

Nerd Story



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*Nerd Sex and Other Tales
from the Great Computer Revolution*

Bill Gervasi

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Foreword

It was pretty obvious from a very early age that I would end up working in electronics. My father was a hands-on kind of guy. He worked on nuclear submarines and air conditioning systems, and he built barns and decks. I worked alongside him growing up, but never really had the aptitude for those things. I had two left hands and ten thumbs.

However electronics always fascinated me. By the time I was 9 or 10, I discovered that I could improve radio reception in our small mountaintop home by creating my own antenna extensions. At 12, I dismantled an old Operation game and wired metal contacts to my bedroom door to turn it into an alarm. At 13 I wallpapered my entire bedroom in aluminum foil and discovered that I could use the foil as wiring for a remote control to a reel to reel tape deck to blast music in my bedroom.

I don't even remember where I learned of PolyPaks, but most likely it was an ad in the comic books I read. PolyPaks was a by-mail distributor of the most wonderful electronic junk you can imagine. Light emitting diodes, seven segment displays, resistors, capacitors, and of course, the new world of integrated circuits lit not just my fantasy of building incredible gadgets, eventually they lit my room as well as I took my small allowance and sent it to PolyPaks.

The books on building electronic circuits, like the alpha brain wave monitor, made me wonder why these circuits did what they did, but while the books were long on the how, they were short on the why. When I ordered a bag of random crap from PolyPaks, I decided to write letters to the manufacturers of the integrated circuits in the bag asking what these parts did. As a result of those letters, by age 16 I had a full shelf of data books from the big electronic companies of the day: National Semiconductor, Signetics, Fairchild, and others. Before long, I dreamed of working for one of these guys and designing the next generation of wonders.

If I had visited a psychic back then, and if she had gazed into her crystal ball and accurately predicted how my career would go, I would not have been surprised at all. I would have just nodded and smiled, and said “Makes sense to me.”

The 1970s



1970: Bellbottom jeans, Jimi Hendrix dies

1971: The Intel 4004 Microprocessor debuts

1974: Dungeons and Dragons released in pamphlet form

1977: Apple II Computer and Atari 2600

1977: Saturday Night Fever and polyester shirts

1979: The Intel 8088 debuts; will be used in the IBM PC

Five Minute Interview

Some are born nerds, some achieve nerdness, and others have nerdness thrust upon them. I interviewed for the position.

I had naively focused so intently on trying to get into National Semiconductor using some contacts I had there that I was still flipping pizzas for a job the summer after getting out of college. With my older brother's help, I signed up with a temporary job shop, and soon got a call to interview with a firm I had never heard of. I showed up for an interview with the lead supervisor in the manufacturing group who tested my knowledge of electronic circuits. He handed me a schematic for a circuit he had received from that company's Engineering department and asked me how I would design a test for that circuit.

I began on the left edge of the 11x17" page of the schematic and began describing the test patterns I would use to force each gate into a specific test state, however when I got to the middle of the page I stopped. I looked up quizzically at the supervisor, wondering if this was a trick test question. "Do you know that you have these two output circuits overdriving each other? This circuit will fail."

The supervisor placed a call to Engineering, and in seconds the designer of the board was in the office looking at the circuit and muttering something about writing an engineering change notice to

fix the problem. As the engineer left the supervisor's office, the supervisor looked at me and asked when I could start.

The next morning I started working at Intel, where I spent 17 of the first 19 years of my career.

Tech is a Passing Fad

The day of my interview at Intel, I called my boss at the pizza parlor to quit. He was quite upset and he tried to talk me out of leaving. “People will always need to eat,” he told me, “This electronics thing is a passing fad.” Considering how the price of computers has dropped while the price of pizza has climbed, he might have been right.

Think There Will Ever Be a Home Computer?

Don't you love it when some "expert" makes a prediction that turns out to be completely and utterly wrong? Edison predicting that the phonograph record would have no commercial value comes to mind. The president of a bank calling the automobile a "fad" does too. The computer industry has its own collection of such blindness, including Les Vadasz, who in the 1970s was General Manager of the Intel Systems Division.

My buddies and I had discovered a warehouse full of scrap parts and had convinced Intel to sell us that material at scrapper's rates, which were about \$5 per board. A number of us had repaired this material, and in the 1970s we had built home computers, long before the 1981 introduction of the IBM PC. There was no internet, not even bulletin boards at that time, but we wrote and shared games and we designed flashing light gadgets and music synthesizers and other nerd toys.

We weren't the only ones experimenting with these ideas. There were hobbyist shops popping up here and there with similar gadgets... Altair, IMSAI, the Commodore ("Commode Odor") Pet and Radio Shack's famous TRS80 ("Trash 80") were some of the flavors of the day.

At a quarterly gathering of the tribes in the Systems Group, Les Vadasz had finished giving us his update of the business environment... if I recall, we were celebrating our first \$13M quarter... and he started to take questions from the floor. One of

my hobbyist friends in the crowd raised his hand, and when called on he asked Les, “What do you think of the home computer market and that start-up company, Apple?”

Les’ response was “There is no home computer market and there never will be. End of story. Next question?”

Aren’t you glad he was so completely wrong? Les apparently overcame his misperception since he was the Senior VP of Business Development when he retired years later. I think he still fears bumping into me since he knows I will remind him of what he said in 1978.

Five Little Indians

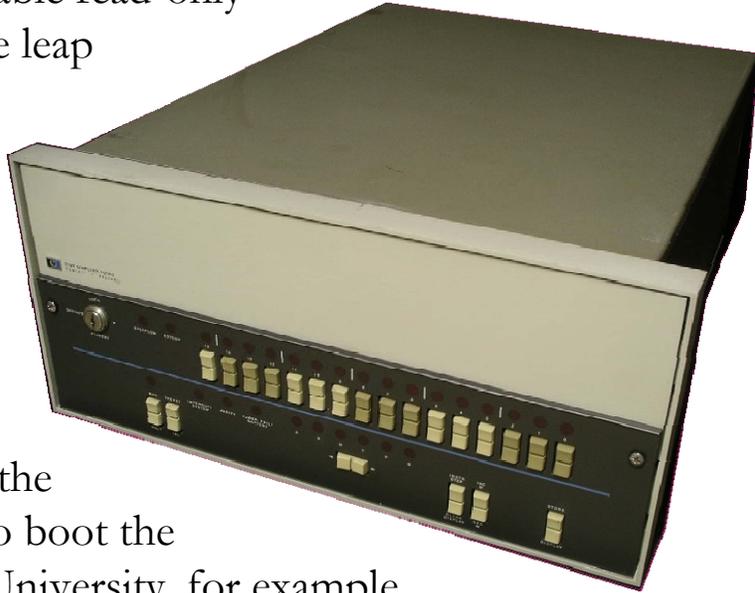
The erasable programmable read-only memory chip was a huge leap forward for computers.

Prior to the invention of the EPROM, when a computer was powered on, it just sat there waiting for instructions to execute

because the memory of the computer was blank. To boot the

HP2100 at Santa Clara University, for example,

there was a array of 16 toggle switches on the front of the computer, each representing a “0” or a “1” for a single word of computer memory. To bootstrap the computer, you manually entered its first instructions by flipping all 16 toggle switches to some value, pressing a “*LOAD INSTRUCTION*” button, then the “*NEXT*” button, then flipping the toggle switches again. This process was repeated for the first 36 instructions of memory, at which point the computer could take over and run on its own.



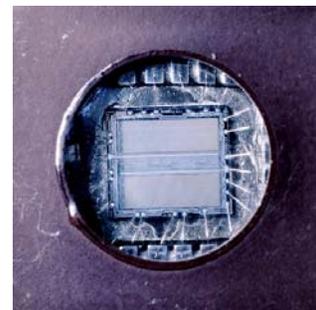
However, once the EPROM was invented, bootstrapping a computer became quite simple. You could pre-program the initial instructions into a read-only chip which, when the computer first powered on, were read automatically to start the computer running. The Intel 1702 EPROM held 256 bytes of information, which allowed computer engineers to get a taste for the possibilities, and

naturally their hunger for more and more capacity in these EPROMS carries on to this day. Using 1702s, a typical MP3 song today would require 20,000 chips, or an iPod approximately six feet by six feet for a single song.



[Editor's note: since the Windows built-in calculator is mostly useless, I did the rough calculations for this using a Commodore P50 calculator with an 8 digit 7-segment LED display that I purchased in 1979 for \$14 and that still works perfectly to this day.]

Intel aggressively developed the EPROM family, and each new generation of chip doubled the capacity of the previous generation in roughly 18 months following what was to be known as Moore's Law. By the late 1970s, the first 2732 chips were about to be produced, and the industry anxiously waited for their massive 4096 bytes of data capacity (so I suppose your single-song iPod could now be only 2 feet on a side). These chips could only be erased by a 15 minute blast of ultraviolet light, so each chip was packaged with a clear quartz lid, and we would put these chips under a UV light to clear the contents for later reprogramming.



