



©opyright 2010 by the author of this book (Victor Appleton II - pseud. of T. Edward Fox). The book author retains sole copyright to his or her contributions to this book.

This book is a work of fan fiction. It is not claimed to be part of any previously published adventures of the main characters. It has been self-published and is not intended to supplant any authored works attributed to the pseudonomous author or to claim the rights of any legitimate publishing entity.

THE NEW TOM SWIFT INVENTION SERIES

## Tom Swift And The Transcontinental BulleTrain

By Victor Appleton II

Swift Enterprises wins part of a governmental contract to provide high-speed (150 mph+) freight train service between Los Angeles and New York City. The contract comes with an unrealistic schedule, an unknown set of partners, and someone in the Department of Transportation out to do the Swifts financial harm.

Tom's approach would be to construct a tunnel under the entire continent linking the two cities. His main rivals during the bidding phase each promoted above ground railways, one who plans to build by leasing Tom's own Repelatron Skyway equipment.

He runs afoul of two of these one-time competitors, and faces issues of underground stability. Can Tom develop methods for creating a tunnel that is both stable and flexible? Will his enemies find ways to discredit him? Or, will his new transcontinental railway system be a success.

Tom's reputation and Swift Enterprises future may hang in the balance.

---

This book is dedicated to the nameless, faceless individuals, mostly indentured Chinese from the west and underpaid Irish from the east, who built the nation's first transcontinental railroad. Many of them died during the build and were placed in shallow graves in the middle of nowhere. I grieve for your spirits. Be at peace. Your efforts and sacrifices made a difference. I'm just not certain if it all is ending up for the better.....

## Tom Swift and the Transcontinental BulleTrain

### FOREWORD

One of the earliest large-scale engineering projects undertaken in the United States was the transcontinental railroad, a project that finally united both coasts of this great nation. With it came progress, prosperity, the almost total death of the American bison, disease and death.

Today, it is remembered for connecting east to west. Nobody talks much about it. School kids probably have no idea where the 'golden' spike was driven. My nephew once said it was, "Apple Matrix Courthouse... or Chicago, some place... right?" Oh, my dear, sainted aunt!

And, practically nobody is utilizing thousands of miles of tracks that once were the only connecting point between towns and cities. Some tracks that *are* in use should be declared unsafe. Pity. It's part of our nation's history.

As the population has demanded faster and faster gratification, the railroads haven't been able to keep pace. Huge, ponderous diesel-electric locomotives are fairly efficient on a cost-per-mile basis, but can still take a week or more to cross the nation with all the stops they need to make... *to make money!*

I was astounded when Tom and Damon were asked to help revitalize this once-proud method of transportation. And, I was pretty near dumbfounded when I heard just how they wanted to do it.

All I can say is that it was a true pleasure to chronicle this Swift Enterprises project. Enjoy!

*Victor Appleton II*

## CHAPTER 1

### THE LITTLE ONE THAT COULD

"WOW, TOM," exclaimed Bud Barclay, young friend of Tom Swift the famous inventor. "This new engine of yours puts out more power than anything I've ever driven!"

Blond haired, blue-eyed Tom replied, "I'm glad you approve. It's something I started working on back when I was in junior high. It just took me until now to get it built."

The two best friends were standing next to a low-slung sports car parked next to a test track at Swift Enterprises, the sprawling four-mile-square experimental facility near Shopton, New York, where Tom, his father Damon Swift, and their employees developed all of the magnificent inventions for which they had become rightfully famous.

Bud asked Tom to go over all of the details of the new engine. "You still haven't let me look at it, Tom," he chided his friend. "I'm not smart enough to steal any secrets, so why are you keeping the actual engine under wraps?"

After taking a pause and a deep breath, Tom's reply startled him. "Because it is too good to be true."

"What do you mean?"

"Well, let's say that I have never met you before and I tell you I have a perpetual motion machine. You're going to be skeptical at the very least and angry at me for wasting your time at worst."

