Much Ado About Foo

A true story about my experiences as a systems engineer in the defense industry during the last quarter of the twentieth century. Those of you who were part of the story may enjoy reminiscing your time with The Company. As for the rest, be assured, The Company did exist before the Evil Empire decided that Librascope should be no more. And the names, are the real names, of real people who once worked at a great Company!

Much Ado About Foo

I guess I don't remember exactly when it was I first heard about the function foo(). I think I have some recollection of hearing it in passing while in college. Certainly the first time I ever saw it in print was when I happened to have cause to read the ANSI standard for C. But that was years after the story I'm about to relate. Foo() has always been a mythical function, a subroutine of interest or scrutiny, or code of generally questionable repute or behavior. The name of this function is actually derived from "fubar" (**foo'·bar)**, which translated in polite company would be Fouled Up Beyond All Recognition. I can trace "fubar" back to World War II, and certainly in literature to *Catch-22*, where along with "snafu" there was a general consensus that the world is conspiring against you. Certainly recent events might make it seem so. Many regard the millennium Y2K hysteria, as just so much marketing hype. In retrospect, it was no big deal… but who can really say? It is small wonder that the programming community that has given us words such as "byte", "boot" or "floppy" would embrace a word such as "foo", and make it part of its very unique lingo and culture. From the outset terms such as "bugs", "crash" and "exceptions" have been used to describe what the unwitting public has come to appreciate as "features" of certain software products. *Features* are those undocumented behaviors of a computer application when subjected to use never imagined by the programmer. If the user is lucky these so-called *features* don't result in a *crash*, to wit don't require you to *reboot* your computer when it encounters a *bug*, which triggers an *exception*. A *crash* is one example of an ungracious exit of a program. Some *features* may even have beneficial consequences, though again, none that were ever envisioned or planned or even imagined by any programmer. The Y2K dilemma is just one example of a *feature* with its roots lodged firmly in this lack of insight.

The year was 1983. Computers had not yet been embraced en mass by the consuming public. Yet the innocuous ciphering of "foom" threatened to tear apart a whole company in suspicion of a communist conspiracy which could possibly threaten the National Security. This episode sorely strained the relations between the older guard of propriety in a corporate culture devoid of humor and wearing white shirts and solid dark ties and the emerging longhaired lions of the computer age in jeans, sandals and beards. Leading the charge on this front was Herb, always immaculately groomed, always sternly serious, appearing with that stiff emotionless chiseled jaw as might be expected of an ex-Marine and the Head of Security. Confronting him was a wave of disheveled masses that emerged from the sixties, the free-thinking result of America's soul searching that began to ask "Why shouldn't things change?" Still, the Culture Shock that resulted as both groups tried to coexist would test decades of status quo and the workplace would never be the same again. Smoking policies would change. The norm of business dress, to casual Fridays, to business casual would change. The rigid discipline of dictated work schedules would yield to the productivity-oriented notion of *flexible hours*. How we got to work would change, as rideshare

incentive programs attempted to wean us from our automobiles; if the oil embargoes and *Northridge Quake* hadn't already done so. New buildings seem to grow out of the parking lot, and older ones were abandoned. Sexual harassment policies would emerge. Issues that had simmered beneath the surface for years would come rushing forward. Drugs in the workplace were being addressed, and not behind closed doors. Affirmative action programs were being closely monitored. *Women's Liberation* would redefine the roles for women in the work force. In this atmosphere of change, nothing was sacred now. Indeed the field of computer science was evolving, standards were emerging, and processes were being written down for the first time. What had begun as a black art, at which few excelled, and fewer understood, would become a disciplined field of study. The days of the super-programmer that could leap over tall stacks of listings in a single bound were numbered. But change would not come overnight. And it's only because the industry was hungry for new blood to address the challenges of the computer age that it was willing to change to accommodate the life styles of the younger generation. Some would not change, or could not change. Some would not *get it.* But as the song said, *"The times, they are a changin'!"*

My career had started seven years earlier. I wore a tie every day. And a sport coat, I didn't have a suit yet. Introduced to The Company and recruited by Walt, hired by Jim, working for Ray and trained by Georgine. Gary, Beavan and Charlie all made my transition from college to an eight-to-five regimen a bit more bearable. The mentoring process in place assured rapid career growth opportunities, and for that I owe them each thanks. In looking back it is amazing how much the times have changed. I was joining a systems engineering group, which I really didn't know what that meant at the time. But as luck would have it, this really was the position I was looking for. And my job experience was rife with examples of platform dependencies that continue to plague the field of computer science. Only then it wasn't recognized as a problem of noteworthy proportion, just as computer science wasn't recognized as a generic field of study. I learned the difference between 026 and 029 punch card readers the hard way. In transferring a program from an off-site platform to a newly dedicated PDP-11/45 I managed to set a company record with 14,789 compile errors. Later when trying to record data on one platform I was dumbfounded when I discovered that when the data was read by a second platform there appeared to be 50% more data than what I had written. Upon examination I couldn't discern any recognizable pattern. A co-worker suggested I show my problem to Bengt. Bengt was a reclusive software guru who challenged corporate decorum from his rabbi looking beard, to his Santa Claus spectacles and his tie dyed jeans. Every company should have one. It was not uncommon for him to work 54 hours straight and then disappear for 3 days, before once again his psychedelic Volkswagen bus complete with peace signs would grace the parking lot. Bengt was also a genius, though I didn't appreciate this just yet. He is one of perhaps three truly brilliant people I have had the good fortune to know. Bengt looked at my problem, didn't say a word for about 30 seconds, and chuckled. He then scribbled 7 lines of

assembly instructions on a piece of paper, and called the subroutine “foo”. “Call this for each block of data you read.” And without explanation went back to what he was doing. In programming, few things work without a hitch the first time. Everything needs to be debugged, even if it is just seven lines of code. But this function worked just like he said it would. It swapped bytes, stripped filler bits and output the desired data. Many years later at dinner in Lawton Oklahoma I learned a story about Bengt that put this in perspective. We were doing work at Ft. Sill, and I was there for a week with Harry, the manager of computer programming; and Pat, the lead programmer on a new project. The waitress had just brought us a chilled carafe of burgundy. This faux pas didn't go unnoticed by Harry, but when he brought it to the waitress' attention, Harry held his tongue at the response: "Yeah. Chilled, ain't it great?" Harry had been the one who had hired Bengt, and Harry had the vision in one interview to see his brilliance despite Bengt’s lack of the normal pre-requisite of a master’s degree. Not that Bengt hadn’t had the opportunity to get a college education. He had earned a full scholarship to MIT. Instead he had spent four years in Mexico playing guitar. After this time off for education he had figured it was time to go to work. Harry had once discussed with Bengt an issue he had with the PDP8 he was working on at the time. This computer had a really simple instruction set; just eight instructions in fact. Thus, to do even mundane things like multiply or divide, one needed to write a subroutine or use one of the library functions provided by DEC. The thing was, the 16-bit multiply function provided by DEC contained 96 instructions, making multiplication a painfully slow time consuming process. Harry had fiddled with the problem a bit, but had only managed to reduce the number of instructions to 88, and even so the performance was about the same. Harry had described the instruction set to Bengt on Friday, and on the following Monday had stopped in to chat, bringing up the multiplication dilemma. Bengt stared momentarily into space, as was his custom when in thought, then proceeded, “Yes, I thought about it for a bit.” He then jotted down a series of 24 instructions and declared that that was all that was needed. “And this has the interesting feature that if you enter on line 8 rather than line 1, the result is the multiplicand times ten.” It took Harry another six hours to convince himself that the function really worked, in all cases, whereupon he called DEC. He told them about the fast multiplication function, and whether they believed him or not, I don’t know. But they did send their chief programmer and staff mathematician out to spend two days to pick Bengt’s brain. And in their next release of utility software for the PDP8 they included a fast multiplication routine. Dinner was nearly over, and without asking, the waitress voluntarily brought us a second carafe of burgundy, chilled of course, and informed us that it was Happy Hour, which meant that all drinks were two-for-one! Anyway, that 7-line routine Bengt had written for me was my first exposure to a function called *foo* in the workplace.