I wrote the manufacturing test program for the programming board for the 2732 chips before the chips were even available, and was ready to rumble when word came that the first run of 2732s

was done. Unfortunately, yields were not so good; only 5 working chips came out of the first batch. However, these five chips would be sufficient for us to check them out.

Bart was the designer of the programming board, and he came down from Engineering carefully cradling the five working 2732 chips on a sheet of anti-static foam. He plugged the programming board into a Universal PROM Programmer base and turned it on. Reading my test procedures, he used a small screwdriver to carefully adjust the programming voltage down to the 1/1000th of a volt accuracy of the lab meter, then rechecked it carefully twice to make sure it was set exactly right. I was almost annoyed at how Bart took perhaps five minutes for an adjustment that normally only took about twenty seconds, but I respected his meticulousness and kept quiet. He took one of the 2732s off the foam sheet and carefully placed it into the zero insertion force socket on the front of the Universal PROM Programmer base. He flipped the lever arm of the socket to hold the chip in place and engage all of the electrical contacts. He pressed the ENTER key on the keyboard to start the programming cycle.

And Bart ignored me as I said, rather loudly, “Bart, stop!” but of course it was too late anyhow. I had noticed that Bart had plugged the chip upside down in the socket, applying power to ground, ground to power, and now with the programming cycle initiated, 27 volts to some random input pin on a chip designed to withstand 5 volts. The look on Bart’s face was worth the price of admission as this otherwise emotionless nerd realized what he had done.

Because of the transparent quartz lid on the 2732, we learned an interesting lesson that day, which is that an EPROM plugged in upside down becomes a huge light emitting diode, and we had the biggest brightest LED ever built in front of our faces right then. Until it melted down, that is.

And then there were four 2732s in the world.

Did Games Kick Start the Computer Revolution?

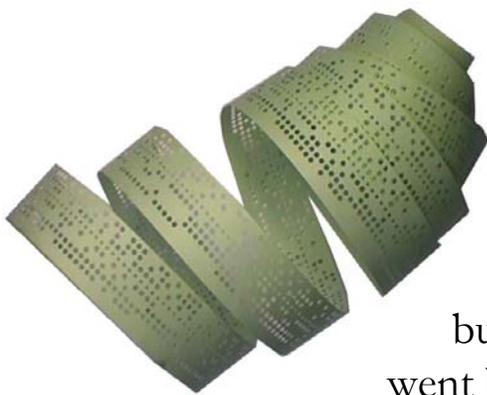
Telling a story about the evolution of the personal computer industry without talking about games would be like describing the body without discussing the mind. If it were not for the lure of fantasy, I am very sure that engineers would not have put in the long hours and single minded dedication to make the personal computer happen. Programming spreadsheets may sound like fun to bean counters, but to an engineer, if it doesn't blow anything up, it's a waste of time and energy.

In the movie "Big", Tom Hanks' character as a child can't see the obvious solution to defeating the ice beast in a role playing computer game. As an adult, the solution to this gaming puzzle becomes obvious, and this serves as a metaphor for the process of growing up. What most people miss is that even as an adult, a man still has a kid inside him who loves playing games.

My kids figured that out and make sure that my PSP and my XBOX360 are constantly stocked with some good games. I love birthdays and Christmas.

Star Trek on Paper Tape

My buddies and I would sneak into the Santa Clara University when we were back in college even though we went to another school across town. We were drawn to the magical HP 2100 computer with its wild array of toggle switches to boot it, the punched card reader to feed programs into it, and the most amazing thing of all, a CRT monitor which you could play a Star Trek game. We would sneak into the computer center around midnight and play until 4 or 5 in the morning, completely enthralled.



Once I started working at Intel, obviously one of the first challenges was to get that Star Trek game running on the Intel development systems. We had no punched card readers at Intel, so that option was out, but we did have a paper tape reader. I went back to Santa Clara University, printed out the BASIC code for Star Trek onto a massive spool of paper tape, then brought it back to Intel to read into the computer.

It took a few minutes for the large spool to pass through the reader, and since the Intel reader was designed for a folded tape instead of a spool, the portion already read spilled out onto the floor in a tangled mess. We knew that this might be a one-time attempt. Holding our breath, we saved whatever data that the paper tape reader had taken in to a floppy disk, loaded the BASIC interpreter,

and loaded the file we had saved. We typed the RUN command to start the program...

...and the program signed on... STAR TREK 1.0. We cheered loudly, and the manufacturing manager looked sharply over at us to see what we were working on (since it obviously wasn't a test program, which is what we were supposed to be writing.)

Fee Fie Foe Foo

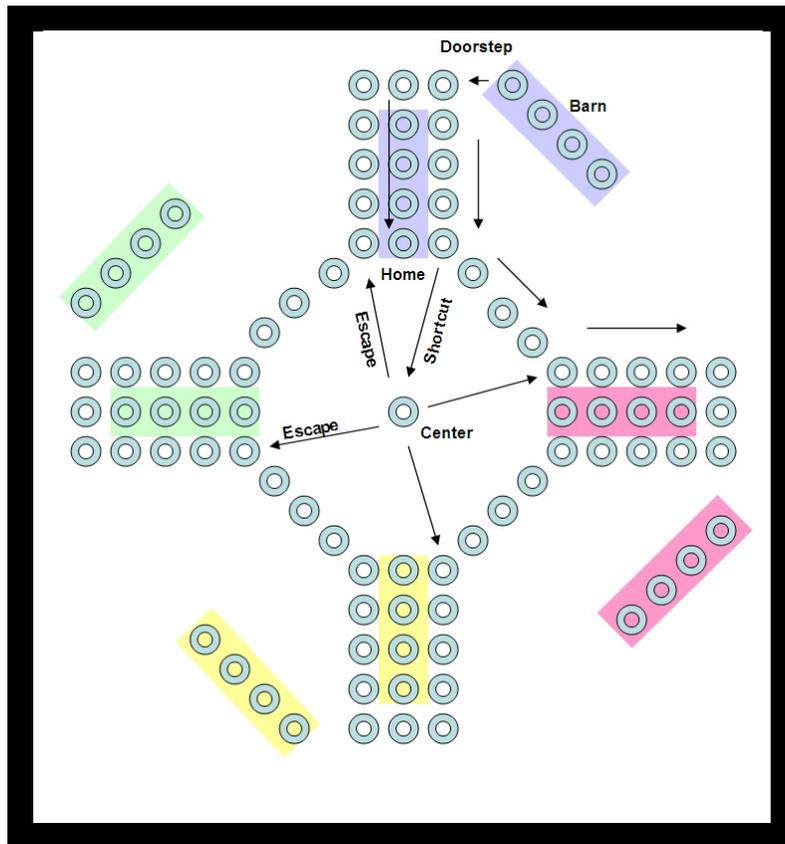
Naturally, we weren't the only nerds working on computer games, and the community of guys who loved these silly programs was tightly knit. We would drive all over the Silicon Valley for the chance to play something new, and Stanford University was pretty close to nirvana for the local addicts. They had a massive new game called Adventure, with twisty little passages and treasure to find and secrets that were impossible to decode without cheating (spoiler alert: why in the world would FEE FIE FOE FOO be the secret code needed to complete the game?). To a generation of young men who had just discovered the fantasy world of Dungeons and Dragons, the Adventure game was the closest thing we had seen to a computerized D&D world, complete with dwarves and magic.

Adventure was written in a programming language called FORTRAN, and we had to wait a while before we had a FORTRAN compiler running on Intel computers. However, there is nothing like the lure of a game to motivate people, and FORTRAN was soon running. Adventure turned out to be a great test for FORTRAN compilers, having an absolutely huge source file that overflowed and crashed the early releases of the FORTRAN compiler. Intel fixed the FORTRAN compiler problems, and within a short time, Adventure was also running on the Intel computers, and compiling Adventure was added as one of the test programs for the Intel FORTRAN compiler.

Kill

The most difficult thing for engineers to do is to follow rules, so logically the most natural thing for engineers to do when they play a game is to rewrite the rules. When Jonathan from the Manufacturing group mentioned how his family loved to play Aggravation, and he brought in an Aggravation board in as a gift to the Test Engineering group, the stage was set for us to develop the game of Kill.

Aggravation is a relatively slow paced game played by typically polite people who almost feel badly when they send another player's marble back to the beginning. Kill evolved into a game of aggression where the purpose of the game was the annihilation of opponents' marbles, and eventually we included the evil ability to put a player permanently out of the game. In fact, it was not uncommon that the physical striking of one marble by another sent that marble flying across the Intel cafeteria with the losing player scrambling to get it before it rolled under the vending machines.



Kill Rules:

- Each player gets 4 marbles to start the game, and two dice. The marbles are placed in his Barn.
- All players roll and the highest roller goes first as the initial Current Player.
- Current Player rolls again. On a 1 or a 6, the Current Player may take a marble out of his Barn and move it to his Doorstep.
- Marbles move clockwise around the playing board until they get Home.
- The game ends when any player gets all four marbles Home.
- Once a marble is in any of the Home spots, it is safe and cannot be sent back to the Barn, nor can it leave Home.