"Yeah. I guess. So?"

"So, this engine has nothing about it that would lead anybody to believe that it does what it does. Until I can come up with a really solid reason why it works so well, and one that can be explained in under thirty seconds, I'm keeping mum about it, and that goes for letting anybody other than the small group of engineers that built it even see it!"

Tom hopped behind the wheel and Bud lowered himself into the passenger seat.

"Can you at least tell me a little about the basic design? Nothing with too many multi-syllable words for my little brain to handle," Bud requested.

"Let's get back to the lab and get this car under lock and key. Then, I might tell you a little story," Tom replied teasingly.

Once Tom had rolled the car into its storage garage next to the Barn—the large, open-ended building used to construct many of Tom's larger prototype and test models of his fabulous inventions—he and Bud walked over to the administration building and the office he shared with his father.

"Okay. Spill if you please," Bud requested as they settled into a pair of oversized leather chairs.

Tom rubbed his chin as he thought about how to begin. Finally, he looked at Bud and said, "You remember Mrs. Trunbridge? My favorite teacher back in junior high?"

"Sure. You told me that she used to call you Tommy no matter how many times you asked her to call you Tom. Nice lady." He grinned at Tom.

"It was in her class that the concept for my new engine developed. It wasn't until I bumped into her a few months back that it all came back to me."

Bud remembered how Tom had suddenly jumped up in a local café when an idea had struck him. His jumping and shout of, "Yes," had startled the woman at the next table so much that she had spilled her iced tea over her blouse. The woman turned out to be his now-retired teacher.

"How does it work?" he inquired.

"Well, first let me show you the basic layout." Tom picked up a notepad from the table in front of them and took out one of his ever-present mechanical pencils. Soon, he had sketched an object that looked like a chubby upside-down letter Y.

"This is the overall shape. Each of the arms—three of them—is actually a 4-cylinder engine."

"So, I was driving a 12-cylinder car?" Bud asked.

"Exactly. But this one isn't like any other large engine in that class. Because of the layout, each cylinder can be connected to the central crankshaft at smaller degrees of separation. Each piston drives up and down at only a slightly different cycle."

"What does that mean in simple talk?"

"It means that by careful setting of the piston positions, it is possible to always have more than one piston driving down in its power stroke and perfectly balanced by another piston in one of the other arms. Unlike typical engines that have to overcome a lot of unpowered glide time between detonations, in this one the crankshaft is constantly under direct power."

"And that's what makes for the tremendous power. Right?"

"Sure. But that's not all. How large of an engine would you say you were driving, Bud?"

"Let's see. My convertible has a 3.8 liter V-6 and this one

outclassed that by... well, by more than I can figure. Okay. I guess that this must be at least a 5 liter engine. Close?"

"Off by a factor of ten," Tom said looking straight into Bud's eyes.

Bud grinned. "You're joshing me, right? I mean, it can't be a 50 liter engine. That isn't even possible in a car that size."

Tom shook his head. "No. It has a half-liter engine. Each of the pistons is just about 42cc in size. About what you'd see in a small chain saw."

Bud looked at his friend with skepticism written all over his face. "Pull the other one, professor. If you're not going to tell me the real story then you must really want to keep this thing under wraps!"

Smiling, Tom rose and went over to a side table. He returned carrying an object covered by a black cloth. He set it on the table in front of his friend. Whisking the cloth aside, he pointed at the device. It looked very similar to the drawing on the pad next to it.

Bud gasped. "You can't be serious," he said. "This is a one-fourth size model or something. Isn't it?"

"Nope. Full size." Tom declared. "One of Arv's models." The inverted Y shaped engine was only about twelve inches long and fifteen inches tall. Spark plug-type wires went from a small box attached to one end and disappeared into four locations on each arm.