The first system I worked on was a submarine fire control system for the Australian navy. As is common for many new engineers, I was relegated to the chores of testing this system. Indeed, I had developed the scenario simulations

used to stimulate the system during testing, all part of my previous task of moving digital 9-track tapes from one computer facility to another. During some of the final testing I did on the embedded training functionality, I had constructed a test where the submarine was traveling due north. I simultaneously fired two torpedoes from port and starboard tubes, each launched 45 degrees from own ship heading. I had expected to see nice symmetric tracks for the torpedoes on either side of own ship's northerly course. Instead both torpedoes appeared skewed to the right. It was an unexpected finding and potential problem. It bubbled all the way back to Mal who was responsible for the underlying logic. And even he was at a loss at first to explain the anomaly. Mal was a particularly jovial character with a *Charlie Brown* like face and a penchant for bridge. His bearded black and white badge portrait belied his now clean-shaven face. The two images were just too incongruous to be of the same man. After review of his notes, he brightened, and confirmed that all was well. What I had reported was in fact attributed to the final term in his equations accounting for the *Coriolus Force*, and adjusting for forces on the torpedoes due to the rotation of the earth.

In 1979 I shared an office with three new people. We were each, one year apart in age, and with the exception of one other, we were the only technical people in The Company under thirty-five years of age. In fact, we were all under twenty-seven. Yes, this generation gap was another one of the things that would change. Or maybe I thought it was changing at the time, we may have just grown up. We occupied what came to be known as the *playpen.* Kurt was the oldest, and no doubt one of the most competent programmers I would ever meet. That year on a home built computer, with self-designed math support circuitry, he completed his own flight simulator. Next in age was Sharon. Sharon is one of those dedicated spirits whose unswerving focus on the task at hand allows her to press on where others might falter. I was next in age, and then came Ron. Ron was the prankster, and would prove to be one of the most capable people I would meet. He had a degree in Psychobiology from UCLA. As it was explained to me just before he joined our group, "They do a lot of stuff with computers." Well, he certainly would prove to have a certain affinity with them. And I would learn that you didn't suggest that he couldn't do something, or he would prove you wrong. This was perhaps first demonstrated to me when Chuck first threw down the gauntlet. He was of the old guard, about 55, and occupied the newly created position of Information Systems Manager. He was responsible for setting up The Company's first Intranet that comprised a few workstations throughout The Company all tied to a central mainframe. Understand that this is pre-PC era, pre-word processor time frame, and computers were mostly dedicated to computing. The Information Superhighway is a futuristic dream. Well, Chuck announced one day in earshot of Ron that the *password* control he had implemented on the system was foolproof. Within two days Ron had Chuck's *password* and full access to all *root* functions of the *systems administrator*. And he left the gauntlet in the form of memos in Chuck's area on the system advising him that his system wasn't all that foolproof. And how did he get Chuck's *password*? He simply wrote a small program that looked like the *logon* screen to the system. He ran

the program and left it on a terminal. When Chuck later tried to *logon* using that terminal, it recorded his *password* in the *file*, exiting the program and re-prompting with the *logon* query, as if the *password* had been typed incorrectly. Chuck never did figure that one out, though he was pretty sure it was Ron that had breached his foolproof security. And from then on his vendetta was to get Ron fired. Fortunately, Ron's supervisor thought that anyone with that much initiative and brilliance was probably an asset to The Company. Herb however wasn't so sure. Chuck had been insisting that Ron was a threat to computer security in The Company; and that confidential information may be at risk. And this was when Herb began taking an interest in computers.

My first job-related exposure with Herb had been enough to make me know the man was clueless when it came to computers. I was the chief developer of software for a tactical computer terminal that the Army was about to field in Europe. I was testing the software and Herb wandered into the lab. He spotted a report on the tactical terminal, and looked closer when he saw the "SECRET" banner. Even though this terminal had never contained any actual operational data, or any information that could ever be considered sensitive to the national security, Herb was adamant that proper shutdown procedures be observed to properly purge this secret information from the system. After looking at the components of the system he concluded that the only way this could be done was to physically destroy the system. And he was right, given the hysteresis phenomenon common with memory devices of the day. Ever since the *Pueblo* fiasco and the then concurrent compromise of documents at the Tehran embassy, the military was particularly sensitive regarding the ability to rapidly purge classified information from tactical systems. Both the Chinese and Iranians had proven themselves particularly adept at meticulously piecing together *sanitized* refuse. So one civilian bean counter kept raising this thorny issue at Quarterly Reviews. And each time we would get a black mark for not addressing a problem that had no viable solution. In fact, the best that anyone had proposed was to mount the system under a vat of highly reactive acid. Then Kurt put the matter to rest once and for all. At the next Quarterly Review when our friend again raised the issue, Kurt took him into the lab. "Sit down at the terminal," he said. "Notice the key labeled *'Push to Purge'*. We think this should meet your needs." Kurt was backing out of the room, and before he could say anything else, the wisenheimer had pushed the variable function key. "Be careful not to touch it," Kurt cautioned. The legend immediately changed to read *'Release to Detonate'.* "Hey, what the…" But Kurt was long gone. The guy eventually tired of pressing the key, and with some relief he read the one word on-screen message: *"Boom!"* Purge was not to be an issue again at future Quarterly Reviews. But Herb was not so easily placated. And remember, all this because during test and integration I had edited one message and declared it to be SECRET (to make sure there were no problems when handling SECRET messages and to make sure they were properly logged). His position was that once somebody declares something to be SECRET, it *is* SECRET, and must be treated as SECRET data from then on. And there are procedures about how to

purge SECRET data from computers and computer devices. And these procedures must be diligently observed at all times, without exception… or else it would be a breach of security and we couldn't have that. It must be nice to live in such a black and white world. It took the manager of Army Programs to dissuade the destruction of this quarter million dollar system, but only after we printed the report, and then allowed Herb to properly dispose of the paper record. But such was the diligence of this security officer; and remember, he was on the front line of the Cold War which was being waged at that time.