The 1970s

- Once a Current Player completes moves for a roll, if he rolled a 1 or a 6 on either die then he re-rolls that die (or both if both dice were 1 or 6) and continues until he stops rolling 1s or 6s.
- Current Play passes clockwise to the next player.
- When both dice are rolled, one marble may use the count on one die and another marble uses the count on the other die, or one marble may use the count on both dice as two valid moves; in other words, the first move and second move must both land on an available spot (either empty or occupied by an opponent's marble).
- Roll of 1 or 6 can be used to move a marble out of the Barn or may be used to move any marble in play that many spots.
- A player's marble may not pass his own marbles, but may pass another player's marbles.
- If no move is possible, for example because another marble blocks forward movement, the player's marble does not move at all.
- Even if no move is made, 1s and 6s are still rerolled; a player does not forfeit his turn by being unable to move.
- A player is not required to move past his own Home, but may do so in order to make a strategic move such as a Kill.
- If a move lands by exact count on another player's marble, the other player's marble is sent back to that player's Barn.
- The special spot in the middle of the board is a shortcut. To enter that spot, your marble must be moving towards the center of the board (as from the direction of any of the doorsteps) and land on the center spot by exact count. However, to leave the center spot, the player must roll a 1. Exiting the center spot can be to any escape spot (as in the direction of any Home). Most commonly, escape towards a player's own Home is taken, however players may choose to escape in other directions for strategic plays such as a Kill. Sitting on the middle spot is called "Target Practice".

- Special Assassination rule: if the Current Player has a marble on another player's Doorstep, and the other player has one or more marbles in the Barn, then the Current Player rolls two dice and gets 1-1 (a 1 on each die), the Current Player may enter the other player's Barn, assassinate one of that player's marbles permanently out for the remainder of this game, then return back out to the other player's Doorstep.

The rules of the game and the playing of the game are never quite the same thing. While it is hard to capture attitude, the name Kill gets the point across. The game was most fun when played with a wild bunch of people with killer instincts. When a player rolled just the right combination of dice to kill two of the opponents' marbles, we decided that there was a Kill God blessing him. When that roll included 1s or 6s that allowed the killer to escape and plant his attacking marble in Home, we knew that the Kill God was rewarding him.

The assassination rule, added over a year after we made up the basic rules, was especially fun because once a player had a marble assassinated, he obviously could never win. Therefore, that player would spend the rest of the game using his remaining marbles to run around the board screwing up the remaining players.



When attitude is a part of the game, it is interesting to observe how people's personalities and traits exhibit themselves during

the play of the game. People with reserved personalities tend to play conservatively while Type A people tend to be aggressive and a bit unpredictable. However, we were surprised to see how playing Kill over long periods of time changed how people acted.

Warren Peace was a pretty mild, polite, and quiet engineer. A bit like a teddy bear, his sandy hair clipped short in a time when shoulder length hair was typical, short sleeved gingham shirts every day with, I swear to god, a pocket protector, Warren was the epitome of the expression “nice guy”. That is, until he got to the Kill board, when his inner animal would surface. Warren would half stand to shake his dice, his arms wildly flailing out to the sides, finally flinging the dice up against the wooden backstop of the game board. I still have a scar over one eye where Warren’s thumbnail found contact, and yes, the Kill God rewarded him with winning the game after drawing my blood.

We also learned that a player’s habits could affect the other players. Katie was a beautiful young lady with huge boobs and no bra, and when she would shake her dice, every man’s neck got sore.

We did have to establish some limits, though. We played the game with colored marbles, a unique color for each player of course, and one day a guy brought metal ball bearings to work as his “marbles”. After the second real marble was pulverized into dust, ball bearings became outlawed.

The Ancient Game of Go

Go is an ancient board game, originating in China over 2500 years ago. The complexity of Go is truly daunting, essentially like playing four games of Chess simultaneously where the outcomes of each of the 4 games affects a fifth game where the Chess boards meet. I had the lucky fortune to work with Han, the Korean National Champion who had moved to the US and taken a job at Intel. Han was an amazing teacher even though his English was fairly limited. Rather than playing against his students, he would have us play against each other and he would give advice along the way.



Han seemed to have a photographic memory, and once we got good enough to play an entire game without his step by step help, Han would have us play a game to completion. He would then wipe the board clean, and replay the entire game from memory, stopping at critical points to show us where we had made mistakes.

This would not have been such a bad thing except for one little habit that Han had. I remember how I would be staring at the board, contemplating the next 10 moves or so that would result from each of my potential plays, then finally selecting one, I would make my move. And Han would giggle, and I would realize that I had done something really dumb.

You know the old joke about the golfer who asks a much better golfer to even the game by allowing him to goose the better golfer twice during the game? He gooses the better player once early in the game, but never takes advantage of the second goose. Naturally, the lesser player wins because the better golfer's nerves are shot wondering when the second goose will come.

Playing a game with Han watching was exactly like that. If I was at a point in the game where there seemed to be a number of possible moves that seemed relatively equally of value, I would wonder if when I placed my stone that I would hear that dreaded giggle. Naturally, when Han replayed the game from memory, the giggles would indicate the areas where we would spend time getting a lecture on why we had chosen the wrong move.

Demoralizing? Nerve wracking? Yes, but it sure was a great way to learn how to play well.

Bowling for Fun and Profit



News of my sports prowess spread around so I was not too surprised when one afternoon I was approached by the company bowling team. Apparently, one of the team members was sick and they needed a fill-in for him. I had nothing going on that night, so I readily agreed to join them.

I arrived at the local bowling alley and rented the sexiest clown shoes I have ever worn. I selected a slightly heavier than mid-weight ball and headed to the alleys. They gave me a couple of practice runs on my own before the game started.

I was hot. I have no idea how I did it, but flinging that ball with all of the skill of Gallagher smashing watermelons with a sledge hammer, I somehow managed to score 180 points in my first game.

The team was ecstatic, and they immediately started talking about how I needed to join the team. They immediately took me aside and gave me more intense lessons and tips. “Here’s how you give

a spin to the ball” and “When you have a split, here’s how you want to angle the ball” and so forth. Beaming with pride from my first score, and now armed with the hidden bowling brotherhood secrets how to get even better, I took my place in the lineup for the second game.

And I bowled a 63. They never invited me back.

Ever Needed a Commercial Break?

Long before Word, before Word Perfect, even before graphical interfaces made it onto desktop computers, we used command line interfaces for all our editing needs. It was not unlike using tin cans and string to communicate. Memorizing arcane and sometimes barely mnemonic commands was required. Imagine those days when changing the word “new” to “newfangled” in a document required using the following command sequence:

```
* B3T
```

```
This is a new document that will change the way  
the world thinks about computers.  If only we could  
use those new "cursor keys" on our keyboards.
```

```
* 3L
```

```
* 3W
```

```
* Cwnew!newfangled!!
```

```
* B3T
```

```
This is a new document that will change the way  
the world thinks about computers.  If only we could  
use those newfangled "cursor keys" on our keyboards.
```

My buddies were thrilled when I wrote a set of “macros” that encapsulated all of these arcane commands into a simpler set of single keystroke functions, and best of all, used two new functions built into our computer monitors, CLEAR SCREEN and CLEAR LINE, to turn these functions into a rudimentary full screen WYSIWYG (what you see is what you get) editor. The head of our

department assigned me to the role of establishing and maintaining an official set of editor macros for our department, and making sure that every computer in the department, including the labs, had the latest set.

However, putting too much power into the hands of a kid with an impish streak about a mile wide has its dangers, including that I might choose someday to slip in a gag. At work one long weekend on a project, I needed a break and a cold beer sounded really good, but I was at the office and that was not an option. However, the desire for that beer gave me an idea for a gag based on the editor macros. I invented a way to track the typing of the person using the editor to drive a randomizer, and when the right numbers lined up inside my macro set, I would decide it was time for a break.

I created a floppy disk with the gag macro set and left it on one of the computers in the lab, and waited patiently. It wasn't until the following Wednesday that my random event finally hit. I knew immediately when it happened, too, because I heard this uproarious laughing from the lab, then a voice shouting out "Bill, make it happen again!"