"These," Tom said pointing at the wires, "power a mini version of our spark ring. The one we use in our hybrid diesel/ethanol engines. They produce a more complete detonation of the fuel. That's where we get some of the power."

"Using some new super fuel, I'll bet."

"Again, nope. Plain old gasoline. Not even premium grade. And, it'll get about seventy-two miles per gallon. Now you can see how difficult it is going to be to make a simple announcement about the Y-4 engine and have anybody believe us."

Tom pointed out several of the features of the engine including its miniaturized fuel injection system. He also told his friend about his plans for a possible conversion kit allowing the Y-4 to replace many large engines currently in use in full-sized sedans and coupes. "Just connect the proper transmission adapter and new engine mounts and off you go," he told the still-awed Bud.

"There's one other thing," Tom added after all of Bud's questions had been answered. "Take a guess at the total horse power coming out of the engine."

Bud thought for a minute, then said, "This sounds like a trick question. For the speed and power it gives that test car I guess better that 300 HP. But, knowing you and now knowing how small this is I guess it could also be about 30 HP. Am I close with either one?"

Tom laughed. "You're closer with the second guess. It actually puts out about 70 HP, but it's the tremendous torque that is the secret. The perfect setting of piston positions and the constant level of power mean two things. We get a torque rating of over 380 foot pounds, and the engine doesn't need a heavy flywheel to keep it turning when the pistons are in their glide strokes."

"Okay. It isn't that I don't trust you with my life, Tom," Bud stated, recalling how many times that had been the case, "but could I take a little peek under the actual hood of the test car."

You know... just to be sure you're not spreading it on a little thick?"

They left the building and returned to the special garage. Tom beamed his electronic key at the lock and they entered the structure. Opening the hood, Tom said, "Voilà!"

"Well, I'll be," declared Bud as he stared down to a shiny metal version of the Y-4 engine he had just seen in Tom's office. "You weren't funnin' me after all. Color me impressed. Very, very impressed. Listen. I'll testify at any announcement for you. This little power pony is the real thing!"

Tom closed the hood and they departed the garage with Bud hopping into one of the electric micro cars that Swift Enterprises employees used to get around the massive facility. He told the young inventor that he was heading out for a test flight of one of the Swift executive jets that had just come off the line.

As with all Swift aircraft, a thorough twenty-hour series of test flights and systems checks was performed before any customer could take delivery. In this way, they generally discovered any small defects or issues and were able to completely fix them before the customer took possession.

Tom walked back to his shared office arriving just after his father had settled into his desk chair.

Looking up, the older inventor—a man looking so similar to his son that at first glance they might be older and younger brothers—asked Tom, "How did Bud like the new super car?"

Sighing and dropping into one of the comfortable chairs in the office, Tom said, "Like the other people who have seen and driven it with the new engine, he couldn't believe it until I pulled out the model and then we had to go back out to the car

to see the actual engine. I need to come up with some sort of stunt or something to help introduce the engine to the world. I don't want to get us in the position of having to hand-hold each and every potential customer."

"I agree. What do you think you might do?"

"Well," Tom started and then paused. Rubbing his jaw for a moment, he brightened and began again. "One thought has occurred. What if I create a special mount in the test car and also on the engine? Something designed so that I could practically snap the engine in place and drive away."

"That sounds like the beginnings of the solution, but you would still need to devise a way to demonstrate the enormous power potential. And," Mr. Swift added, "show the tremendous fuel savings."

"You're right, Dad. I'll come up with something. I just know I need a day or so of solid think time."

He got up and wandered over to his own desk and sat down. Soon, Tom was lost in thought. He barely registered that the phone on his father's desk was ringing. The older inventor picked up the receiver. "Yes, Trent?"

The super efficient secretary both Swifts shared, Munford Trent, announced an incoming call from Washington, DC. "It's from the Secretary of Transportation, Mr. Swift. Jonas Markham."

"I'll take it on line five, please." Tom looked over at his father as the phone buzzed announcing the connection. "Damon Swift here."