Just to mention the Cold War reminds me of my first of many trips to Germany, in the summer of 1980. During this trip I had occasion to stand 100m from the East German border, already 900m past the point US troops were permitted. Looking across the barren mine field, concealed bunkers, observation towers, the hair standing on the back of my neck told me that the Cold War was real, and it was deadly serious, and this was not an area that you'd care to make a wrong turn. There were no candy-cane striped *Grenze-Booths* on this road, no Checkpoint Charlie. And if one ignored the prominently posted warnings *Achtung!…* you didn't need to read the black on yellow old-style German script to fully understand the full import of the verbiage. Somewhere out there was a border, if just an imaginary line in the dirt. And probably too an unseen sentry or two. Beyond that, was no man's land. We were doing the initial fielding of a C^3-terminal for the US Army Maneuver Control in the VII Corps. The Cold War was real, brought home all the more so as I stood there with Bill. Just across that border, marked by barbwire and minefields, was the enemy. My assignment was supposed to be for just six weeks. Bill was the permanent on-site field support, Chinese, personable, and a veritable whirlwind at making things happen. He had negotiated a deal with Hank. Bill would baby-sit this system for eighteen months, and then return to California; and Hank would make him an engineer. To think I spent five years in college for the same thing! On his first day *in country* Bill had gotten his name on a list for off-post housing. A local Herr und Frau team handled the lodging placement service. They would find housing for soldiers and their families. The waiting time can be months. Bill was the 142nd name on the list. The next day, things had not changed, and Bill inquired if there was *anything* he could do to expedite the process. The following day Bill was at the top of the list, and by the end of the week he had moved into his house. The fact that the only work facilities available to us were a smelly helicopter battery acid shop that was little bigger than my walk-in closet at home didn't phase Bill. He prepared for the delivery of the first three systems. Bill had to trace them down when they didn't show up, which they finally did but two days late. As I watched four soldiers load a 600-pound box onto two two-by-fours and attempt to slide that from the trunk bed, I realized why it's so important that Uncle Sam buy militarized gear. The boards snapped like tooth picks. But when Bill eventually set up the systems everything worked, even after a six-foot fall to gravel. Everything, including the plasma displays survived. Only one circuit card in the printer needed re-seating. That evening the second lieutenant charged with overseeing the fielding of the system offered to buy us a round of beer to celebrate at a local

Gästhaus. This was his first assignment after completing his ROTC program at Georgia Tech. And in his finest southern drawl he requested *"Drei Bier bitte!"* The old man behind the bar just sadly shook his head and pointed to the sign behind him "No Americans served here. If you can read this, this means you!" Fortunately, this turned out to be the exception and not the rule. Not to worry. I'd get my free beer yet. Bill had said that Ted might stop by to see us the next evening. Ted was our marketer in every sense of the word. Ted was a big man, heavy drinking, ruddy faced schmooze-artist of the first order; from his ready smile, his hearty handshake, cheerful laugh to the twinkle in his eye. If there were skids that needed greasing, he would grease them. If there were hands that needed shaking, he would shake them. Babies needed kissing, he would kiss them. But I wouldn't get the beer from Ted either. Bill explained the next day that Ted was meeting with the Colonel instead… and it might be *awkward* if he or I, or the captain or second lieutenant were around. The rules governing gifts, entertaining and such were also changing, and discretion always was the better part of valor when appearance matters. Bill and I made it to München (Munich) for the Oktoberfest. On the way, two Polizei stopped us with their blue flashing lights. I still get a kick out of Volkswagen buses being used for a police car. Terrorism was still prominent in the major cities following its peek at the Olympic Games in '72. You knew this every time you'd drive on-post and soldiers would examine underneath your vehicle with special mirrors. So I guess seeing an Asian driving a rental car with a white guy might raise some eyebrows in Bavaria, we were after all DWA. Two twenty year old cops who looked like they hadn't started shaving yet appeared, Uzi's slung over their shoulders and ordered us out of the car. It was the first time I'd looked at a cop and seen someone younger than I was, a sure sign you're getting old. Bill doesn't speak a word of German. While I do, or I thought I did, I couldn't understand a word they were babbling. But Bill seemed to follow. He opened his trunk and showed them the emergency road kit (I learned later this is required, and always checked by police when they stop someone). Then he handed them his international driver's license. It was like watching a Charlie Chaplin movie as the cop unfolded, and unfolded, and unfolded this tattered, yellowing, rain-stained document the size of a tablecloth. It could just as easily been a large Italian banknote. The officer examined one side, and then the other. With his partner holding one end of the license, the first one asked *"Was't's?"* This time Bill looked at me for help and I shrugged my shoulders. He said again, only louder *"Was't's?"* We still didn't understand. Finally, in desperation he blurts out hysterically at the top of his lungs in a guttural broken English, "Vhut iz dis?" Bill pointed to some faded printing in the corner that read *"Für Oberfahrung Ordnung – Internationalen Gerichtigkeit"…* or something to that effect. I couldn't help but think of foo() when I considered the acronym. Anyway, we did make it to the beer tents. And inside one a buxom bawdy barmaid had just bustled over to the group next to us holding five one-liter mugs of brew in each hand. And she dispensed the heavy glass steins foaming with rich amber *Löwenbrau Bier* to the group that had ordered them, but there were two left over. Seeing us, she shoved them in our hands, and that's how I got my free beer. And it wasn't what passes for

Löwenbrau in this country either. One of the Germans in his early twenties then asked for a shot of Schnapps, whence the five foot two inch busty dirndl clad waitress pulled a bottle from her holster and dispensed a shot into a silver jigger, and then half again as much into the fellow's lap. After a pregnant pause, and a crooked smile, she took off her apron and proceeded to vigorously wipe up what she had spilled. If she wasn't fifty or so I think Bill and I would have had some Schnapps too. The highlight of my stay came about halfway through my tour in the land of the Cold War and the Iron Curtain. The program manager, Vic, rang my room at about 2AM and was inquiring if I was flexible to stay an extra week. This was disturbing to me, because I had asked when planning the trip, are you sure you don't need me to stay a 7th week for the test; and three times I was told no. So I had vacation coordinated with family, with tickets on Broadway and everything, and this guy half a world away was telling me they might ask me to stay. But I got my opportunity to resolve this soon enough. After work one day I went to the gym with the lieutenant to shoot some hoops. He told me of a Georgia Tech tradition at ball games of having one fan come out at half-time, and if the fan can make a shot from half-court the fan wins a C-note. So I asked him what he'd give me if I made a shot from half-court. He grinned and said, "One ball, one shot. You make it, I'll let you go home after six weeks! Otherwise you stay." I guess I figured that was the best offer I was going to get. I must have bounced the ball a dozen times or so… then let it fly. The ball never touched the rim. Swish! I suppose I should have told him that I had practiced that shot for hours on end when I was a kid, even though I didn't know for what at the time: now I did. When I returned to the *land of the round doorknobs*, Vic couldn't understand why I hadn't been asked to stay. And the lieutenant, he finally sank one from half-court too, after trying for an hour and a half. And he had an eighteen-month tour before they let him go home.

The Mad Russian was my nickname for Vic. Late thirties, he sported a very distinctive goatee, tall, with slender features. A *James Dean* sort of melancholy always seemed to shroud him. His accent hinted at an Old World upbringing, but his thinking was entirely modern and progressive. He had come to make an appearance in Germany once Bill and I had things running smoothly. As we sat in an on-post dance club on his final evening, he intimated that if it wasn't for his early return flight in the morning that he could have bedded one overtly gorgeous blonde alone at the bar. I for one was skeptical, if only because the only conversation they ever had was with their eyes. Bill assured me later that Vic was quite the ladies man, and he had no doubt of the veracity of Vic's claim. Perhaps what made me a non-believer was my own old-fashioned thinking, since Vic was a married man. As Vic had related the story to us earlier, his career had started working for an oil company, and he was stationed on a football field sized atoll in the Pacific. It was bigger than that, of course, but not by much. And there was one woman, a nurse, on the island. Which meant that she was *the* lady. But she insisted on a wedding band, which he gladly relented to, because a year can be an awfully long time. So this accounted for his present predicament and marital status. Vic departed the next morning for Rome. As Bill told me later, Vic

always arranged his business travel to return via some resort destination, where he would spend a weekend pursuing his extra-curricular interests. I must however thank Vic for teaching me the power of the pen. After four additional successful on-time software deliveries we had a particularly contentious Quarterly Review with the customer. On their wish list was to expand the system's capability by offering dynamic overlay of functionality from *tape.* That was where I drew the line. I argued, until I was blue in the face, that tape overlay made no sense because the user would find that the resulting performance of the system to be unacceptably slow. But our customer didn't care about our end-user's feedback. All they wanted was to be able to use the latest buzzwords on a briefing chart to the bird Colonel. Vic so hounded me, during the days following the meeting that I finally relented. But first I published a memo, describing my concerns, detailing my plans to implement tape overlay, documenting the probable performance, and ascribing the approach to Vic. And I widely distributed the memo. Within five minutes Vic was in my office, *asking me,* if I *really* thought this was a good idea! After I assured him we didn't *need* to use overlays to deliver the other additional functionality, *he decided* that we shouldn't do it at this time. Once I made Vic the owner of the course of action, he was forced to make the right decision. And that Colonel made General on his first try, in part due to the success of that program.

