been almost five years ago, and now the younger Swift was spending every free moment working at Enterprises, much to the delight of his very proud father.

“I’ll tell you, Ned,” Tom said to his oldest friend and the man who he had personally selected to run the old Swift Construction Company when he had built Swift Enterprises, “that young son of mine is getting into things I never dreamed of.”

“I’ve heard a rumor that he is trying to revolutionize the way

we tell time. That true?" Ned inquired.

Tom, Sr. explained that young Tom was trying to work out the specifics of a new type of clock that used the atomic-level vibration of certain known elements to count the duration between one point and another.

"If what he is trying to get through my thick head is practical, then we might some day see a clock that is able to divide a single second of time into a million parts and tell you precisely where in that million you are at any split second!"

The two men looked at each other and could only grin.

Within a few days Tom came to his father to ask for some help.

"I'm getting stuck on this, Dad," he explained. "Everything I've tried to figure out points to some things we can't do. At least, I don't think we can."

"Such as..."

"Well, for starters all the research I've done says that the kinds of elements I might use react differently at different temperatures. In the case of cesium, the one I think might work best, the difference between its vibrations at room temperature and at absolute zero would mean the difference between a clock that's not much better than we have today versus something that is a thousand times more accurate."

He sat there looking at his father's face, trying to read the older inventor's thoughts. Finally. Mr. Swift said, "We do have some facility here to cool things down using liquid nitrogen. Might that help you?"

Tom looked into a notebook he kept in his shirt pocket. In a moment he found what he was looking for. "Absolute zero is just about four hundred and sixty degrees below zero, Fahrenheit. Liquid nitrogen is about three hundred and twenty

five below. I'd have to do the math, but my bet is that it would give us a lot more accuracy, but nothing like what is theoretically possible."

"But, it would be a great stride, nonetheless. Right?"

Tom nodded and then shrugged. "A big step but with a lot more ahead," he said philosophically. "I actually have an even bigger problem that there is no answer for."

Intrigued, Mr. Swift asked what that might be.

"I'm getting really bogged down in all of the computations and a lack of accuracy. My slide rule is fine for general work, but where I need to calculate down to five or even ten decimal points, it is just so much wood."

"There was a time," his father told him, "when all we had were these things called pencils and this other stuff they called paper. While our fathers were out killing dinosaurs for dinner, we sat in our caves by moonlight and did our sums."

Tom knew he was being teased, but that there was a lesson in there.

"All right. I have been using the old fashioned ways of doing things, but it is slow and there are some formulas that I don't understand. Even some that I can't find anywhere and I think I might have to make up."

Mr. Swift rubbed his chin before asking, "Is it possible that this is just a bit beyond you right now? Now, don't answer rashly, Tom. It is a valid question. I am certain it is beyond me."

"I'm getting really frustrated, Dad," he said with a growing look of determined on his face. "It makes me feel like a little idiot when I can't just find a formula. I'd love to be able to talk to all sorts of scientists and mathematicians about this. Or even get some time to work with one of those big computing

machines that can do this for me.”

“Maybe you need to invent a computational machine for yourself first,” his father commented. “Or, why don’t you write to the British Mathematics Society and ask for some advice.”

“What is the name of that big computer they have in London?”

“Do you mean the Colossus, Son? That’s a mighty big machine and is probably too much for you to handle. Besides, there is, from what I know, a waiting list of hundreds of people in front of you. I’ll bet that it is booked for the next ten years!”

“But that’s just what I think I need, Dad. The kind of numbers and computations I want to do are really, really complex. You’re right, I guess. It is just too much for me right now. I don’t have what I need here at Enterprises and I’m not even sure if what I need exists.”

Mr. Swift thought for a moment before making a suggestion. He wasn’t certain how his son might take it.

“Did you ever think of writing a technical paper about it? Maybe give someone else a direction to go in? You probably won’t get any recognition for it if someone ever can figure out how to make this atomic clock of yours, but you will have some satisfaction in knowing that you did the pioneering research work.”