I ran out to the lab where everyone was crowded around the screen of the lab computer, anxiously waiting for me. They cleared a path for me and I sat in the lab chair and started to pound the keyboard. Obviously, since I wrote the gag, I knew at least one key sequence that would trigger the randomizer. My friends watched in fascination as I pressed HOME, then PAGE DOWN, then the

LEFT ARROW key three times... And the screen cleared. Slowly, displaying one line every few seconds, the computer ran an ad:

```
Mothers of America
When your son comes home and says:
"Mull a frkka snkka"
He has cottonmouth
Just hand him a Mickey's Big Mouth Malt Liquor
That'll shut the little fucker up
We now return to your regularly scheduled program
"Editor Macros Meet Godzilla"
```

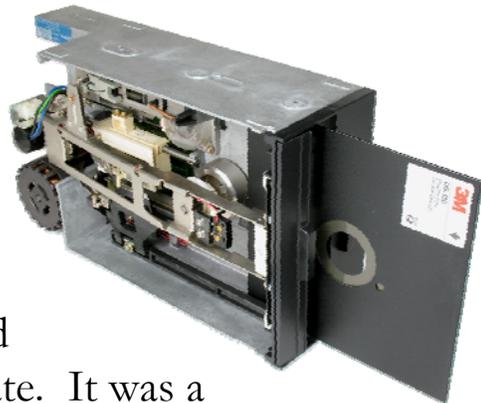
The message stayed on screen for a few more seconds, then cleared the screen again, restored the document that the engineer was working on, and executed the LEFT ARROW function requested, resuming normal operation.

Funny how our perceptions of things change with time. Today, people hate pop-ups on their web browsers, and even Microsoft's "Clippy" helper program is pretty universally despised. However, when I created the first pop-up ad, people cheered and begged for more.

The Magical Mystery Disk Duplicator

We were a funny looking bunch back in the 1970s, with our long hair, torn jeans, and polyester shirts (I have to admit I still kind of love the idea of “wash and wear”... is there a man on the planet who loves ironing?) However, Weird Danny was years fashion forward with purple streaks in his bleached blonde hair, wearing sunglasses indoors, and one pierced ear. He was so hyper that he made coffee nervous, and when he spoke, your ears had to work in overdrive to keep up with his turbocharged excitement over the minutiae of computer systems design.

At that time, the state of the art for floppy disk duplication was crude in the extreme: you would put a master floppy in one drive, and a blank in a second drive. You'd format the blank, then copy all files from the master to the blank disk. Finally, you'd compare the master disk to the duplicate. It was a process that took about a minute for each 128 kilobyte disk.



Weird Danny had the vision to see that this was a manufacturing process ripe for improvement (despite being half blind from playing with lasers in his home). He reverse engineered the floppy disk controller to understand how this microcoded beast worked. He profiled the performance of floppy disk drives and the access between the controller and the host system memory. Finally, Weird Danny hand coded a new microcode for the floppy

controller that somehow synchronized the spinning of the floppy disk to the timing of system memory, scrambled the contents into memory, then descrambled the contents on the way back out so that the resulting disk was identical to the master. Still not content, he designed this system to accept six such modified controllers with two disk drives on each. The resulting brilliant system reduced floppy disk duplication time to 20 seconds... for 12 simultaneous copies... a 3400% improvement in manufacturing throughput!

The manufacturing group was ecstatic. The new duplication system went online immediately, and the Test Engineering Group received an award from Manufacturing for excellence in support. Everyone was happy. For a while.

Shortly after the release of the magic disk duplicator into manufacturing we found out how Weird Danny managed to work those long hours on his invention when he was arrested in the Intel parking lot, trading stolen chips for cocaine. Weird Danny became Weird Inmate Danny at the county hoosegow.

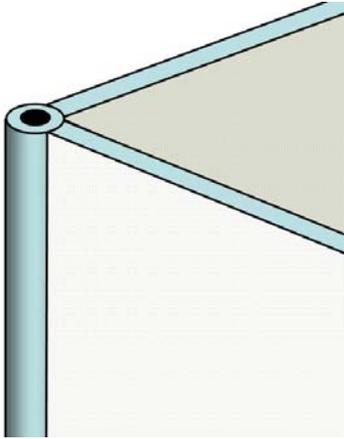
However, life goes on and we all went about our business. That is, until about three months after Weird Danny's arrest when the magic disk duplicator stopped working. Three of us engineers were taken immediately off our other jobs and assigned to repair Weird Danny's invention. We took the contents of his old work cubicle apart, looking for any notes, diagrams, sketches... anything resembling documentation of his design. We printed out the contents of his work disks, looking for some clue as to how it

worked. We spent hours in a conference room permanently assigned to us to talk about what we had found, and to debate endlessly the meaning of a bizarre hieroglyph that Weird Danny had drawn of a round floppy disk image with numbers scattered seemingly randomly in what appeared graphically to represent the data sectors on the disk. Naturally, the source code for his hand coded bit slice microcode for the controller did not have a single comment in the source file.

A month later, with manufacturing back to copying floppies at the dizzying rate of one minute per disk, we gave up, embarrassed to admit that Weird Danny had done something that none of the rest of us could reverse engineer.

If you had been a fly on the wall of that reserved conference room during that month, once the burning in your ears subsided from the ceaseless stream of obscenities, you would have laughed at the number of times we debated breaking into the county jail to get Weird Danny out to help us fix that damned thing.

Offices Versus Cubicles



Offices are great, though cubicles also have a certain charm. Offices help you concentrate on your work without background noise bothering you, but cubicles encourage communications and sharing. Both have pluses and minuses, and having worked in both environments, I honestly could not pick a favorite.

At Intel we had a cubicle environment, and our department archives coordinator was a sweet lady named Melody. She was not a loud person in conversation and pretty normal in almost every way, except her laugh. Some people have giggling laughs, some sound like they are choking, but Melody's laugh could only be described as a "bray". Yes, like a frightened donkey, loud and piercing, it would travel across acres of cubicleland. Naturally, hearing Melody's bray, the rest of us could not help but laugh, which of course would make Melody laugh even harder, which made us laugh harder, and so forth ad infinitum until our stomachs all hurt and we would have to run off to our cubicles to catch our collective breaths.

Perhaps I would have to vote for a closed office environment after all.

The Quiet One Speaks Up

Another interesting character in the same department was Joanne. Tall, pretty, blonde, Joanne was one of those people who make your head swivel as she walks by. However, it was difficult to get to know Joanne personally, even though we worked with her daily. She seemed to have a high wall sheltering her soul from everyone else, which we thought was weird since everyone else in the group was a part of the “gang”. We didn’t even know that she was dating Randy, also in our department, until the two of them invited us to their house.

When we were all gathered, Randy poured champagne for all and announced that he and Joanne had gotten married a month earlier. We cheered and toasted them, and settled in for a great party. After a few drinks, Joanne finally started to open up, and the story she told us stays with me to this day.

Joanne was adopted, and for years she had been trying to find her birth mother without success. When she joined Intel and met Randy, he had started helping her in her search, and somehow had generated a list of 25 phone numbers of potential candidates. They had nearly exhausted the list without luck when one call struck pay dirt. Randy had made the call and when the woman answered the phone, Randy asked her, “By any chance did you have a baby daughter on April 11th, 1957?” By the long silence on the phone, Randy knew this was the one and he nudged Joanne. “No one knows about that,” the voice on the other end of the phone whispered, “Who is this?”

“My name is Randy,” he said, “And I married your daughter last weekend. She is sitting next to me and she would like to talk to you.” He handed the phone to Joanne. “Hello? Hello?” was all that the woman on the phone could say, but Joanne was crying too hard to answer her. Randy took the phone away from Joanne and got the woman’s address. It turned out she lived a little over an hour away, and agreed to meet them in person. Since that day, Joanne had spent every weekend with her birth mother, forming a bond broken more than 20 years before.

Joanne finally opened up to us and from then on became a part of the gang, and I was never again critical of the private lives of people at work who don’t open up as easily as the rest.

Great Inspirations

Where do the nerds in the computer industry come up with these wonderful ideas? You'd think these ideas come up in Board Rooms, with guys in suits examining market projection charts and user satisfaction surveys. Perhaps you imagine armies of researchers, maybe wearing lab coats and carrying tablets of paper and having serious, scowling looks on their faces.

Wrong.

One day, Jeff brought in some snacks for the Test Engineering crew. He said they were "Zucchini Cupcakes" and he suggested we only eat one "so that there would be enough for everyone". They were so tasty, and when I saw that everyone who wanted one had theirs, I took a second one, too.

I went back to my desk and started working on my project, when I got a brilliant insight into a new way to route the wiring of my new design to minimize the clutter of the cabling. All I had to do was to re-drill the opening for... hey, wow, look at how pretty the screen looks if I scroll up and down at maximum speed! Oh, and if I press Page Up and Page Down really fast it looks like an animation! Woo hoo!