Meanwhile, on the home front, and with Herb's blessing, Chuck began the task of *monitoring* employee's online activities, examining files, checking programs. In this enterprise he came upon a blackjack program that Ron and Zeke had written as an exercise to learn Fortran and how to do programming on this state of the art Data General system. Deeming this to be an inappropriate use of *his* computer, Chuck confiscated the program, moving it to his directory and deleting it from Ron's. A terse announcement followed that certain files had been removed from the system as being non-work related. This of course angered Ron, which wasn't helped when he discovered that Chuck was now playing his blackjack program during lunch every day. This was actually very easily discovered because Chuck made it a point to tell Ron how good of a blackjack player he was becoming. Ron took it all in stride. One morning he accessed Chuck's account (he still had his password). And he made a small change to his blackjack program… he added a function foo(). All this function did when called while dealing the cards was check to see if it was Chuck who was logged on and running the program. If it was it caused the program to cheat, not all the time, but enough so that Chuck would never win again! And every week Ron would make it a point to ask how his blackjack was going. I still think that if Ron had wanted to be really cruel, he would have made it so that Chuck would always win!

Zeke was one of the lucky ones who eventually retired from The Company. In fact, he had worked for The Company when there was no parent association. Zeke fit my preconceived stereotype of what a systems engineer would be like to a tee, from his ever-present pipe, to his flattop, the white short sleeved shirt,

striped tie, and the vinyl pencil protector. When I first met him he still used a slide rule! He manipulated *Laplace transforms* the way you or I might watch TV. I once heard a potential employee ask Ray during an interview for the systems group, if he'd be required to do *Laplace transforms* or *Nyquist diagrams* as part of the job. From his tone it was clear he wished to have nothing to do with either. The question was out of left field, as far as Ray was concerned, who only chuckled thinking "What an odd question," but I correctly surmised that here was a student from my alma mater. My preconception too had been to equate systems engineering with the field of control systems. But he needn't have feared; this domain belonged to Zeke. I remember the furor Zeke started after The Company had published one of its brochures featuring the latest in submarine fire-control systems and targeting the international community. Zeke pointed out to Herb that the cover featured displays with real tactical data that clearly showed depths and range and accuracy, all highly classified numbers. They were very pretty brochures, and if the photos hadn't been so sharp and crisp and legible it might not have been a problem. As it was, it's just another example of how innocently information can be put at risk, not just at the hands of the Ames, Walkers and Pollards of this world, but through a careless lapse in cognizant oversight. What was that WWII expression: *"Loose Lips Sink Ships!"* It served as reminder to Herb of what he was up against, and how important it was for him to keep on his toes.

The real mischief with *foo* occurred when two programmers got together on another army program. They were Taifun and Bruce. She was from Hong Kong while he was the consummate non-conformist. It was Bruce who coined the term "foom". You see, *foom* is the sound code makes when executing instructions in an uncontrolled or unplanned manner. *Foom* is the result when foo() terminates abruptly. *Foom* is what you are mired in when code doesn't work. *Foom* is a four-lettered word. Whether you say it softly or with all of the explosive force that onomatopoeia affords you, it's not a good thing to be full of *foom*! Bruce got into the habit of annotating computer program listings with little yellow stickies on which he had scribbled "foom" and encircled it with a cloud like bubble. He used this to mark code suspected of needing much closer scrutiny. And as luck would have it, these little yellow stickies seemed to have a life of their own.

Those of us on the inside, understood what *foom* was... and what it wasn't. What it wasn't, was something that could be explained to Herb. What he saw in *foom* was the trappings of a conspiracy, possibly a threat to national security, and certainly a danger to life in the Free World, as we know it. He viewed *foom* with all the intrigue that only a dedicated guardian of truth, justice and the American way could. He was after all, on the forefront of the battle lines between political paradigms that refused to coexist. And he was not about to allow secrets to be unwittingly compromised on his watch. No sir-ee Bruce. He didn't know what *foom* was; and he knew he didn't know what *foom* was; and yet he knew that *foom* was a bad thing. Herb was the head of Security so there was nothing left for him to do but start his investigation. First he polled the top level of

management on VP row, only to discover that none of them had any inkling of what *foom* was either. Expanding his inquiries he held one-on-one meetings with all of the middle managers, emphasizing to each of them just how serious a threat *foom* was turning out to be. It wasn't until he contacted Harry that anyone in the know of what was really up with *foom* became aware of the furor that had begun to brew. Indeed, even Harry didn't know what *foom* was, but he knew it wasn't what Herb was making it out to be. But Herb didn't necessarily trust Harry. He was after all the manager of the group that Herb was beginning to suspect of espionage or sabotage, or some equally hideous "-age" yet to be consigned to the English language... say *foomage*. Isn't that cheese in French? Close, but no cigar! Well the appearance of *foom* seemed to be limited to the software development labs. Clearly Herb was certain that but for his diligence the entire company would have been infected by now.

Harry passed the word on to his organization of the problem with *foom*. And you might think that a word of warning might suffice. But the idiocy of Herb's campaign against *foom* so amused so many of the programmers that a proliferation of *foom* began. First, little yellow stickies emblazoned with *foom* began to appear outside the software labs. Notes containing *foom* started to appear on Company bulletin boards. Perhaps the straw that broke the camel's back was when a sheet containing just the one word *foom* was left in The Company's suggestion box. *Foom* had reached epidemic proportions and for the first time Herb feared he might be losing the battle for decency, motherhood and apple pie. It's rumored that Herb sent that sheet of paper off to the FBI crime lab for analysis. Though if he did, we never did learn of the outcome. What he did do however was bring his entire collection of *foom* stickies and other renderings to Frank, The Company's HR manager and resident expert handwriting interpreter. It's funny when I think back to when I first filled out an application to work for The Company, it struck me even then as odd the section on the application that required me to render one handwritten paragraph on what my goals were with The Company. The instructions explicitly excluded typing or printing. I learned at his retirement luncheon that Frank screened every application, looking at this paragraph not for content, but for the handwriting. Employees who received an offer of employment, first had to be acceptable to Frank, based on their handwriting! Some people couldn't be trusted. Some people were dishonest. Some people were hiding something. And these people were weeded out by their handwriting! Clearly Herb was suggesting that maybe Frank had unwittingly allowed an undesirable to join their ranks. And just when it seemed that Herb was going to score some points, Frank noted that Herb had a bigger problem... the *foom* renderings were not all from the same author! Game, set, match! Can you spell conspiracy?

