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A SWIFT ENTERPRISES INVENTION STORY

Tom Swift and His Electronic Typewriter

By T. Edward Fox

Tom Swift is always looking forward to the next breakthrough, the next technological leap, the next bridge into the future. It is what gets him up in the morning, occupies his mind when he drives or walks to and from work, and interferes with his social life.

It is, in other words, what he lives for!

Then, on one inauspicious day, a valued employee asks him to do something he's never attempted: Bring back a piece of history yet make it viable in today's demanding business environment.

It may end up being a piece of cake, or a major headache.

This story is for the Underwoods, Royals, Hermes, Remingtons, Olivettis, Smiths (and Coronas) and even the big blue companies of the world. But, it is dedicated to Henry Mill, a British man who in 1714 obtained a very early patent for a machine, "...for impressing or transcribing of letters, one after another, as in writing, whereby all writing whatsoever may be engrossed in paper or parchment so neat and exact as not to be distinguished from print..." And, Pellegrino Turri who invented carbon paper in 1808.

Tom Swift and His Electronic Typewriter

FOREWORD

There are at least five of us who are writing various worlds of Tom Swift fan fiction. As one of them I well know how difficult it is to come up with titles that are both compelling as well as descriptive, at least without resorting to the "too far out" titles such as "Tom Swift and His Wing-a-ding Ratcheting Gizmo" or "Tom Swift and His Very Large Space Flying Vessel."

Another of us, Jon Cooper, has kindly created a tool for authors to use that will magically take disassociated nouns, adjectives and the like, and spit out dozens of possible combinations.

Is it this century's infinite number of monkeys? Probably not, but as one test proved, it can come up with some rather silly combinations given the right sets of words to choose from.

This story is taken from that list.

Oh, sure. It's no "TS... Sentient Newspaper," or "TS... Medical Banjo," but it did ring a small bell in my mind, causing my right hand to reach out to whack the handle sending the platen back to the left.

If you get my drift!

For this story I have returned to the Tom Jr. world as I feel the old Miss Trent better fits the story than Munford Trent from Scott D's world (the one I slightly inhabit as well).

Thomas Hudson

CHAPTER 1

LONGING FOR A BIT OF THE PAST

"BEFORE I SAY anything to incur your ire, wrath, anger, disappointment or any combination of the above," Miss Trent, the ever-efficient secretary to Damon and Tom Swift, stated to the young inventor standing in front of her sparse and organized desk, "I want to preface this by telling you that I have operated each and every sort of typewriter from an old Hermes manual up through a Selectric and all manner and sorts of computerized variations in recent history."

Tom looked at the neatly dressed and immaculately groomed middle-aged woman across the desk, more than a little bemused. "Okay..." he said slowly, hoping to draw her out.

Miss Trent sighed. "I'm not explaining this very well, am I?"

Tom had to admit to her, "So far, I understand each and every individual word. You've made a statement of fact. The problem is that I can't quite tell where this is heading. Help?"

Shaking her head slowly, the secretary rose from her chair and walked around the desk, pausing at the side table to pour herself some coffee in her personal Spode china cup. "You?" she asked holding up the carafe.

"I think I might." After receiving his coffee with two sugars and a little milk in one of the visitor's mugs, the two sat down on the sofa in the waiting area across the sizable alcove that formed the entrance to the large office Tom shared with his father.

"Let me begin again. I have a vast amount of experience with every sort of keyboard-driven word creating machine out there. Before I came to Swift Enterprises I had worked with

only one computerized word processor and that was on some very clunky terminal from a company that went out of business about a week after my previous employer purchased tens of thousands of dollars of their equipment."

She gave a small shrug and grinned at her young employer. "We all went back to our Selectrics a month later. Nobody could figure the darned things out."

Tom pursed his lips and furrowed his brow.

"Oh, gosh, Tom. Don't look like that! It isn't bad news. I'm doing such a poor job of conveying what I mean."

Tom looked relieved yet still curious. "So, what is it?"