Yes, of course calling the cupcakes "zucchini" explained the green color, but obviously I was having my first high from eating pot. The funny thing was that it snuck up on you and you didn't realize you were getting high until your mind wandered off on a tangent

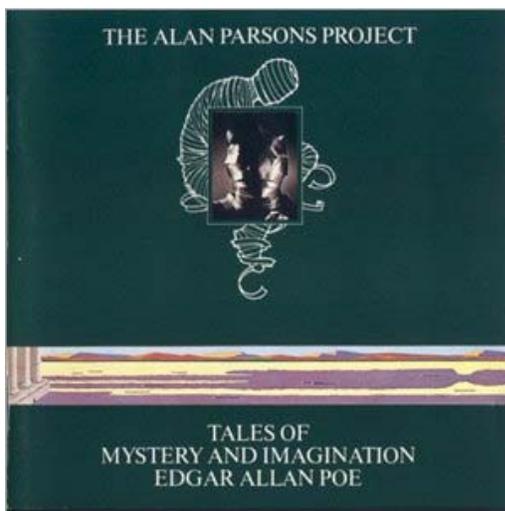
and you had trouble reeling it back in. I discovered that I had been staring at my scrolling screen for over an hour and not gotten a damned thing done except that one vision for how to adjust the cable routing for my design. Oh, well, at least I got that one thing accomplished, though the rest of the day was a total waste.

Zucchini Cupcakes explain a lot of things, like why wireless cell phone headsets are called “Bluetooth” or why you click START to shut your computer down.

Fall of the House of Usher

The 70s were a decade of inspiration, often a by-product of organic chemistry. All that inspiration meant to us at the time that there was a perceived need to empty the brain now and then to make room for more brilliance. Once, after a 16 hour day working on the design for my peripheral simulator, I arrived at my apartment complex ready to collapse, but my next door neighbor, hearing my apartment's screen door squeal like a pig, stuck his head out his door and he asked what had me coming home so late. I told him I had been working on a design project all day and was burned out.

He told me to wait, disappeared in his place, returning moments later with a fat doobie. "This will help you relax," he explained, and he lit it up and took a long drag before handing it to me. I toked, but after taking only a single hit from this joint, I realized that I was in for a wild ride and immediately handed it back to him to finish. That was the night I learned that my neighbor liked his pot laced.



Within minutes, floating on a chemically induced cloud, I put a brand new record album on my stereo ... Alan Parson's Project's Tales of Mystery and Imagination by Edgar Allan Poe. I cranked it up painfully loud, stripped off all my clothing and lay on the apartment floor watching the Statue of Liberty

dance from speaker to speaker. It was a pleasant little dance, and I could swear that the Statue was smiling too. Part way into the second side of the album, I was brought down from my pleasant high by a sudden hammering on the door... POUND. POUND POUND. POUND POUND POUND POUND.

Freaking out, it occurred to me that one of my neighbors must have called the cops because I had the music cranked up so loudly. I ran into the room where the stereo controls were (I had to keep the stereo in a separate room from the speakers because at the volumes I liked to play my music, the sound pressure would make the vinyl jump up and down and cause skipping). I turned the music down then ran back to open the front door.

I stopped. I realized I was naked, and answering the door to talk to cops naked seemed like a bad idea. I ran back into my bedroom and threw on some pants and a shirt. I ran back to the front door.

I stopped. I realized there was an ounce of pot on the kitchen table and that answering the door to talk to cops with an ounce of pot on the table seemed like a bad idea. I ran into the kitchen and hid the baggie behind the refrigerator. I ran back to the front door.

Finally, I opened the door and looked out. There was no one there. Confused (and exceptionally stoned) I stepped out and looked around the apartment courtyard. No one there. I wandered out to the parking lot, expecting to see the cop car, but it was empty except for the normal collection of tenants' cars. My poor fried brain could not process what was going on and I eventually went

back into my apartment to listen to the rest of the album (at low volume).

For nearly two weeks I wondered what had happened that night, and who had pounded on my door. The answer came to me the second time I listened to that album by the Alan Parson's Project. One song on that album is titled The Fall of the House of Usher, and as part of the story, a woman who has been buried alive pounds on the lid of her coffin... POUND. POUND POUND. POUND POUND POUND POUND.

No, I no longer smoke pot. I get plenty of inspiration from real life now. Minus the paranoia.

Jesus Shaves

Dicklehed was a different kind of engineer, mostly a throwback to the 1960s hippie lifestyle. He had long hair down to the middle of his back, and a long beard down to the middle of his chest. When he dressed as Jesus on Halloween, crowds followed him around asking to be blessed or cured, or to at least turn their coffee into wine.

One day a stranger came into the lab and we stared at this person who was walking around like he owned the place. It wasn't until he walked into Dicklehed's office and sat down that we realized it was our friend, but he had shaved his beard and cut his hair. We were stunned, then we realized something else we never knew about Dicklehed. He had no chin. No chin whatsoever. His jawline went straight from his teeth to his adam's apple without pausing in between for a chin.

We begged Dicklehed to grow his beard back.

Mixed Race

High technology has always been on the forefront of trends, not just in terms of gadgets but also in terms of social trends. In the 1970s, it was not so common that races mixed easily and casually in social situations, but in high tech, bringing together innovative minds was more important than worrying about what color skin they had.

One of our co-workers threw a party on a weekend, and since we were all pretty close, by the announced time of the start of the party we were already there and digging into the food and drinks. By chance, all of the people in the living room happened to be white people when a black co-worker arrived at the front door. We greeted him as he came in, and went back to munching.

He stood there, looking at us strangely for a very long time. He didn't move far from the front door, and after a minute or so, we ignored his strange reaction and we continued eating and talking. Still, he just stood there watching us for at least three or four minutes before he started laughing. In a loud, clear voice he said to us "You mean, white people really eat watermelon? I thought you were making fun of me!"



We looked down and for the first time noticed that each of us had a slice of watermelon in our hands, and watermelon juice dripping down our chins. It had never once occurred to us that what we

were eating could be misconstrued as an ethnic insult. Yes, Bobby, we explained, white people really do eat watermelon, so come on in and join the party.

Wiq's Peppers

Not every cultural exchange is seamless and easy as I learned at the home of my Pakistani friend Wiq. Actually, his name was Viq which he pronounced correctly, but every other word in the English language with a 'V' he pronounced with a 'W'... think "winyl" instead of "vinyl" or "Wirginia" instead of "Virginia" and you get the idea. But somehow "Viq" he pronounced as "Wiq". Go figure. So we called him "Wiq" just because we decided that he deserved it.

Wiq had the bunch of over to his house for dinner where he prepared a large number of traditional Pakistani dishes in which, he claimed, he toned down the spice so that Americans could eat it without going into cardiac arrest. However, for himself he had a small bowl of tiny green peppers the size of small acorns on the side, which I noticed he doused with Tabasco Hot Sauce and ate raw. Never having seen such tiny green peppers before, I asked him what they were like. "Very very hot," he assured me, and when I picked one up he warned me to take a tiny bite.

I have always loved spicy food, and I have even dreamed about Chinese Hot and Sour Soup. I sometimes eat a couple of those burned red chili pods when I have Kung Pao Chicken. I figured these tiny acorns couldn't be any hotter than those, but taking Wiq's advice, I took a tiny bite off the end of the pepper. I chewed, smacked my lips, and felt a little bit of a burn on my tongue but it was not the heart attack inducing nightmare Wiq warned of. I

popped the rest of the silly little pepper in my mouth and bit through it.

It never occurred to me up to that point that my first cautious bite did not have any pepper seeds in it. My second bite, however, cleared up that oversight. In one quarter of a second, the top of my head exploded like a land mine. My eyes bulged out like a cartoon character watching Jessica Rabbit stride out onto the stage. I didn't have a mirror nearby but I am pretty sure steam escaped from my ears. By the time a half a second had passed, my entire head had burst out in a cold sweat, and (no exaggeration here) sweat dripped off the tip of my nose.



I ran to the refrigerator, opened it, grabbed two bottles and opened them both and administered the emergency Heineken Maneuver, pouring the contents of both bottles down my throat in one continuous gulp. For the rest of the night, I could not taste a thing besides the burning of that tiny bastard of a hot pepper. For an additional three days, I got reminders throughout the day as the pepper passed through my system.

To Wiq's eternal credit, he never laughed at me. Wiq was a lot nicer than I would have been in that situation.

How to Keep a Nerd Occupied

Please turn to the next page

How to Keep a Nerd Occupied

Please turn to the previous page

PMS

It is inevitable that a split is going to happen when you build a large team of strong minded people, and such a group of guys left the Intel Systems Division together to form their own startup company. Their going away party was one of the biggest events of the year since we all respected these guys and had enjoyed working with them.

At the going away party, one of the questions that popped up was what they were going to call their new company. “PMS” they told us. Keeping in mind that this was before the pharmaceutical industry invented the term pre-menstrual syndrome in order to sell more drugs to women, we had no idea what PMS stood for.

“Power, Money, and Sex, the reasons we’re leaving Intel,” was the response. We raised our glasses and toasted the PMS team, laughing. In fact, we raised our glasses so many times that the party turned into a brawl.

To this day we’re not sure if Intel was permanently kicked out of the Ramada Inn because of the fistfights or the full frontal nudity. However, we will never forget the going away party for the founders of Convergent Technologies.

Which Witch is Which?