At this same time, another Army program was getting underway. Building on our communications expertise, we were branching out into other commands, this time the Field Artillery. I had first met Tom when he was one of the *Fab Four* who were the overseers of *the Blue Room*, along with Beavan, Bengt and

Charlie. This state-of-the-art computer facility featured racked computers, peripherals and even a raised floor, the tiled carpeting of which was blue. I had never looked at Tom as program manager material, so it was with some awe I found myself assigned to his program as systems engineer. Don't get me wrong. I like Tom, it's just that his quiet, easy-going, slow talking, California mellow, laissez faire manner isn't what you would normally expect from a program manager. And for this particular customer, it was a most unfortunate choice. A Colonel, who due to bad teeth and failing health would never make General, headed the Government's PM shop. His civilian underling was nearing retirement, and this would be his final program. A veritable lack of oversight from the ne'er present Colonel all but guaranteed that the program would fail. And so his staff took a CYA posture to ensure they wouldn't be blamed when things didn't work. Document after document was rejected out of hand. Approval would have implied complicity to which blame could later be attached. They weren't interested in fielding a system that worked, they were only marking time until the program would just go away. Tom was not accustomed or suited to dealing with people who did nothing but yell at him. Tom was not receptive to their browbeating adversarial approach reminiscent of the old school of business, so he obtained the services of Bob. Bob embodied all the *Dilbert-like* qualities you'd expect in an engineer, plus the personality and temperament that suits an effective manager. So Bob served Tom as liaison to the increasingly venomous PM shop. Then Tom exasperated an already bad situation, when during a meltdown of relations and scheduling early in the program, he vanished to Europe for six weeks on his family's long planned vacation. Upon his return, his role had changed, and he found himself subservient to Bob. And Bob's first assignment to Tom was to fill his liaison shoes. What goes around, comes around, I guess. Bob eventually did salvage would could be gotten from this experience, we delivered systems that worked. But the effort had been tainted by their PM who alienated the user community by forbidding their contributions to the eventual design. In the end, the frustrated user realizing he wasn't going to get what he wanted withdrew his support for the system. And as had been the course from the onset, the program just went away. Bob would go onto other programs, where he proved time and again to be the dedicated and successful manager he was. And this experience made later ones all the sweeter, working with success-motivated customers, of a team-oriented mindset.

But this would be the first work any of us had done with Ada. Indeed, there wasn't even a validated compiler on the market yet. Everyone who could spare the time was taking the twenty-four hours of video seminars on Ada. I myself started the course on three separate occasions, but just couldn't seem to get past the fifth hour. My schedule found me making all too frequent trips to Oklahoma and New Jersey, and it just wasn't in the cards for me to learn Ada at this time. Pat was in charge of software. Sebastian was the lead in the applications group. Sebastian was Dutch, spoke with an authoritative and distinctive accent, and with his grayish blond hair wore it in the style reminiscent of the Dutch masters. Kevin was the lead in the systems software group. The

remaining programmers were young, this was their first programming job, Ada was a new frontier. Many, if not half, were women, and some would be there at the end. Among these Dena and Jannette were always professional, always a pleasure to work with and could always be counted on when things were tough. *The Deanster* is the only person I know of that was able to work with Fred Martin and not be abused, denigrated or shunned; and what is more, she didn't refuse to work with him, which would have been the norm. Now maybe Fred took Harry seriously when he took him aside and told him "Fred, you gotta be nice to her. Don't make her cry." But that had never stopped him before. Fred even complimented *the Deanster* as having done an exemplary job, and Fred didn't like anybody. To understand the magnitude of Dena's achievement, you need to understand Fred. Fred is the kind of person that will spend hours to take one snapshot of a buffalo that is timed just right and maybe I won't go there. I will say that after I got back from my six-week trip to Germany plus one week vacation, I found I was sharing an office with Fred. Fred was a big man, *good ol' boy*, redneck, with a mouth that spewed BS like a broken faucet spews water. And I never did find out what I did to deserve him. Before that trip my supervisor had moved me out of the *playpen* to get me away from those other troublemakers (they were a noisy bunch). And sneaky too. While I was overseas they must have behaved themselves. Maybe that's why Fred was in my office. But Fred was an outside contractor, whereas the group of employees seemed very close-knit. It was years later that Sharon had alluded to the tensions that were brewing beneath the surface. By all outward appearances, this was one big happy family. Certainly it seemed so to me at the time. My one dalliance with Ada was to try and compile that friendly function foo(), which I never did get to work. Dena tried to help. But it was just an exercise for me, and in the end it simply would have to wait. And it would be ten years before I'd get the opportunity to program in Ada.

In the interim I was to have occasion to rack up many *Frequent Flyer* miles travelling with Sharon, which The Company graciously allowed us to accumulate. Traveling with Sharon is in my mind the ultimate proof of *Murphy's Law*. Indeed, short of a plane crash, I've endured every possible calamity traveling with Sharon. I've been stuck in an elevator in a hotel with her and missed the meeting we flew out for. In winter, following a morning jog, I've come back to a hotel with no hot water. I've run from one end of the Salt Lake City airport to the other to make a connecting flight to LAX to find that instead of being five minutes late, our plane had yet to leave Boston. On top of that, any number of food vendors that had been open when we ran past the first time, were closed when we got back to them. On one trip nothing went wrong… we even arrived back at LAX ten minutes early and we thought the jinx had been broken. That was before the pilot announced that due to our earlier than expected arrival, we had no gate to taxi to. And when we got our gate assignment, it was at the *Imperial* terminal, which our pilot couldn't find even after traversing the full length of the airport twice. When we finally did disembark, we had to wait another hour for transport busses to move us across the airport to the main terminal. All in all, it cost us over two hours before we got on our way. I've been on jets with Sharon

aborting landings at Newark, Kansas City and Fort Wayne, Indiana. This doesn't begin to recount problems with luggage. We both have resorted to strictly carry-on bags, which I guess is the norm among experienced business travelers.

Well, Herb had a plan. He marched into Harry's office and declared that he was personally going to conduct an audit of all source code listings. He was certain that if something was amuck in the software, then surely the source code listings would be his Rosetta stone. The roots of this insight came from the legendary Admiral Rice Demo, which he had witnessed during his tenure with a rival company. During this demo of an integrated sonar and radar system, the Admiral expected to see the current operational capability of the system he was responsible for developing. And the demo could not have gone better. Every single newly developed feature worked flawlessly: threats appeared on the display as they were supposed to, their time history tracks were updated perfectly, friendly and enemy tracks were correctly correlated, sonar and radar signals were simultaneously processed... it was, in a word, perfect. And after congratulating the team, Admiral Rice asked to see the listings. Was he tipped off to do this? Was it just dumb luck? Was it instinct, perhaps the reason he was an Admiral? Who can really say? He thumbed through the listing, and seemed pleased enough at the size and quality of the code replete with comments until his eyes fell upon a series of incriminating lines in the source listing, to the effect: "For Admiral Rice Demo". "Canned functions for Admiral Rice". "Remove after Admiral Rice Demo" and the ever so appropriate "Hard coded for Admiral Rice Demo". What's a programmer to do?

Admirals can often ruin your day. And programmers are often asked to do impossible things. And whether it's to run real-time Fast Fourier Transforms on a sixteen MHz processor to digitally synthesize analog signals or to continuously correlate thirty different sonar inputs preprocessed using Kalman filtering or some advanced churn algorithm, some things never change. It's the role of the systems engineer to make sure the impossible *is* possible. Ron and I once fell into this trap, and we learned the lesson of technology based in reality. We had been given the task of studying innovative ways of protecting submarines against torpedo attack, much the same way that SDI just a few years later would seek to defend against incoming missiles. We had been asked under IR&D funding to explore ways that *"smart nets"* could be deployed to disable armed torpedoes. Part of the concept was to use sonar to track a homing torpedo and to deploy the net accordingly. When we later presented the results of our modeling and simulation to an admiral, with beautifully graphed probability scenarios, our briefing was cut short when the admiral pointed out "You can't track a torpedo." It was the shortest presentation of my career. Always double-check your assumptions.