"The amazing computers we build here and the applications you have either located or designed from scratch are truly great. Really they are." Miss Trent bit her lip while she sought for her next words. "The thing is... the thing that they lack right now... well, that's the thing. Do you see? You don't see; I don't even see. Oh, dear!" She held up a finger as if asking for a moment.

Tom sat back and took a sip of his coffee. *No doubt about it*, he thought with an inner laugh, *Miss Trent drinks better coffee than anyone else at Enterprises does*. He made a mental note to ask about the brand or special roast.

"Okay, Tom. I think I've got it this time."

"Shoot."

"Fine. We have these amazing computers and word processing software that does quite a wonderful job, but I miss something from days gone by. Something that is archaic but very useful, although it could use a new feature or two. If it's possible, that is," she added quickly.

Now intrigued, Tom pressed her for more information.

"Well, for starters, I really miss the clatter of keys from my old manual typewriters, especially an Underwood I still have at my home. Of course, you grew up in a world dominated by electric machines, but there truly is nothing like the feel and the sensation of pressing down keys as quickly as you can and seeing your work appearing, letter by letter, on a crisp white sheet of paper." She sighed and leaned back into the sofa.

Tom scratched his right ear. "Hmmm? Dad has an old Royal in a closet at home. I don't think it has a ribbon, or I could take it out to see what all this great tactile stuff is all about."

Miss Trent pushed herself up from the sofa and returned to her desk. Opening one of the drawers she withdrew a plastic-wrapped metal spool. About three-quarters of an inch tall and two and a half wide, once she handed it to Tom the youth realized exactly what it was.

"Will this fit?" he asked.

"Oh, yes. It will be a little different looking from the take-up spool on the other side but the central hole and positioning pin are the same." She described how to successfully thread the ribbon into the machine. "Of course, be prepared to wash your hands before touching anything. My mother was forever going on about how many pairs of white gloves she ruined after handling a typewriter ribbon. At least by the time I got into the business world, we had rubber kitchen gloves to protect us."

"Okay. Now, tell me what it is I should be looking out for. I mean, is it just the physical feeling of typing you miss? If that's the case I'll gladly authorize any repairs on your typewriter. You could set it up right on the little secretary desk next to your larger one."

Now, it was Miss Trent's turn to purse his lips. "Well, that's not it, exactly. You see, there are so many great things that have happened over the years with computers. For starters,

attach a printer and you can do something that was, well, pretty awkward and frequently messy on a manual. Copies."

"But, I thought you could make several copies at one time."

"Oh. You could... but... it required carbon paper. And, that meant shuffling alternating sheets of paper and carbon paper into sets, getting it into the typewriter still aligned, and type perfectly."

"What about correction fluid?"

"Fine for the first sheet, but you sometimes had to pull all of the sheets out, separate them and daub on the fluid, let it dry, put everything back together and pray that you could realign it all in the typewriter."

"And with a printer and a computer—"

"—you just proof and correct it before printing out as many perfect copies as you need. Yes. That's where a typewriter falls down terribly," Miss Trent admitted a little sadly.

Tom promised to see what he might be able to do.

That night, he asked Mr. Swift if he could fiddle with the old typewriter.

"Oh, gosh, Son. I'd forgotten we have that thing. If you can get it working again it will be a minor miracle. Uhhh... you do realize that you won't actually be able to print anything, don't you?"

"Why not?"

"After all these years, the ribbon will have dried out and you'll..." he slowed to a halt as his son pulled the sealed ribbon spool from his shirt pocket and waved it in his direction. "I withdraw my objection, your Honor," he finished with a smile.

After taking the machine out of the closet in his father's den and removing the hard outer case, Tom spent a full fifteen

minutes in simply looking the typing machine over. Of course, in theory he understood what it did, but on seeing the complexity of the inner working he suddenly realized that he could easily ruin any chance of returning it to working condition if he pulled apart the wrong things or misplaced any small piece or even rearranged things.

He spent the remainder of the evening researching typewriters of the era in which this one was produced on the Internet. After more than an hour he happened upon a website calling itself, "Your Total Typewriter Solution." He chuckled on seeing the typo and wondered if it had been made on purpose or was a real mistake.