Janet was a production supervisor at Intel, and in her other life, she and her husband ran a pet store in Ben Lomond. We became very close friends, and I would often babysit their animals when they traveled. The first time I went to their house to babysit their otters, I learned how incredibly brilliant and mischievous otters can be. They had figured out how to open the sliding latch that Janet's husband had put on their refrigerator door, and when I opened the front door of the house, I was soon wandering ankle deep in milk cartons, egg shells, and everything else from the fridge.

Janet and I talked daily, like she was my den mother at Intel. In fact, she was pretty close to my own mother's age. We would talk about everything from relationships to politics. That was why I was so surprised that it took her three years to tell me a deep secret that she used to be a witch. "Used to be?" I asked, and that was when the other shoe dropped. "Yes," Janet replied, "I quit witchcraft when I saw your mother from across the room at the Fireman's Pancake Breakfast. I realized I was in the presence of a much stronger witch and I gave up in fear."

I was truly surprised. Growing up, of course I knew my mother was a witch, or at least she thought so and I must admit that there were things that happened that I could not explain easily. Immediately, I flashed back to a time when I was around 15 and I had a friend, Dave, spend the night at our house. Dave and I, being typical teenage boys, ate everything in sight. After we finished off the pizza, we opened up the spare freezer and grabbed

some beefsteak patties and made burgers late at night before hitting the sack.

When we got up in the morning, I noticed that the freezer door was slightly ajar. I guess I had not shut it completely the night before, but when I opened it to shut it more tightly, what I saw was a horror. My cat, Arutus, had gotten into the open freezer and been locked in all night. Arutus lay there stiff as a board, mouth open, eyes closed and frosted over. I immediately started to cry and ran to my mother's bedroom to wake her up.

My mother had many personality quirks, probably from having been born on an obscure Croatian island off the coast of Yugoslavia, and one of her quirks was that she refused to be seen by anyone outside the family without her hair done and makeup on. Because my friend Dave was there, it was at least 45 minutes before my mother came out and saw Arutus on an open newspaper, thawing out on the dining room table. The cat's body was limp and still. My mother examined the cat, then said "Don't worry, everything is going to be fine."

She went into the kitchen and took out a large saucepan. She went out into the garage where we kept our camping gear and came back in with a can of white gas which she emptied into the saucepan. She opened the spice cabinet and started shaking out bits of god knows what into the white gas, then turned the stove on simmer and warmed the mix. When it was just starting to bubble, she took it off the stove and grabbed a funnel from a drawer.

Mom brought her concoction to the table and opened the cat's mouth. She put the funnel down the cat's throat and started to pour the gas mixture in. About half of it made it down before Arutus' eyes opened wide, he coughed up a mouthful of the mix, then, howling, Arutus ran out of the dining room into the living room, ran around the room twice over every piece of furniture out there, ran back at full tilt into the dining room where he skidded on the linoleum and dropped.

Arutus had run out of gas.

(okay, okay, I had to slip one joke in...)

All Hiked Out



Hiking out. That's what they call leaning off the edge of a catamaran to counterbalance the force of the wind on the sails, and the trick is to adjust your weight, the size of the sail, the tack into the wind, and probably a dozen other secondary efforts as well to keep your catamaran cutting through the water while the wind whips through your hair. It all sounded like so much fun when my buddies brought their cat up to Lake Almanor in far northern California.

We were there to visit our boss' mountain investment, a rustic log cabin near the shores of that beautiful lake. We got up early the day after arrival, everyone pitched in to make a huge pancake breakfast, and even though the air was chilly we put on our bathing suits for the day's fun.

It was a beautiful, clear day when we eased the catamaran into the water. We climbed aboard, unfurled the sail, and the gentle breeze kicked us out away from the dock. I was excited to enjoy my first time ever in a sailboat, and the guys instructed me to lean into my

harness as the wind picked up. My stomach churned momentarily the first time the pontoon I was propped against lifted up out of the water and I found myself leaning out ten feet over the water.

It was as exciting as the guys promised. The air was still cold even with the direct sun on us, and every now and then a few drops of the Lake Almanor water would splash off a wave that we'd struck and the droplets hitting my exposed skin were like needles, but I hung in there like a trouper knowing we'd be out there for hours.

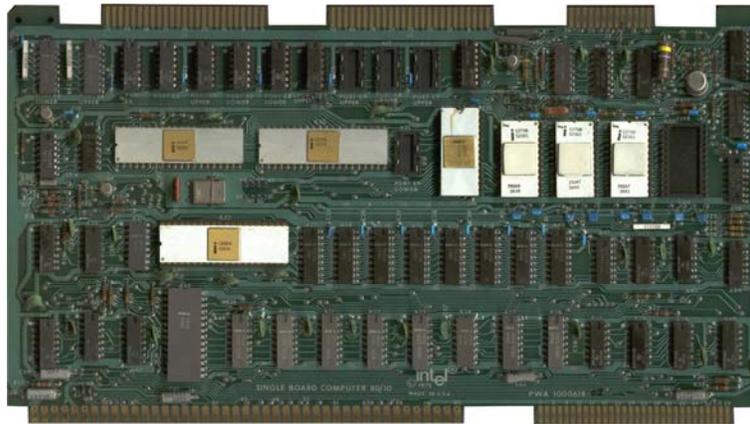
However, I didn't know how many hours. We certainly did not plan on sailing half way across the lake then having the wind die. Dead. Still. Calm. Nada. You could have lit a candle and not had it blow out, and we were stuck in the middle of the lake, miles from shore. We looked for passing Loch Ness monsters to hitch a ride to but no such luck was with us that day. Instead, the guys pulled out oars and for the next couple of hours we rowed that son of a bitch back to the dock. Naturally, the oars periodically splashed a few of those ice-cold drops on my skin, but I made sure that MUCH more often, those drops hit the owners of the catamaran.

Boat (bōt): n. A hole in the water surrounded by Plexiglas into which you sink money.

Raiding the Warehouse

As our Test Engineering department grew from 9 to 25 people, so did our need for support material. Our lab was in need of some benches, stools, power strips, and so forth to handle the influx of new engineers and technicians. Someone told us that rather than order new equipment, we should go check out the warehouse and see what was in stock there. A bunch of us hopped in a truck and headed over to see what we could find. We did indeed manage to secure almost everything we needed, and even a few things we didn't know we needed, by filling out a simple internal transfer form.

What we didn't expect to find was aisle after aisle of scrapped computer parts. At that time, the manufacturing philosophy was simple: if something could not be repaired in three attempts, it was cheaper to scrap than to fix it. In the warehouse was ten years worth of scrapped parts. Among them were sufficient parts to build dozens of the desktop computers called "Microprocessor Development Systems" that we built and sold to other companies so that their engineers could write software for Intel processors. They ran a simple operating system called ISIS that was essentially the equivalent of MS-DOS which was still 4 years from coming to market.



We asked the warehouse manager what they planned to do with it and he said it was to be sold to a scrapper at \$5 per board. We quickly realized we could build \$20,000 development systems for about \$100 at that rate if we could just get the stuff working. Since we were the Test Engineering group, if anyone could, we knew we could. Having worked with the Manufacturing group forever, we knew that their “three tries” at repairing something could be as redundant as replacing the same chip three times rather than trying something different each “try”. Sure enough, the first board I picked up with a red tag on it saying “SCRAP” was easy to troubleshoot without even plugging it in... with a simple visual scan I could see that there was a capacitor plugged into the wrong holes.

We approached Intel management with the idea of a scrap sale to employees only. They agreed if we would make everyone sign a contract stating that the material bought would be for personal use only. In a month, our garages were full of crap, most of which we never used. Glorious junk. However, we all also had working personal computers, years before the PC came out. We could not have been more thrilled.

Our First Home Computers



The Microprocessor Development Systems, or MDSs, were very advanced for their time. The main board had an 8085 microprocessor with a full compliment of 64 kilobytes of RAM.

The 8” floppy disk drives held 128 kilobytes of memory which today would be basically enough to hold about 10 seconds of music in MP3 format.

The monitors displayed text only, 25 lines of 80 characters per line.

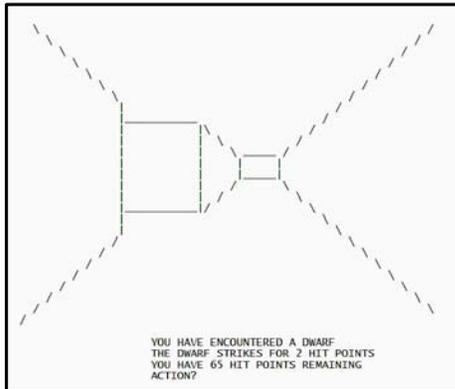
They were monochromatic, of course... white letters on black background. The keyboards were clunky, and typing on them was a bit like playing with a Guttenberg original.