To the amazement of Mr. Swift, Tom brightened immediately. He had thought the boy would be sad and possibly a little angry that he wasn’t going to be able to develop his revolutionary device.

“Do you think people would read it?” he asked excitedly.

“I do, just as long as you take the time to do it right. Make certain of any science or mathematics you use and provide supporting documentation and formulae. You will need to identify the project as a theoretical exercise, but stress the real-

world applications. Get people excited enough to forge ahead. You might even find that you will be contacted by many of the scientists out there and asked for your insight.”

“This will mean a real difference if someone can figure a way to build one,” Tom said before heading down the hall to the small office space he used.

He spent much of the next five weeks writing and rewriting his paper before asking his father to review what he had.

“I’ve got to fly out to Los Angeles tomorrow, Tom,” Mr. Swift told him. “I’ll read it on the way out. Is it okay for me to make some notes on these pages?”

Tom agreed enthusiastically.

Several weeks and many edits and rewrites later, Tom and his father were satisfied with the technical paper. Mr. Swift contacted three of the top science journals and all three were eager to review it with an eye toward possibly publishing it.

Sitting with his wife one Saturday morning, Tom, Sr. said, “Score another one for our genius son.”

“What did he do this time,” Mary Swift asked. She was rightfully proud of their son, but really didn’t understand much of what he and her husband were doing these days. “Use Mary-size words, please.”

As he explained the concept of the atomic clock, her eyes went from wide and interested to drowsy. He stopped reciting facts and figures when he saw her reaction and added, “But, along with dividing a hippopotamus into thirds and sewing on a dodo bird, he really has the whole Tommy Dorsey swinging!”

Mary nodded and then stopped. Her eyes narrowed as she mentally reviewed what she had just heard. “You just made that up, didn’t you?”

Laughing, he admitted, “Only the last bit. The rest, that part

that was putting you back to sleep, was all true. The best thing about this is that we don't need to keep anything secret from him. He will have his paper published, someone else will get a lot of credit for building this atomic clock, and Tom will move on to things he really can do."

CHAPTER 4 /

"I WAS NEVER PROUDER..."

MR. SWIFT looked out across the gathered group of employees. About half of them had transferred from jobs at The Construction Company with many of those recently completing extensive retraining courses to prepare them for the enhanced duties they would be expected to perform at Enterprises.

The other half were new hires. Each man and woman in that group had undergone a series of interviews and a background check into possible criminal history or to find out about past alcohol use.

It was also in that interview series that a special evaluation test had been given to each applicant. It seemingly asked about their preferences in work style, management habits and how they employed their spare time. What it actually did was to check the psychological profile of the person answering the questions.

And, it had proven invaluable.

At least three people had been turned down for employment based on that test. Later, they had each been exposed as having either a hidden criminal background or, as was the case with one woman, was actually employed by a competing company and was seeking employment for the purpose of stealing Swift secrets!

The ones who made it, almost two hundred in all, were standing with the older employees outside of the large administration building. Mr. Swift was standing on a raised platform with a microphone in his hand. Young Tom was responsible for reeling out and pulling back in slack in the

microphone cable as his father addressed the audience, walking back and forth.

“Today, you have become the core of what I hope will be a much larger company some day. There are just over four hundred of you out there performing every sort of job from cooks to secretaries to engineers, designers and draftsmen. Oh, and draftswomen as well. Sorry, ladies if I lump you into one big group.”

This received a smattering of laughter and some clapping.

“You see, I find it almost impossible to separate one gender from another. And, while I must admit that we don't have any male secretaries, there will come the day when we do. Today, we have several outstanding women in our aircraft engineering group including the first woman to graduate at the top of her class from the engineering doctorate program at MIT.”

This definitely got a round of applause. The woman in question was Sarah Richards Anderson, granddaughter of the first ever female to graduate from MIT.