Herb was hot on the trail of something now. On sheet after sheet of listings *foom* just seemed to pop out of the page. It could be said that *foom* had completely infested the listings of the program that Bruce and Taifun were working on. Herb

was narrowing his sights. To his credit, Herb didn't leap to the obvious Mata Hari connection by focusing on Taifun, born in Hong Kong, with family in Mainland China. No, he was zeroing in on Bruce, with the impish grin and total disdain for authority. None of the other six ongoing software programs had yet to suffer from a "foom-affliction" as he called it. It still made no sense. Sometimes *foom* would appear by itself as a stand-alone comment. Other times it would appear in the middle of a sentence, almost as an afterthought in a nonsensical manner (e.g "—Fetch the target *foom* number"). Herb theorized that classified information had been covertly removed from the listings at each instance of *foom* in the listing.

When the showdown came, Herb stood in one camp, flanked by a number of like-thinking veterans of World War II who occupied offices on VP row, who wore their white shirts and black ties every day. And there was Harry and his corps of programmers that were on the forefront of defining just what computer science was. The time that software was an insignificant part of a system's life cycle cost were over. Industry was reeling from the realization that software had supplanted hardware as the most costly part of a development. And management was aghast that trends foretold the day that software would be 90%, or more, of the cost of future programs. So this assault by Herb on Harry's staff was serious business, with serious implications and consequences. It took Hank then the Manager of Army Programs, just sixty seconds to confer with Harry. Hank was in my mind the consummate *minute manager.* He understood the cost to one of his programs if Bruce was fired. It would mean schedule slips, promises broken, and a general mucking up of his emerging empire. So he looked at Herb and said, "Herb. It's a joke. It's just a joke. Don't you get it?" And I always figured that was why they paid him the big bucks. And they made him a vice president after that.

Harry was an extremely affable man. He always had a smile on his face and a sparkle in his eye. He loved life, and he loved people, even as much as he loved to run. His son was an All-State runner, so I guess you might say it ran in the family. Running kept his voracious appetite in check, including the standing barbecue rib picnic in the park every Friday. With a charming personality and persuasive presence, Harry had all the tools to effectively manage people. Harry's the one who talked me into running a marathon. On that, all I'll say is I finished. Harry and Ron were witnesses to that. I never ran again!

Actually, I must say that The Company has been blessed with really outstanding software managers. From Harry who had started with The Company back when machine code was the language of choice, he developed an organization that excelled in all endeavors. Sharon had been given responsibility early on for all Army programs. She excelled at finding good people and keeping them happy. From her Christmas cookie bonanza blitzes, to the monthly birthday cake celebrations, and the Friday *31 Flavors* ice cream breaks; Sharon fostered the very family-like atmosphere that blessed those of us who had the good fortune to work for The Company during her tenure. And you could be sure that Sharon

would not forget the *special birthday* when you would find your office an appropriate tombstone. And true to the form of what it takes to run a software outfit, Sharon would be seen drinking only Coke, though she wasn't as particular as Laura about its dilution with ice. She was sorely missed when she and her husband relocated in Kentucky. So it was with great delight that Ivan proved to be an equally capable and equally people-oriented manager, and productivity continued to flourish. In looking back, you might say that Sharon's departure was the beginning of the end. Probably it had already started with the rapid turnover of the old guard, but I was mired in the everyday tasks at hand and was too busy to notice at the time. Somehow, together they had fostered an atmosphere that was conducive to work. I remember just how motivating my first supervisor Ray had been for me during the lean years of the late seventies. We were between jobs of major contracts, and I was reduced to performing short busy-work tasks, which I tended to complete too quickly to suit Ray, because like Oliver I kept coming back and asking for more. Then one August day he said "Why don't you take the afternoon off and go to the beach." Which I did, and I never had to bother Ray for additional assignments again. I found plenty to do on my own.

And it wasn't just the managers. It was the people too that made The Company such a special place. Some people you never forget. They are just so unique in the fabric of human existence that they stand out as a reminder to the rest of us what it means to march to your own drummer. Many come to mind. Two such people I have enjoyed knowing are Robert and Mark. Now Robert goes by his initials, RAS (pronounced **razz'**). It's his username, handle, nickname, you get the picture. Ras has flaming red hair, a beard, and is never inhibited or short of words to tell you exactly what he's thinking. Mark likewise had a beard sans the red hair, and could also be counted on to express an opinion, even if it tended to the Teutonic. Maybe it's beards that make people unforgettable. It was always interesting if one or both were in your coffee klatch when the new management of The Company would set about trying to improve communications. At least that was the finding of the highly paid outside consultant who came in to find out why a certain amount of tension was beginning to fester in an *us/them* sort of way. It could be because we never got the feeling that they really wanted us to be part of *them*. And what would give us such an idea? It could be because they replaced or forced to retire our management and put in their own. It could be because they maintained homes and families on the East Coast. It could be because they brought in outside contractors to do in-house work and used them in supervisory positions rather than promoting from within. It could be because they didn't understand what we had and resented how much rapport and support we had from our customers. And why shouldn't our customers love us? We had met impossible milestones during the rollout; marking the days one by one as they passed, ever vigilant to keep step with time, and always focussed on the task at hand. We found creative ways to survive the work slow-downs. We hung together the year we were mistakenly lined out of the Budget. Bill had spearheaded a multi-year support effort in the European theatre. Sebastian and Dena and Jannette had worked diligently in the asbestos plagued confines of the

laboratory basement in Ft. Sill. Sally learned that you don't order lobster in the heartland of America. And I learned to keep my mouth shut when someone asks, "Does this taste funny to you?" Adrianna had weathered the ranting of a GE SOB when the finger pointing started, but they were the prime, and they cut the systems engineering from the job to save money. Ray had the insight and conviction to pursue work in the NBC arena, without which The Company would have withered on the vine long ago. Ras had successfully engineered and fielded a rapid development prototype for detecting biological agents in an unheard of short time. Laura had toiled in tedium methodically unit testing the begeezus out of software others had written, because someone had to do it. Steve, whose surname was sometimes synonymous with The Company, seemed to always have his finger on the pulse of the organization. Mark had driven an ATV through a live munitions studded field in a blizzard to collect data. Kevin had traveled to the ends of the earth, from Australia to India to the beaches of Camp Pendelton, even venturing into the Devil's Triangle to test systems for The Company. Eric and Kevin who gave us the *green board,* were trained as operators of the German-made Fox NBC reconnaissance vehicle. Stanley gave up the Beanie Baby monkey from the Christmas luncheon gift exchange so Bob's daughter would talk to him again. Bob wore a succession of different hats, willing to do whatever needed doing. Carol had championed the SEI metrics for evaluating The Company. Albert and Mark relocated down under for several months. Ivan and Alice endured a stay at the Waikiki Hilton during a demonstration and boondoggle seeking new business, which they can tell you, is a step up from eating soggy half-day old *Subway* sandwiches on the plains of Dugway Proving Grounds. Others had supported troops in SCUD-attacked bases in Saudi Arabia during Desert Storm while Ray served at the Pentagon. Will had even taken to wearing a white shirt and dark tie despite working more hours than are in a day, simply to make the effort to be more mainstream acceptable to the powers that be. Or was it in protest? I keep forgetting. The point is, we all made sacrifices and we all prospered.