I Love Your Baud

The second generation computer, the Enhanced MDS, had a 10" black and white monitor was built in. In addition, there was a second board with an 8086 microprocessor, similar to what IBM would put in their PC years later, with a whopping 128 kilobytes of RAM. We thought we were hot shit with our new toys. Best of all, there was a third board with yet another 8085 microprocessor and a video controller chip which communicated over a high speed parallel interface to the main board. In the day when the fastest computer monitors could display text at only 960 letters per second or 2 seconds to update the entire screen, this video co-processor yielded an amazing 10,000 letters per second display rate or less than two tenths of a second for a full screen update. The EMDS enabled a whole new category of editors, games, and so forth that could take advantage of the instantaneous screen refresh.

Screen Oriented Text Game

William Turnbow was our first magician. He had written the screen drivers for the video board that gave it nearly superhuman performance, so it was no surprise when he gave us Dungeon. On the side, many of us nerds had learned to play the pen-and-pencil fantasy game Dungeons and Dragons, and the Dungeon game made D&D come to life. It was a maze of rooms and corridors with dwarves and orcs to fight and gold to collect. Instead of the text-only games of the day, like Adventure, Dungeon actually drew “pictures” of the corridors in 3D using text characters painted instantly on the high speed screen.



We spent hundreds of hours wandering through that fantastical world that Turnbow created, on home computers built with scrap crap from an old dusty warehouse. Who would have thought then that ordinary people would find an attraction for a home computer?

Shake, Shake, Shake Your Booty

Growing up in California, you expect to feel an earthquake now and then. Usually they are kind of fun in a sick way, the sense of the shock then for a minute or so the world just doesn't feel quite right. Sometimes the cats and dogs act weird for a couple of minutes before the quake and afterwards you realize they knew the shake was coming.

However, an experience I can guarantee I have only had once was seeing an earthquake. I was working in the Intel systems manufacturing floor, an 80,000 square foot facility, and standing on top of my desk looking over the cubicle wall to talk with my buddy Ross. I looked up and across the floor of the building I saw the strangest sight of the tops of cubicle walls moving up and down, in a visual wave coming towards me.

In those days we used massive hard disk drives that were 18 inches in diameter and stored a whopping 3.5 megabytes each on large removable platters that you dropped into a box the size of a dishwasher. When you powered up these drives, it was like a 747 taking off in your office. However, given that a floppy disk only held 128 kilobytes of memory at the time, the 30 times increase in capacity was worth the resulting deafness.

Every engineer had one of these huge drives, plus there were another fifty to sixty of them in Manufacturing for burn in testing. And they were delicate as hell. The disk drive industry had not yet invented the concept of retracting the disk heads to a safe drop

zone if power failed, and when I saw that earthquake wave coming towards me, my first thought was not for my safety and diving under my desk, it was about the months of work that I had stored on my disk drives and what would happen if power failed.

I shouted at the top of my lungs, “POP YOUR DISKS” and dropped from my desktop to press the EJECT button on the front of my disk drive. I could hear my drives retracting and spinning down by the time the wave hit me, and I relaxed knowing I was safe. My friends, on the other hand, had absolutely no idea why I shouted out, and naturally none of them reacted in the milliseconds it would have taken to be safe.

When the wave passed to the far end of the building, power went out immediately. Approximately 100 disk drives suddenly dropped their disk heads to the surface of the disk platters. The screech of dying disk drives filled the air like wailing banshees. However, that was nothing compared to the sad wails of dozens of engineers realizing they had lost months of work when their disk drives self destructed.

Customer Support Stories

Our friend, Bobby, worked in the customer support department at Intel in the 1970s, and of course since computers were pretty new to any place outside of NASA or Los Alamos, some of the early customer calls were pretty funny. Bobby used to tell us over a beer after work, like the time this secretary for one of our customers called him to complain that her floppy disks were unreliable and would not hold their data. In fact, she said, she could write data on a new floppy disk and the next day the data was gone.

Bobby asked her to do exactly what she would normally do, then describe what she was doing over the phone. “Okay, first I format the blank disk.” Bobby asked her what next. “Then I copy my data file to the floppy disk.” Bobby concurred that so far everything sounded normal. “Then I verify that the copy worked by comparing the files.” So far so good, Bobby said. “Then I take my floppy disk out of the drive and set it aside.” Bobby nodded, but then he heard a funny click sound.

Bobby asked the customer what that clicking sound was, since our disk drives were silent when ejecting disks. “I store my floppy disks on the file cabinet next to my desk,” the secretary explained. “And that makes a clicking sound?” Bobby asked. “Oh, no, that’s the magnet I use to hold it to the metal filing cabinet.”



Bobby held his hand over the mouthpiece as he laughed out loud. When he recovered his composure, he patiently gave the customer her first lesson in the care and feeding of magnetic storage media.

A few weeks later, Bobby topped this story with a photocopy of a letter from an angry customer. The letter went on and on about how unreliable our disk drives were, and how his company had lost a lot of critical data and that it was Intel's fault. At the end of the letter, we all laughed with Bobby as he read the final line, "And we want to know why you make it so hard to get the floppy disk out of that plastic jacket."

This customer was breaking open the floppy disk's protective envelope and placing the flimsy media inside directly in the disk drive. Even if he was able to correctly position the media in the drive so that it could be read and written, the oil from his fingerprints would have ruined the disk media.

We were very impressed with Bobby's professionalism in being able to handle calls like these without making people sound stupid.

Talk Dirty to Me

One of the Intel work parties was held at the apartment of one of the women from the manufacturing group. Lisa's place wasn't big, but it was cozy and just about right for the 8 or 9 people from the office who came by with pizza, chips, and beer one Friday after work. Typical of us kids, the music was cranked up while we partied, so we weren't

rang (remembering "ring" and "dial" ringing and 10:00 that evening.



surprised when the phone

when terms like actually meant dialing?) just after

that her neighbors tended to go to bed early even on Friday nights, so we anticipated it was one of them calling to complain of the noise. We turned the music down and everyone got quiet while Lisa picked up the handset.

Lisa had mentioned

Lisa listened to the phone for a few seconds, then she whispered to me, "Bill, come here and listen to this." I took the handset from her and was shocked when all I heard was heavy breathing. "It's an obscene phone caller!" she whispered to the others in the room.

I noticed that Lisa had a speakerphone option, so I pressed the button and put the headset down. Everyone in the room could hear the pervert moaning on the other end of the line. I began to moan, too, then Lisa joined in and started moaning. Soon, everyone at the party was moaning and screaming with fake orgasms.

And the obscene phone caller hung up on us.

Honestly, It's the Food

It was hard to convince people of the reasons why the Intel engineers would head to the Brass Rail for lunch. After all, it was well known that the Brass Rail was a strip club. What is less obvious is that even strip clubs have high and low times during the day, so it's not exactly their A Team (or perhaps more appropriately, their Double-D Team) on staff at lunch time. In fact, one of my friends suggested that it might be the Alviso High School cheerleading squad of the class of 1946 up on stage. As an aerobics instructor, I can assure you that T&A jiggle is NOT supposed to include cellulite.

However, the Brass Rail makes some of the best burgers in town, so the Intel team would often head over there for lunch, then take the burgers into the back room out of sight of the stage so we could not only eat them but keep them down.

I swear.

Stimulating Productivity

I give Intel a lot of credit for innovation and thinking beyond the horizon. Not all of their ideas work, but you can't help but respect the attempts. One idea that did not work so well was when Intel decided to try playing music over the public address speakers in the manufacturing building.

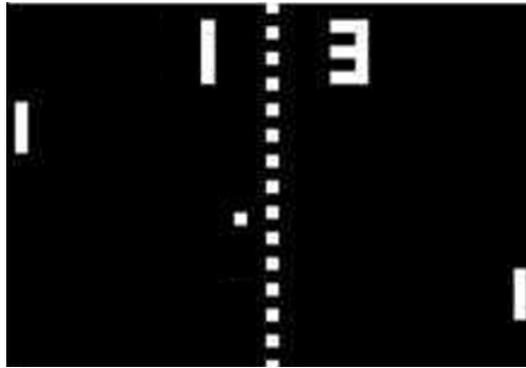
They took the time to buy a fairly robust collection of eclectic music, from pop to rock to country western. Personally, I was thrilled. It seemed to make the day fly by, even if I didn't like every song that played. However, there were people who complained loudly to the Intel management, some saying "I hate that country western," to "I love that country western, but take off that damned rock music!"

Intel gave up and turned it off completely, and we went back to the boring sounds of hissing machines and rolling carts.

The next experiment that comes to mind I was far less thrilled about. This was when some psychologist somewhere wrote a book about the effects of colors on productivity. Intel painted every wall of the huge manufacturing building a different color, and each was bold and bright. One wall was a bright magenta, and turning the corner the next wall a bright lime green, connecting to a wall in a bright orange, and so forth around the building until your eyes literally watered.

Worse yet was the carpet. In keeping with this idea of stimulating people, the carpet was not only a bizarre mosaic of burnt orange, black, and gray squares an inch on a side, they were laid out in a pattern that were bad enough standing still and looking at the strip between the cubicle walls, but when you walked down the aisles, the natural bouncing as you stepped made the mosaic seem to dance at the periphery of your vision. Walking down these aisles, I would sense an inner ear imbalance like I was dizzy. Fortunately, I left Intel before I had to deal with the embarrassment of falling down because of the color of the carpet.