After drilling down through the site he finally found an exploded diagram of the model in front of him, ostensibly taken from an original manual or repair guide.

Two days later he spent the better part of the weekend carefully disassembling the old machine. Several subassemblies came out as one piece which was going to make his job a little easier. Everything was covered and clogged with a layer of oily grime that Tom gently removed using all of his mother and sister's cotton Q-tips and a small bottle of rubbing alcohol. And, once clean he sprayed a light coating of lubricating oil on each.

Several times Tom was forced to halt his cleaning processes in order to straighten pieces that had become slightly bent over time. Twice he discovered he had straightened something that was supposed to be bent.

By Sunday afternoon he had the typewriter back together and was installing the new ribbon. His father dropped by his bedroom.

"You will probably find that the platen is so dry and cracked that you will not get a good imprint," he told Tom.

"The roll part?"

"Yes. The roll part. It is usually a metal cylinder covered with rubber. It needs to be soft and flexible so that the key face can not only push through the ribbon and onto the paper, it can go in ever so slightly so the ink is forced right into the paper fibers. No flex and no good letters."

Ten minutes later Tom located a company in Switzerland that made replacement platen covers. They could ship one out to him the following day for delivery that Wednesday.

Tom made the purchase.

When he arrived home that Wednesday, he was pleased to see the long, rectangular package waiting for him on the entry table. He grabbed it and headed to his room.

It took an hour, but the directions provided had been perfect.

He fitted a sheet of paper into the machine and ran his fingers over the keys. They felt strange, all round and cool to the touch, but somehow welcoming. Taking a deep breath, Tom began typing.

the quick brown fox jumped over the lazy dog's back

He checked his work and a large smile split his face. He gave an emphatic press of the period button and was rewarded with a small rifle-crack as the single key smacked into the ribbon and the paper. It receded and there it was. A full stop.

CHAPTER 2

THE KLUGE STAGE

TOM SAT at the workbench in his large lab in the Administration building. Bud Barclay, Tom's best friend, Swift Enterprises test pilot, and constant date to Tom's sister, Sandy, sat on one of the tall stools to one side, watching his buddy stare at the old typewriter.

"I can't tell whether you've frozen into a single position and we'll have to get you bronzed and put on display out in the quad, or if you have just gotten so lost in that brain of yours that you've forgotten to wiggle a bit. You *are* still alive, aren't you?" Bud joshed his friend.

Tom's concentration was broken and he turned to face the dark haired teen. "I may have neglected the movement thing for a little while, but I'm hardly locked into one position. Look!" With that, the inventor stood up, spun around with his arms over his head like a ballerina, and then sat back down taking up his previous pose. "Happy?" he asked out of the side of his mouth.

"Yeah. I suppose I am. So, what are you doing with that dinosaur?"

Tom stopped looking at the machine and swiveled to face Bud. He told the flier about Miss Trent's request.

"Well," Bud said after Tom finished, "does that mean she wants you to supercharge this old thing with solenoids and switches and the components to make the keys go faster?"

"No. She seems to like the way these old typewriters work, it's just that she also wants the advantages of a computer and printer and connection to our network and all that."

Bud considered this for a moment before asking, "What are you going to be able to do with this versus just building her a plug-in keyboard that looks and feels like these keys?"

"That, my dear friend and chum, is *the* question!"

Over the following two days Tom took the old machine apart and studied the inner workings. He quickly came to a plan to add micro contacts to each of the keys to detect when one was pressed. He even went to a second hand store and found another, similar model that he cannibalized for a few spare parts and to be used for testing his theories.

In the end, he found that simply seeing that a key was being pressed was not enough information. Miss Trent patiently explained to him how a good typist could literally feel feedback from the typewriter through their fingertips. That, plus she demonstrated to him how different strengths of key presses could help emphasize certain words. It had been vital, she told him, as there were no bold font keys in these old machines.

The solution came to Tom as he was looking through an online catalog. There, almost hidden on one of the back pages, was the item he needed.

A tiny solid state accelerometer, barely a quarter-inch cube, that could be glued to each key arm and have its two leads taped down. The ground for the connections could be made through the metal key arm so all that was left was to build a small circuit board to register which key or keys were being pressed.