“We have both female and male medical professionals here along with great folks in many other areas. Why am I emphasizing this, you might well ask.”

There was a murmur from the crowd, many people agreeing.

“The reason is that it is my intent to never hire a person based on their age, gender, color or ethnic background. I want to have Swift Enterprises filled to the brim with the best. That's it. The best in their fields. And, you can't have the best if you start limiting your field of candidates. Now, about that age thing...”

He glanced toward Tom who was standing to the side of the makeshift stage, still holding onto the loose loops of microphone cable.

“For those of you who haven't had the pleasure, let me introduce Swift Enterprises youngest employee, my son, Tom Swift.”

He motioned toward Tom with his right hand. Tom, though slightly embarrassed by the sudden turn of attention toward him, smiled and gave a little wave.

“Tom is still in high school. In fact, he is just a freshman at Shopton High. But, he is also an important employee. At home and in my heart, he is my son. Here at Enterprises he is an employee, just like all of you.

“He draws a paycheck for the hours he is able to spare after school. He reports to a manager—in this case that's me—and is responsible for following my orders. He is a wonderful young man that I think will someday take over Enterprises. That is, if his little sister doesn't do it first!”

Many people knew Sandy and also knew what a determined young woman she was becoming.

“I hope you treat him with the same level of respect that you treat each other. I also hope that you can keep us straight. His mother insisted that he be named after me. Having two Tom Swifts might cause a little confusion, but I ask you to keep just two things in mind.

“First, he took a swipe at his sister the other month when she tried to call him ‘junior.’ He is too polite to try that around here, but be aware that he really doesn't like to be called that.”

He looked at his son who was slightly red, but who was nodding agreement with what his father had just said.

“Second, he outgrew the diminutive of ‘Tommy’ years ago. It probably isn't as bad as the ‘junior’ thing, but I'd steer clear of that as well.”

He smiled at the assembled crowd.

“The best thing is to just call us both Tom, but if we’re right in front of you, be sure to look directly at the one your mean.”

This was met with a smattering of laughter.

“Let me tell you all about several exciting things we are doing here, in case you don’t work on those projects.” He proceeded to tell the group about five major projects, all at various stages, currently underway at Enterprises.

He ended with, “Now that I’ve told you a little about those projects, let me also warn you to be careful about talking about them. We are engaged in several top secret Government projects that I haven’t told you about. Those working on them already keep quiet when outside of the walls of this complex. But, some of you might overhear something that sounds interesting and new to you. Please help us keep Enterprise secrets just that. No questions and no comments to the outside world.”

There were nods of agreement all around. It made Tom Swift a happy man to see the loyalty embodied in his employees.

“The next time we all get together should be in about six months. By that time my hope is that Swift Enterprises will be almost six hundred strong. That’s six hundred individual brains that I foresee coming up with many new and exciting things. Don’t be afraid to speak up if you believe you have the next great idea. After all, if you all wait for me to come up with things, there will be a lot of standing around and picking of fingernails.”

The crowd gave him a full minute of applause before dispersing and going back to their work places. As the two Toms walked back to the giant Administration building, father asked son, “I hope you weren’t too embarrassed by my calling you out. Were you?”

“Nah. It’s kind of nice to have people see me and recognize

me. Not like I’m an actor or anything, just that they look at me and can say, ‘Oh, yeah. That’s Tom Swift.’ It’s a lot better than people staring at me because I’m the boss’ son.”

They parted ways near Mr. Swift’s office door. He told Tom he would be back in ten minutes or so.

Tom said hello to the Mr. Swift’s secretary, Miss Trent and then went to the door to enter the office.

“There is an envelope with your name on it, Tom,” she told him. “I put it in the middle of your father’s desk.”

“Who is it from?” the boy asked.

“It must be from some place special. It has a special seal on the front and just a bunch of initials.”

He smiled at her and opened the door. Slipping inside and skirting the ten-chair conference table now installed on one side, he quickly crossed to the large desk that dominated one corner of the large office.