He listened for a moment and then asked, "May I place this call on speakerphone, sir? I'd like Tom to get in on this." The answer was evidently positive so Damon pressed a button and

set the receiver back on the hook.

"We're both here now, Mr. Secretary."

"Good," came the deep, booming voice of the recently appointed man in charge of the nation's transportation systems. "Glad to have you in on this, Tom."

"A pleasure, sir," Tom said as he came over to the desk. "What can we do for you?"

"As you both know, the country's infrastructure is old. We've had some disasters like the freeway bridge that fell to pieces during commute a few years back. Freeways, bridges and even our national rail system are all in desperate need of overhaul."

Both Swifts agreed that there were many problems.

"Chief among my priorities today is getting the nation back to where we can ship goods across the nation at high speeds and very low costs. The current rail system can't sustain high-speed trains. Too many issues with track repairs plus the need to work around passenger trains. Also, far too many stops between point A and point B. Still the least expensive way to ship, but with ever-increasing problems."

"We recently took a train trip down to Washington. Even from here in upstate New York there were more than a half-dozen stops or slow-downs, and that was on a supposed non-stop train into Manhattan," Damon offered.

"Right," the Transportation man said. "What I want to do is create a cross-country, high-speed rail corridor. Absolutely no stops between the terminal in California and the terminal in New York. Or possibly Virginia. We're looking to see where the best place to build a transfer depot would be to cover the entire east coast."

"That's a huge undertaking, sir," Damon stated. "How may we be of service?"

Clearing his throat, the Secretary began, "Tomorrow morning at precisely 9:00 a.m. Eastern time, a request for proposal and bid document will be transmitted to the top ten industrial companies in the U.S. and Canada. Pardon me if it sounds like I'm reading from a prepared statement; I am. Anyway," he cleared his throat, "... the purpose of the bids are to provide for the construction of a non-stop railway and specialty trains to run on said railway stretching from a terminal to be constructed thirty miles south and seventy miles east of San Jose, California and running to another terminal in a location to either be near Roanoke, Virginia or Binghamton, New York, actual site to be determined. Said trains to be capable of a sustained two hundred mph and must be able to make the entire route without need for refueling. That," he said obviously finished reading the statement, "is about the size of it."

Damon looked at Tom. They both shrugged and then nodded toward each other.

"Swift Enterprises will be happy to receive and respond to the bid, Mr. Secretary. How long will we have to make a preliminary study and provide you with our proposal?"

"Well," muttered the politician, "that's where this all gets rather tricky. You know that I've come into my position near the middle of the President's term of office. My predecessor left office officially to pursue private life, but he actually left—and I'm telling you this with the understanding that it goes nowhere beyond your office walls—because the President and Senate are insisting on a real slam-bang-success project to be completed before it's time to run for reelection. He wasn't able to commit to that."

Mr. Swift acknowledged how this frequently occurred. "My question stands, Mr. Secretary. What is the timing?"

"We need to have proposals returned within three weeks and the project must be guaranteed for completion within twelve months after that. Now don't nag at me for more than that, Damon. We've known each other for more years than either of us probably care to mention. As it stands, we may need to break up the project across four or even five companies in order to make the schedule. Sorry, but that's the way it might go."

They discussed a few additional details and the Swifts agreed to take a look at the proposal. "We can't make any guarantees, Jonas. We may end up only bidding on the actual trains. Would that be allowed?"

The Secretary stated that it would be allowed but would not be the most advantageous to any company. The government really wanted this to be a one or two company project.

After the call, Tom and his father sat in silence for a few minutes. Finally, Tom said, "Guess we'll have to wait to see the actual specifications before we can even talk about this."

His father agreed.

"I really hate to think I'll be stuck on a project for that amount of time," Tom said.

Damon replied, "My guess is that you will get things started and then back out while all of the digging work progresses. That will leave you with ample time to head off on other projects for quite awhile."