That brought on a whole new issue. "How do I figure out if a key is being pressed because the typist wants it to be, or they are just resting a finger on that key and only slightly pushing down?" he asked his mother that evening.

"Well, dear, when I was younger we only had the Selectrics at school, so I'm not an expert. However," she asked after a

moment's thought, "is there some way you can tell that the key has actually impacted? I'd say that would be a definite indication that the person on the keys wanted to press that one."

Tom considered this before answering. "I guess that is really the key, pardon the pun, to this whole thing, Momsie." He grinned at her as she rolled her eyes and turned back to preparing their dinner.

On returning to work the following morning, he set about coming up with a method for combining the individual key accelerometer information with an impact sensor he knew would need to be inside the platen.

At lunch, his sister Sandy and his girlfriend Bashalli came by. The latter's eyes went wide when she saw the old machine on his workbench.

"Oh, goodness, Thomas," she exclaimed. "It is just like the typewriter my mother had when I was a little girl in Pakistan. May I?" she inquired, pointing at it.

With a sweeping arm gesture, Tom smiled and told her, "Sure! Go for it. I'm not a very good typist and this thing could use a little speed test."

The beautiful girl sat down in front of the typewriter. Frowning, she got back up and asked, "Could we put this on your desk? It's a little too high to be comfortable."

Seconds later the device sat on Tom's desk and Bashalli placed her fingers on the appropriate keys. She softly practiced for a moment before picking up a sheet of paper and starting to actually type.

There was a small cable coming from the rear of the machine that Tom had attached to an input port on his computer. As Bashalli typed, his computer screen began showing a string of letters. A minute later, she stopped and pointed at the screen.

"What has happened to the spaces?" she asked.

They all looked. For the first thirty or so words, there were spaces between each word. After that point, they were not evident.

"Let me take a look, Bash," Tom said. She scooted to one side and he leaned over the typewriter. "Well, nothing visible from the top," he told them both as he turned the machine over. "Ah! There it is. One of the wires from the space bar detector broke."

He pulled out his instant-on soldering iron and had the wire reattached in just seconds.

Bashalli returned to her typing.

But, it soon became evident to all that there was an ongoing problem. First, the S key ceased working, followed by the E and then the F and G keys. A quick examination showed that they, too, had broken wires.

"And that," Tom admitted, rubbing his jaw in thought, "spells the end of that."

He explained how the accelerometers worked. The girls listened to him and nodded.

"Right," Sandy said. "So, those tiny wires just aren't up to the job. Can you put in heavy duty wires?"

Tom shook his head. "I don't believe so. At least, not without making the keys harder to press. Plus, I have to believe that any wires would eventually break. The whole idea is to make this thing foolproof."

The girls left him a few minutes later, each giving him a kiss on the cheek as a sort of consolation prize.

An idea came to him later in the afternoon. *What if each key has a separate ID that a computer sensor detects?* he asked

himself. He knew instinctively that there were no wireless transmitter components that could be added to the individual keys. Everything on the market, even the smallest wireless transmitters he had been able to create in the past year, were just too large, heavy, and needed power supplied to them.

Tom sat back, discouraged. He was sitting there when Bud popped his head into the lab. "What's up, skipper?" he asked, entering and taking a seat on one of his favorite stools.

Tom told him about the wiring issues and the problems with current wireless ID chips.

"Right," Bud said. "Why not put the ID sensor inside the platen and use those tiny RFID chips on the keys?"

Tom's jaw dropped. "Of course! The RFID chips don't require power and the setup would be like a card reader you find at stores or for access to secure areas. What made you think about that?"

Bud pretended to blush. "The truth is that I have to swipe an access card at the gym I use across town. Last week, the card got bent so they issued me a new one and let me keep the old one. I cut it open to see how it worked and found the little gold chip in there. It was really small. Just seemed to me that one would fit nicely on the end of the arm for each key."

"Right. All I would need to do is to cut off the actual key head and replace it with one of the tiny chips. I could encase them in polycarbonate or even durastress and then put the receiver sensor in the platen!"