He stood in front of the desk for a moment looking at the envelope. Miss Trent had placed in face down and had clipped a small piece of paper to it that read:

This is for Tom junior, Mr. Swift. Not for you.

He walked around the desk and sat in his father’s chair. Reaching down he released the spring mechanism that let the chair rise to a position where he could sit comfortably at the desk.

Leaning forward, Tom picked up the envelope and turned it over. It had an official-looking seal embossed in the upper left corner with the initials, “NBS,” underneath. Carefully, he opened the top and extracted several sheets of fine parchment writing paper.

Reading through them, Tom felt his heart begin to race. By

the time he finished reading and then rereading everything, he was having trouble catching his breath.

Mr. Swift came into the office just as Tom was setting the papers down on the desk.

“What have you got there, Son?”

Unable to utter a word, Tom slid the papers and the envelope over his father’s desk. Mr. Swift picked them up.

Giving a whistle at the sight of the seal on the envelope he carefully read the cover letter as well as the proposal that followed.

Finally, placing them all back on the desk, he looked meaningfully at Tom. The boy could only grin meekly and looked a bit confused.

They sat together in silence for five minutes before Mr. Swift, said, “Time to go home, Son.”

And, they left.

EPILOG

LATER THAT EVENING

MARY SWIFT looked across the living room at her husband. He had been quiet since arriving home earlier that evening. Too quiet. She knew that he generally liked to wind down by telling her about all of the major goings on of the day.

Tonight, he said next to nothing.

Although Sandy tried to engage him in conversation, and Mary had done likewise, there was something going on that he wasn’t ready to divulge.

She looked over at Tom. He was sitting, as silent as his father, concentrating on the chicken-fried steak, mashed potatoes and green beans that had started out covering his plate but had dwindled to a few small specks and smears.

“So, Tom. Tell me what went on today. Anything exciting?” Even she could detect the note of desperation that crept into her voice.

Tom shrugged, not looking back at her.

Mary looked at Sandy and mouthed, “What’s going on?”

Sandy’s eyes went wide as she shrugged and mouthed back, “No idea!”

Finally, Mary had had enough. She coughed twice, looked at her husband and son to make sure they were paying attention, and then demanded, “What in the name of Samuel Clemens is going on here?”

Her husband replied, “The best way to tell you is to let you read something.” He rose from his chair and went of his small office where he picked the envelope out of his briefcase. He

handed it to Mary and she glanced at the envelope. "NBS?" she said as a question.

"The National Bureau of Standards, dear," he replied.

Sandy got up from her seat and stood next to her mother. Together they read through the pages in the envelope. When they finished, Sandy got up and walked over to her brother. Pulling him up from his chair she wrapped her arms around him and gave him a big hug.

"Oh, Tommy," she exclaimed. "I'm so happy for you!"

"What does this all mean? Mary asked.

"It means that the NBS people are very, very interested in the research Tom has done. They admit that they have been working on a similar project for a year or so but his work has spurred them onto another route, one that they are certain will see success. And, they want Tom to come to Gaithersberg, Virginia to talk to their entire team."

Mary was flushed with excitement, but then a thought hit her and she frowned.

"Do they realize how young Tom is?"

Nodding, her husband told her, "They know exactly how old he is. Tom made certain to put that sort of information in the header for his paper. I wanted to make sure that people knew the paper came from my son, not from me."

Tom was a little embarrassed by the attention. He pulled away from Sandy saying, "Gee, guys. It was just like doing a long school report!"

That night, as they prepared for bed, Tom confided in Mary, "I know it hasn't sunk in yet, but Tom is now officially the youngest person to ever have a technical paper accepted by a major journal. The record used to belong to some guy here in

New York, but he didn't get published until he was almost twenty-two."

Mary went up on tip-toe and kissed him gently on the cheek. "And, I'll just bet that man is extremely proud to give up that record to his own son."

In truth, he was.