The following morning a package arrived via one of the national overnight delivery services and was immediately taken to the Swifts' office.

"Package for you two," their secretary and chief assistant said opening the door.

"Thanks, Trent," Damon Swift replied taking the large envelope and opening it.

He and Tom spent the next three hours reading through the specifications thoroughly, even rereading several portions to ensure they fully understood the project.

Part way through, they were interrupted by Chow bringing them a lunch of grilled chicken sandwiches, macaroni salad, and fresh-squeezed lemonade.

"Eat up, buckaroos," he brayed at them. Charles "Chow" Winkler was a former Texas ranch cook who had met up with the Swifts several years earlier while they were in New Mexico building the Citadel.

He had been so taken with the then sixteen-year-old Tom that he had practically begged to be allowed to haul up stakes and move to Shopton. He had become the executive chef for Enterprises and acted as personal chef for Tom, Damon and a number of senior employees.

Chow also accompanied Tom on many of his adventures.

The two men ate in relative silence while each continued to read portions of the bid request.

With a little whistle, Tom said, "It looks like the actual trains and cars would be a snap for Enterprises to build. One or two of our midget atomic power modules could provide enough power for each engine's electrical motors and the number of engines could be determined by the freight load."

"Certainly," replied the elder Swift. "But the job of manufacturing almost three thousand miles of track, preparing

the road bed, hauling the materials and installing them will be tremendous! I'm not sure I see any way even a trio or foursome of companies could effectively split up this project and bring it to successful conclusion in the very short time allowed."

"Tomorrow," Tom stated, "I'm going to take the Sky Queen on a cross country run to scout out a possible route. I have the feeling that there are going to be more than one or two cities that will need to be skirted."

Mr. Swift agreed to the trip. He would need a lift to The Citadel in the morning so he asked whether Tom would take a slight detour and drop him off.

"Sure, Dad. I planned on making a few cross-country runs to check out different route possibilities. New Mexico should be on one of them; I'll just make it the first one!"

The next morning the Flying Lab soared skyward on her new Repelatron lifters. In order to lessen Swift Enterprises' carbon footprint, Tom had decided to replace the fiery jet blast-inducing lifters on the Sky Queen and on several of the Swift cargo jets with an array of Repelatrons. In the Sky Queen's case, this meant tapping into the huge solar array on the upper fuselage. For the other jets, Tom had both a Swift miniature atomic power supply installed as well as a bank of high-capacity solar batteries.

Tom had asked that a high definition video camera be mounted in a small clear blister on the bottom of the giant jet so that he could replay the scenes later. This would allow him to concentrate on flying.

Soon after dropping his father off at The Citadel, the Swifts sprawling nuclear generating and experimental station in the desert of New Mexico, Tom was aloft again and heading for California's Central Valley and the small town of Madera, site

of the proposed western terminal.

He zig-zagged the country getting video surveys of three possible routes between east and west points. As he had first believed, almost no route would allow for a totally straight rail line. He already understood the lengthy areas of mountain to overcome in the west. But his biggest surprise, and concern, was the amazing number of existing rail tracks, country roads, streets, highways, private farms and freeways that would have to be negotiated.

That didn't even consider more than fifty rivers and streams that would need to be traversed.

Upon arrival back at Enterprises he sat down with a calculator and a U.S. map. He laid a ruler down over a completely direct route and began counting such obstacles then computed the costs of creating overpasses.

After an hour he sat back and looked at the total. Even using his Repelatron Skyway technology to quickly erect a rail bed over each, the figures were astronomical. More than three hundred points to be surmounted or dug under.

Tom immediately called his father in New Mexico and described the problems.

Mr. Swift waited until Tom had finished and then said, "It's as bad as I feared. Any company attempting such a project will have to seriously underbid in order to even get the project. Then, they will probably end up *in financial ruin!*"