"Why not tomasite?" Bud asked, but almost immediately held up a hand. "Wait. I think I can answer my own question. The tomasite would block the RF signal from getting to the sensor. Right?"

Tom grinned at his friend and gave him a thumbs-up sign.

"Correct answer. Extra credit to you!"

Tom was now excited about the possibilities ahead. As Bud excused himself with a, "Got to get out of here before you go into inventor overdrive, skipper," the young inventor called up a list of components available from the stores at Swift Enterprises. He found just what he was looking for after just a few minutes of searching, and ordered them.

He left the plant knowing that a case of forty-eight would be delivered before ten the next morning.

As he drove home for the evening he ran through a mental list of everything his updated typewriter would need.

The matter of identifying the keystrokes appeared to be on its way to being successfully handled. He could use the platen from the second-hand typewriter he had purchased to experiment with the receiver sensor before cutting into his refurbished platen.

That left the design and building of a small computer to handle everything and send things to a monitor.

He smiled to himself as he also thought of one nice addition he felt certain could be made, and right inside of the typewriter body.

He was going to add a small printer.

CHAPTER 3

IT'S ODD, BUT FUNCTIONAL

EVEN BEFORE lunch, Tom had the entire set of RFID mini-chips encased in small globes of plastic. Each one had a unique ID signal that it could send when in close proximity to the receiver sensor. This was possible since the sensor sent out a signal that was reflected by the tiny array of wires in a pattern. What arrived back at the sensor provided a code that could be associated with a specific item, In this case, a key.

His experiment with placing the sensor in the spare platen was both a success and a learning experience. His first test made it abundantly clear that the hard plastic of the RFID-tipped key arm hitting the hard plastic of the sensor was going to be a major problem. After just a few dozen presses of the S key, the polycarbonate surrounding the chip cracked.

Tom replaced the chip.

Miss Trent dropped by to ask whether she could get him anything, but Tom understood that she was curious to see what he had been able to accomplish.

He showed her the typewriter and explained the basic ideas behind his work. She nodded her approval until he reached the point where he described the broken plastic tip.

"Well," she said putting her index finger up against her chin in thought. "I guess you'll just have to put in some sort of pad. Right?"

He nodded at her. It really was going to be that simple.

Once she departed, he used a Dremmel tool and cut a hole in the metal tube of the spare platen, then replaced the old rubber sheath. That would, he reasoned, provide padding. He

only hoped that it would be enough.

It was.

He sat there pressing the S key over and over until his right index finger became fatigued and sore. As he had not connected anything to the computer—or created the necessary program to detect and identify each key—he had no idea how many times the key had clacked into the platen. Certainly it had to be more than a thousand.

Ten minutes later he had the key arm removed and was examining the key head under a microscope. A big smile crossed his face. There was absolutely no sign of cracking or even scuffing to the plastic.

It took three more days to write and finalize the computer program, but he believed he had everything working when he invited Miss Trent back to the lab for a test.

She sat down, primly arranging her flowered dress and squaring her shoulders before placing her fingers on the keys. She closed her eyes and just sat there.

"Is everything alright?" Tom asked.

Without opening either eye, she replied, "Oh, yes. I am just enjoying the feel of the keys under my fingertips. It's a sort of Zen thing. I'll be ready in a moment."

She took a deep breath and began to type. Slowly at first and then building up speed, Tom's gaze moved back and forth between her hands and the computer screen.

He chuckled to himself as he could see that Miss Trent was typing both quickly and accurately. In fact, he could see no mistakes whatsoever.

A minute later, she stopped and opened her eyes. "That felt wonderful, Tom. How did I do?"

He pointed at the screen sitting to one side of the typewriter. "It looks like you get an A, Miss Trent. No mistakes!"

She smiled sweetly at him. "I wouldn't have it any other way."

"So," he said eagerly, "what do you think?"

She pursed her lips and looked up and away in thought. "Well, there are a few things that come to mind. First—and you'll probably want to take notes, Tom—the screen needs to be right where I'd expect to see the paper. Next, while the keys feel just right, there is no 'clack' sound, just the slight thump. It would be wonderful to have that audio feedback. Then, is there a way to work in some of the things I have come to appreciate from the computer word processors? Like boldface text, different fonts, underlining and italicizing?"