During my supervisory days of the middle to late eighties, I hired one truly unforgettable man, for which my colleagues have told me, I will never live down. We were in an unfortunate subcontractor relationship on a new project with a manipulative prime seeking to void handshake agreements made during the proposal. Our part was to provide one staff member to their New Jersey office. They had specified the position so precisely, it should have been impossible for us to fill from 3,000 miles away. *The position required experience with SINCGARS, AN/VRC-12, AN/GRA-39, PJH, EPLRS, AN/TYC-38/39,…* and on and on. About the only form of Army communication that wasn't called for was signal flags! I drafted the ad and cited prerequisites, including combat net radio, data distribution systems, and area communication systems. Some of the responses had experience in one of the areas. But Ernest not only claimed experience in all areas, he correctly listed specific systems in each of the areas which he had worked on. If nothing else, he talked the talk. I flew back east, on my way to Germany, and had just one hour to decide if he could walk the walk.

Everything that could go wrong during his interview did. It was pouring rain. He showed up four and one half-hours late. His Company-provided tickets were for the wrong airport out of Washington DC. His limousine driver had his name wrong. We finally did the interview over lunch, and though I couldn't put my finger on it, I knew Ernest was different. But then I already knew he was different when I read his letter in response to the ad. For one thing, it wasn't typed, and I almost discarded it out of hand. But the precise, exquisite and flawlessly executed calligraphy that graced the three page response caught my eye, which began in part *"I was very pleased to see your solicitation for a communications engineer, because that's what I am…"* Ernest was available and he accepted our offer. He came out to California after my return from Germany for a two-week indoctrination, before commencing his permanent assignment at Fort Monmouth. Certainly after Ernest took a full day to be hired in by The Company, I knew that nothing was going to be easy with him. At lunch that first day he confided that he wasn't sure that he could sign his employee agreement because of certain language regarding patents and intellectual property. During that brief fortnight he left a lasting impression on everyone he met. Ernest was a man of many colors. By his own words, he was one-third American Indian. Other bloodlines included the French aristocracy, Cajun, Welch, Dutch, Negro and Thai. So far as I know, no one has figured out the one-third Indian part, which dominated the others. He made it a point to personally apologize to everyone he saw drinking coffee, because of coffee's addictive and health-harming properties, after all, it was *his people* who introduced coffee to the Western World. He was an overly nice, considerate, polite and altogether weird man. He was in fact, the perfect revenge on the prime, who now had to tolerate his daily idiosyncrasies. From his cooking fish in their kitchenette in the late afternoon, to his disarming apologetic demeanor, Ernest marched to a different drummer. I don't know if we ever did get his *real* name straightened out. Somewhere between his response to our ad and his hire date, he decided to append his uncle's surname to his own, as a point of honor. That is what confused the limousine driver. It appears this was just an impulse and nothing ever legally formalized, because Herb had an absolute conniption fit trying to process his security clearance.

But I digress. The most blatantly incredible and exceptionally appropriate use of foo() that I'm aware of came about six years after the proliferation of *foom*. On yet another Army program we were tasked with taking an emerging system over to Europe and interfacing with its allied counterparts. The date had been set in concrete by the bureaucracy that determines such things, and usually without the cognizance of those who actually need to do something to make it happen. As it was explained to me, it was not so important that we *successfully* interface with our peer systems, only that we show up on time and make the effort. There is always time to make it work later. And so our developmental box departed for France with a stubbed interface driver named foo() that did nothing. And when it got there, and Duane hooked it up to each of the other allied systems, and would you believe it, it still did nothing. Imagine the surprise if it would have worked! And with as straight a face as could be mustered, Duane as the attending

engineer stroked his professorial goatee and pronounced in an authoritative and deliberately cadenced monotone, “It does not appear to work.” And this meeting was considered a success, not because things worked (which they didn’t) but because the four allied systems had been brought together at a time and place as planned, and the advocates enjoyed a week of Paris in the spring.

My most recent experience with foo() came on the NBC system it’s been my pleasure to be part of for the last seven years. And no matter what the advances that technology or computer science may have made during the course of my career, one theme rings true: Size *does matter.* From the early days on that first tactical computer when memory was literally measured in bytes, until today when Megabytes are tossed around a dozen at a time. I remember jumping through hoops just to free up that extra 20 bytes, from moving frequently used variables into the common section using single byte addressing, overloading variables that didn’t need to be co-resident, to cross-linking common portions of text. I’ve always said that any code, no matter who writes it, can be reduced in size by 30% if need be. Not that the result will be maintainable, or have any of the other attributes you’d like to see in code; but if size is what is important it can always be made smaller. The reverse of course is true as well. I recall a time that our prime contractor was beginning its SEI readiness makeover and decided to use size, specifically source lines of code, as its primary software metric. They realized that from their estimates that they would need to be more productive in order to meet their commitments. So they implemented a rewards program that gave the programmer who generated the most source lines of code each month a choice parking spot. This might not seem like much, but during the Kansas winter those extra steps could be quite a prize. The thing of it was, over the next eighteen months the same programmer won the prize every month except one (he was on vacation). The problem came during final integration when the system was being readied for delivery. The software didn’t fit in the machine. So the award was changed to reward the programmer who saved the most memory in program size. And wouldn’t you know; the same programmer continued to win. And all he had to do was remove all of those in-line sections of code and call them as procedures, which he should have done in the first place. Now programs typically have requirements for 50% spare memory. We were in violation of this for flash memory used to upload code to the main processor. We had been aware of the problem for a while, but it wasn’t until the last minute addition of several large pieces of code that it had become acute. And in the back of our minds we had always reasoned that when push came to shove we could always compress this code and expand it again when we needed to. Well, it had come to shove. So the task was given to Laura to implement the *unzip* part of the code. Laura was the sweetest Japanese lady who true to the software developer’s credo drank nothing but *Coke, no ice*. In fact, she so eschewed water you’d have thought it was caster oil. Laura once found out that you must be very careful about what you wish for because you just might get it. During her annual review, her supervisor had asked the very innocuous question “What are your goals?” Fumbling for something to say she blurted out “I’d like to learn C.”

As it happened, Carol, her supervisor, happened to be looking for someone to staff a three-month rapid development effort in, you guessed it, C. And it was that experience that landed her current assignment because we had the *unzip* routine source code in C, we just needed to transform it into Ada. When she came to me and asked where she could grab a large chunk of memory for her decompression tables, I asked her "How much do you need?" She replied "Oodles." And I asked "How many oodles?" And she said "Two." She wouldn't go along with my suggestion to name the routine foo(). Even though Herb and Bruce were now long departed. I thought *Flash Object Optimizer* or *Format Oodles* would convince her but she wouldn't hear of it.

I learned a long time ago, not to ask questions, if the answer might be what I didn't want to hear; as when I asked "What should I work on next?" It's the corollary to *be careful what you wish for.* And I know that we all recognize such questions when we hear them. So it was to no one's surprise during an all hands meeting that silence filled the room when Adrianna asked "Would people be getting their raises the same time this year?" Walt had been briefing employees on the successful acquisition of The Company by a lone takeover entrepreneur. Cash flow was of immediate concern. Overhead needed to be reduced. We would need to run lean and mean. And we all knew that we didn't want to witness what followed, as Walt cocked his head in a classic *Jack Benny* pose and responded, "That's a very *interesting* question!" The answer of course was *no.* It was prudent to hold salaries in check at this time.