Tom was scribbling furiously. He finished and looked up at her. "Wow! I would have never thought of that. I'm pretty sure I can do all those things, it's just that without any extra keys I may need to come up with a way for you to access those functions on a separate keyboard, like a small numeric keypad." He looked hopefully at her.

She nodded. "That would be very acceptable," she told him. "There are a couple other things if you don't mind."

Tom smiled and shook his head. "No. Please let me know."

"Well, it has the carriage return lever still attached, but it doesn't do anything. There's no little bell ringing when I get to within eight characters of the end of a line." She shrugged at him. "Those aren't that important, I suppose."

But, Tom knew that they would be, and he wanted to give her the best possible experience. "I'll see what I can do," he promised.

He prioritized the list he had written. First up would be the

position of the screen. And that, he realized, also meant that the size would be need to be right. He was looking at the list on his tablet computer when it hit him. He held the tablet, in portrait orientation, up against the rear paper feed plate. It was almost perfect but a quick measurement showed that it was around twenty percent too small.

Tom decided to take a walk around the Enterprises campus, the cluster of more than fifteen multi-story buildings that inhabited the center of the four-mile-square grounds. On his way by the Dispensary building he passed Doc Simpson and one of the nurses that worked for the young medico.

"Hey, Doc. Hey, Emily," Tom greeted them. "You two look happy about something."

Doc nodded. "We just received that portable medical scanner you developed, skipper. An amazing bit of kit!"

Doc referred to a combination low-level x-ray scanner and ultrasound device Tom had created a month earlier. The two-part device featured an emitter plate that could be detached from the main screen and placed under a patient "in the field" who could not wait to be transported to a hospital.

The still image of a color x-ray or the full-motion video from the ultrasound was displayed on the upper part via a built-in screen.

Tom stopped dead in his tracks, and then spun around heading back the way he had come.

"Doc! That's it!" he called as he raced back to the Administration building.

Doc Simpson looked at his nurse, who looked back at him. "Some day I'm going to have to start worrying about these little episodes," he told her with a smile.

The reason for Tom's quick departure was that the screen unit from Doc's new toy was exactly the size he needed for his typewriter conversion.

"Don't know why I didn't think of that before," he chided himself as he pulled out the prototype from his storage cabinet and began dismantling it.

An hour later he had exactly what he needed for the computer hardware. All it lacked was the appropriate software to make it perform its new tasks.

Tom was in luck. By design, he always tried to utilize the same types of processors in his computer devices. It made programming much easier and often meant that an existing application could be utilized with only some modification.

He didn't leave Enterprises that evening; he was so engrossed in rewriting the application that he didn't look at the clock until seven when Chow Winkler—Enterprises chief chef and a good friend—poked his head into Tom's lab. Giving the young man a loud round of "Tsk-tsk!" the old western cook waddled back down the hall and prepared a small platter of roast pork tenderloin sandwiches and a green salad.

"Okay, youngin'," he boomed as he wheeled the food plus a large glass of milk into the lab, "time ta git up an' git some grub!" Seeing Tom hesitate, his voice softened and he added, "Ya got ta eat, Tom. Come on, Son."

Tom turned away from his keyboard and stretched. He went to his desk, thanked the kindly cook and dug into his food. Five minutes later, he was back at the keyboard where he remained until well past midnight.

When Tom woke up the next morning, it was in a large chair in one corner of his lab. He was stiff and sore, and very hungry, but happy. The program was complete, and it had tested out perfectly.

After wandering down the hall and getting a large mug of hot cocoa from Chow's little kitchen, he went back to the lab.

By lunch time he had added a small but high-quality inkjet printer to the back of the typewriter body, had the tablet computer mounted to a bracket that would let Miss Trent adjust the angle for best viewing, and added a paper tray behind that to hold about forty sheets of paper.

At two o'clock he headed down the hall to the office he shared with his father. Miss Trent, just as he expected, was sitting at her desk.

He set the new device on her desk, reached down and plugged the system into an outlet next to the desk, and smiled broadly at her.

"Give her a go, Miss Trent," he suggested.

"Oh, my goodness!" she said, seeing the completed machine. "Please, give me the cook's tour before I get myself into any trouble."

Tom showed her all the features of the new unit. How the touch screen of the tablet controlled each of the actions from type font selection to printing the finished item. How a built-in dictionary and thesaurus could be called up—if she ever needed them—and how it could self-correct mistakes, "But I doubt *you'll* ever need that function," he told her.

She pressed a button on the small, flip-down pad on the right side of the body and the ratcheting sound of a sheet being fed into the typewriter could be heard from the small speaker in the tablet. This was accompanied by the "paper" appearing to come up at the bottom of the screen.

Miss Trent was visibly excited. She was almost vibrating as she placed her fingers on the keys and began typing.

Clack-clack--clack--clack--clackity--clack went the speaker as she built up speed. She giggled as the paper appeared to rise and each letter appear as she typed. Near the end of each row,

a bell sounded and her hand automatically shot out, pushing the carriage return back to the left. She was so enthralled by everything that she actually made a mistake, pressing the D key instead of the F key.

Without looking, her fingers just knew they had mis-typed something. She stopped and looked at the screen and then at Tom.

"Press the button on the pad that says A-C," he suggested. "I'll have real key caps made next week. That's the key to 'auto-correct' any mistakes. Press it once and it just corrects the mistakes in what you've already typed. Press it twice and it sets the computer to correct as you go along."

She pressed the key once and smiled as the offending letter changed before her eyes.

Half a page later she inquired about printing things. Tom pointed at the side key with the letter P on it.

She pressed it and the little printer churned out her half page of text three seconds later, coming out of the machine in front of the screen. She pulled it out and set it aside. The screen had changed to give her several icons. "I suppose that pressing the one marked 'save' will do exactly that?" she asked. Tom nodded. "So, the little keypad and that new 'print' icon means I can print multiple copies?" He nodded again.

"It can store about a thousand pages filed by date or by name you can enter right from the keyboard," he told her demonstrating that function. "There is a small slot for a memory card if case you want to sneaker-net files to someone or to put them into your computer. You can email any page or pages around Enterprises, and everything you type is automatically backed up on the company's servers once you press that 'finalize' key."

Miss Trent rose from her chair. She stepped out from behind

her desk, walked to the open archway and looked up and down the hall. Finally, she returned to stand in front of Tom.

She leaned forward and firmly kissed the young inventor on the cheek.

"Thank you, Tom. It is more than I could ever hope for!"

EPILOG

TOM SWIFT walked into the large office he shared with his father having just been favored with a smile and a wink from Miss Trent. "Hey, Dad. Anything new happen while Bud and I were out at The Citadel?"

The older inventor looked at his son, a slight grin trying to break through on his lips. He got control of it, saying, "Hmmm? Let me see. Anything new? Oh, that's right. You have to decide on a date."

"A date," Tom asked, confused. "What sort of date?"

"A date to go to production."

Tom looked at his father, confused. "Production? What do they need from me? Can't they just call me?"

Mr. Swift chuckled. "No, Son. Not Production as in the group here at Enterprises or over at the Construction Company... production as in when will you be ready to create more of your little invention?"

"Which one is that?" Tom asked. The five days he and his friend had spent in New Mexico had been both a time to relax as well as time Tom could spend making a modification to his latest robot reactor attendant. His mind was still in the Southwest.

"Which one, indeed?" Mr. Swift snorted. "I've got fifteen emails in my basket right now from secretaries around the company asking when they can get one of Miss Trent's electronic typewriters for themselves. You built the darned thing, so you need to figure out how to mass produce it. Plus, I've had George Dilling and his Marketing folks do a little research and it turns out that there is most likely a pretty good market for them."

"Really?"

Mr. Swift nodded.

Tom sat down at his desk and picked up his phone. He dialed a number. "Hank? Tom. Can you come to the big office please? I've got something I need you to make patterns for."