On the allied integration, we eventually did replace foo() by some code that worked, culminating another of our many successes. And over the course of time we have scattered with the wind and gone our separate ways. The tight knit family grew up. The lucky ones retired. Some moved on to better things. And some hardy few hung on to the bitter end. The days of reflection are over. The half-day respite for the annual Family Christmas luncheon no more. The Summer Picnics and Open House a thing of the past. The *fill 'er up* gas days at our private pump are gone, though they got us through the OPEC crisis of '82. Gone too is the lunch time backgammon with Charlie, or kibitzing over chess with Ron. Bowling after work or Friday's Rib Day are only memories now. Softball and basketball are no longer part of the regimen. Where will Albert keep his basketball now? Oh how we were there for each other, like the time that Gail, Ron, Barbara, Judy and I consoled Zeke (and each other) on the day of the *Challenger* disaster, following the senseless death of his wife the week before. What the visit by Laura meant to me as I lay in the hospital bed with an ailing gall bladder. The California Room, where we enjoyed soup during morning break or lunch with friends, is just some foreign recollection. I already miss the conference room where the standing lunchtime bridge game convened, to peek in and see Zeke and Alan playing Gene and Mal, where I sometime played the fourth if they were short and Nate was not around. Remember the Executive Dining Room, or the events catered by Howard and his jumbo shrimp, when the spirits flowed freely. Wednesdays at *Fuddrucker's* was once a regular

happening, or dining at *Mr. K's*. No more *Goody Clubs* to sustain our unity and camaraderie. Remember the thrill of seeing The Company's name listed in the credits of *The Hunt for Red October.* Who can forget one of Gus's acerbic but poignant one-liner witticisms as he mercilessly drives home a point. What would he say now? *"If Paul Revere got the word out, the way they do around here about what's really happening, we'd all still be Colonists!"* My favorite of course was about plans to make-over the *Evil Empire's* many diverse acquisitions into one homogonous unit with common processes to create a *kinder gentler* workplace. *"You can put lipstick on a pig, but it's still a pig!"* You can argue that the writing was on the wall for some time. I remember lotteries as to who was going to be left to turn out the lights during the dark days of *Busy-2*. And you might think the esprit de corps wasn't what it used to be. Yet we were the ones who were the *shining example.* We earned the Army's *Award for Excellence*. We met our delivery dates. We celebrated the *MICAD Moments*, captured indelibly on the film of our minds for posterity. We delivered systems that worked. We persevered. And no one can take that from us. The Company, well it was raided by a corporate bandit, sold at a bargain basement price, merged, and divested, nearly moved, almost spun-off, not to mention assimilated, anorexicly right-sized, alienated from its customer base and eventually it just ceased to exist. In its final ten years it went from a relatively independent 2,500 employee self-sustaining organization to one with fewer than 50 on its payroll and definitely on its last legs. I worked for four different organizations, three of them in the Fortune 500, two of them giants in the aerospace industry, one the plunder of a greenmailing pirate's hostile takeover, and my office never changed… not a single time. Completely ravaged of its surplus cash reserves, absolved of its niche markets, raped of its proprietary technology, parceled out by bean counters, micro-managed to death; The Company was eventually abandoned. But you have to give Kathy credit for coming out in person and telling us face to face what we already knew; even if she came like a robber baron with her covert police escort squirreled away in the room next door to tell it to us straight. We told her our customers loved us; hell, *they* told her so themselves: did she doubt how much? I wonder if she blames us for her fall off the fast track that brought her so near the top? Just don't talk to me about shareholder equity and the bottom line when, as employees, we've watched our matching fund shares in this multi-billion dollar conglomerate drop 80% during the best year Wall Street has ever seen. And don't talk to me about not having what it takes to compete any more, when what it takes has been stripped from us in the name of that bottom line. And please don't talk to me about your wonderful plans for the business, our time, effort, and expertise pioneered. Steal a line from *The Godfather* if you must, "It's nothing personal. It's only business!" As if that makes it right. Murder, is murder, and this company was killed by greed. There was greed when the jailbird tycoon in Florida pocketed The Company's 401K matching funds; but only after Uncle Sam thwarted his attempt to plunder The Company's over-funded pension fund. There was greed when the dealmakers' juxtaposition of environmental liability left us holding the bag for someone else's mess. There was greed when the investment bankers

recommended against the $175 million sale of The Company to a buyer motivated to keep us in tact. There was still more greed as the suits in corporate boardrooms, with their eyes on the billion Dollar plus up in the Congressional Budget in our business arena, waffled behind closed doors. And as the final evidence of greed, the site closure reneges on the implied quid pro quo for the sacrifices of wage freezes, uncompensated overtime and vacation burning to bridge funding gaps. The common thread that held us all together, in their own words, was that *we* were The Company's most important assets. It was too bad for us that we believed them, and too bad for them that they didn't. Any number of paths or twists of fate could have sustained The Company, except the one pursued. Oh I'll take their golden handshake, and be glad for it. Just don't ask me to find joy in a solemn occasion such as this, as we ponder the déjà vu uncertainty of our *Availability Dates*. In this PC world they've even found a way to make *termination* sound palatable! But on the landscape of corporate America, we were just another enterprise that went *foom* in the night! Such is progress in the shakeup of the defense industry… and *much ado about foo!*

I guess I don't remember exactly when it was I first heard about the function foo()…

List of Acronyms

ATV	All Terrain Vehicle
BS	Bull S---
C	A programming language
C^3	Command, Control & Communications
Company	Librascope
CYA	Cover Your A--
DC	District of Columbia
DEC	Digital Equipment Corporation
DWA	Driving While Asian
EPLRS	Enhanced Position Locating Reporting System
FBI	Federal Bureau of Investigation
FUBAR	F----- Up Beyond All Recognition
GE	General Electric
HR	Human Resources
IR&D	Internal Research and Development
JTIDS	Joint Tactical Information Distribution System
LAX	Los Angeles International Airport
MHz	Megahertz
MICAD	Multipurpose Integrated Chemical Agent Alarm
MIT	Massachusetts Institute of Technology
NBC	Nuclear, Biological and Nuclear
OPEC	Oil Producing Exporting Countries
PC	Personal Computer or Politically Correct
PDP	Portable Digital Processor (DEC brand-name)
PJH	PLRS/JTIDS Hybrid
PLRS	Position Locating Reporting System
PM	Program Manager
ROTC	Reserve Officers' Training Corps
SCUD	Russian-made armored missile launcher
SDI	Star Wars Defense Initiative
SEI	Software Engineering Institute
SINCGARS	Single Channel Ground and Airborne Radio System
SNAFU	Situation Normal, All F----- Up
SOB	Son of a B----
TV	Television
UCLA	University of California at Los Angeles
VP	Vice President
WWII	World War Two
Y2K	Year 2000 (Millennium Bug)

LIBRASCOPE
(1937 – 2000)

R. I. P.

1937 – Librascope founded by Lewis W. Imm

1939 – Librascope Corp. Incorporated

1941 – Librascope Corp. Acquired by General Precision Equipment Corp.

1968 – Librascope Corp. & General Precision Equipment Corp. Acquired by The Singer Company

1990 – Librascope & The Singer Company Acquired by Paul Bilzerian in Hostile Takeover

1992 – Librascope Corp. Acquired by Loral

1996 – Librascope Corp. & Loral Merged with Lockheed Martin Corp.

2000 – Librascope Corp. Moved and Assimilated into Lockheed Martin - Manassass