King Pong



The earliest computer games were text oriented games which could be played on the clunky, noisy teletypes of the day, or on the simple CRT monitors that basically were just teletypes without the need for paper. Graphical programs were out of the question. When we saw our first graphical games, like Pong, we were mesmerized. They seemed nearly impossible, and when the authors of these games explained the math to us, we were duly impressed. However, the world of text displays and graphical monitors seemed miles apart.

Kicking Asteroids



Shortly after seeing Pong, we were ready for bigger and better things, but still we could not have anticipated the quantum leap to Asteroids which used a radically different approach to screen writing called “vector graphics”. Every graphic was drawn using straight line segments. Even the asteroids themselves were blocky and clunky, but your imagination filled in the rest in the immersive new world of computer generated animation.

NASA Rules!

Pong and its ilk were still using modified television sets for the display, and were crude at best. It wasn't until I visited NASA that I learned what real graphics can be like. I was commuting to work with an old high school buddy who worked at NASA, so he got me a pass to get onto the secured base so I could pick him up after work on the days I drove. Naturally, he invited me in to see what his work environment was like. I was blown away.

In a time when computer monitors were 10" diagonally, and the best home televisions were 21", to walk into the NASA lab and see a high resolution Ivan & Sutherland graphics display perhaps 40" across with its own dedicated PDP-11/45 computer was like warping years into the future and seeing life in the time of grandkids. It was beautiful, like an indoor theater.

NASA had been collecting data on the known universe for years, and reportedly kept an old ENIAC computer alive for the purpose of holding the star charts. The ENIAC was available to the NASA computer network which was decades more advanced than anything private companies had at the time. Naturally, putting this kind of power and data into the hands of computer geeks can only have one possible outcome. Star Wars.



With the actual Milky Way galaxy pulled up from the ENIAC as the backdrop, and graphical drawings of X-wings and Tie Fighters for player's ships, the Star Wars game was a technological advancement unlike any other. Split screen, one player per side, they had a large frame made of cardboard that could be dropped over the front of the monitor so that players couldn't cheat and see what their opponent saw. Flying around the Milky Way and blasting your friends into oblivion became the new religion.

The 1980s



1980: Blondie releases 'Rapture'

1981: IBM PC Debuts: 64K RAM, twin 5-1/4" Floppies, CGA monitor, Cassette tape drive @ \$3000

1983: Compaq Portable leads the Clone Wars

1985: Microsoft Windows 1.0

1986: 9600 baud modems @ \$995

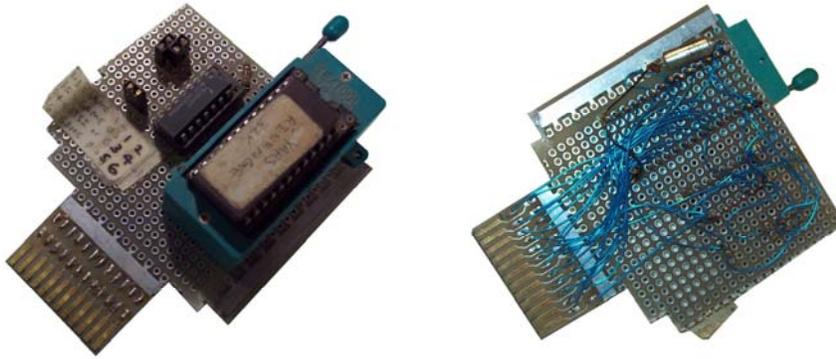
1989: Voyager II passes by the planet Neptune

Great Console-ations

Finally, the computer revolution began in earnest. The Apple computers and the IBM PC for more serious nerds, and the early game consoles for the TV from Atari and Commodore cracked open a whole new world for entertainment. The microprocessors that were the brains of these devices were roughly the speed and complexity of today's digital clock controllers, and the graphics chips were even simpler, but together they provided a platform for simple graphics for a price that ordinary mortals could afford.

We discovered our inner Captain Jack Sparrow when we realized that the Atari 2600 console used Read Only Memory (ROM) devices that were compatible with the EPROMs we had bought at the scrap sales. All we had to do was to scrape off the paint over the crystal lids and leave the chips in the sun for a couple of days to erase them so we could reprogram the EPROMs with the game data.

Soon, directions were circulating for how to make a wire wrapped adapter that would allow us to plug EPROMs into the Atari ROM socket. A similar adapter allowed us to rent the cartridges at the local computer store, rip the contents to floppy disk, then return the game cartridges. These floppy disks circulated around the building until we all had huge game libraries at home.



Arggh, mateys!

Cracking Boxes

Speaking of cracking, my son has been a valuable resource for unlocking the secrets hidden in the gaming systems. Kids these days are born with the Secrets of the Computer Templars and know all the secret handshakes to hack into the XBOX, PSP, and so forth. My son has loaded these gaming systems with the Linux operating system and with game emulators that allow him to play legacy games on modern equipment. It's pretty cool.

I particularly love the story he tells about hacking Linux onto the original Microsoft XBOX. The hard disk in the XBOX was a custom hard disk that would not allow access to the content until a secret handshake between the computer and the disk was sent. If you tried connecting the hard disk to your computer, it looked like it was dead. However, the trick my son used was to power up the XBOX, which sent the unlock codes to the hard disk, then without powering the hard disk off, removed the cable between the XBOX and the hard disk and plugged in a cable connecting that hard disk to one of our computers. He downloaded the Linux kernel onto the hard disk, then powered it off. He reconnected it to the XBOX which, when rebooted, began running Linux. Evil genius!

Somehow, the magic of cracking the machine seemed a bit jaded when I saw him playing low resolution games like Frogger, Pitfall, and Donkey Kong on a fairly sophisticated and expensive game player.

Coffee is Life

I grew up thinking coffee was a horrid sludge that should be painted with cream and sugar before it could be considered drinkable. My parents were Depression era survivors, and counted their pennies all the time. I grew up on Folgers and Taster's Choice, thinking they were coffee and not colored water.

Intel had flown me to Oregon to consider their request to transfer along with the product line I had been working on. I checked out the houses, got excited by the idea of a brand new house for only \$60,000 (that was before I learned about relative economies), and I found myself in a nice, rustic restaurant in Beaverton called Klinkerdagger Bickerstaff & Petts. I ordered my meal, and a "cup of coffee, cream and sugar."

"Try it black," the waitress suggested.

"But I take my coffee with cream and sugar," I insisted.

"Just try it black," she smiled, walked away, and brought a cup of black coffee back to the table and set it in front of me. Curious, I took a sip. Through the skylights over head I saw the clouds part, beams of sunlight streaming through. I heard angels sing. It was transcendent.

"What is this?" I asked her, and she replied, "We grind our own beans freshly just before brewing. I thought you might like it."

Ever since that day I have been working on perfecting the art of coffee, and I now make my favorite cup of coffee in the world. My formula is not particularly magical, but it does have a few unusual aspects to it:



1. The beans. I import a Moka Java Dark bean from Peerless Coffee. It has not just a deep, robust flavor, but also the taste lingers.
2. Lots of coffee. The natural tendency is to skimp on the quantity of the beans. Don't. Put twice as much into the press as you think you need, then add a bit more.
3. Fine grind. Sure, it will leave some sludge in the bottom of your coffee cup, but fine grinding your beans will impart that much more flavor, and improve the aftertaste as well.
4. French press. Drip coffee doesn't let the water hit the beans long enough to extract the flavor, and espresso burns the beans because the water is too hot. The most popular French presses are made from glass, but I prefer the metal presses... they keep the coffee hot longer.
5. Boil the water, then let it sit for a minute. It should cool down to around 200°F, and avoid burning your coffee.
6. Pour the water into the press, let it sit for 3 minutes, then stir it. Let it sit for 3 more minutes, press the filter through the coffee sludge, and pour.
7. It is perfectly acceptable to moan as you sip this nectar of the gods.

Eruption of Mt. St. Helens

May 16th, 1980, I closed escrow on my first house in Cornelius, Oregon. I was so excited to have my own house, thrilled that I had somehow bypassed the madness of 18.5% home loans that were being approved around that time (my loan being a relatively painless 13.5%), and as the moving van pulled away I started the process of unpacking.

May 18th, 1980, fifty miles away, Mount St. Helens blew her stack. Plumes of smoke billowed out of her crater, shooting 50,000 feet into the atmosphere. We were lucky that day that the wind was blowing away from us, but we were not so lucky with subsequent eruptions. Over the course of the summer of 1980, a number of eruptions headed our way. The ash was like powdered cement, viciously killing the lawn, ripping the rain gutters off my house and plugging the drain to the street. There were mandatory 5 MPH speed limits in town all summer and we had to drive with windows rolled up even in 100 degree heat (and of course, no one in that state had air conditioning – you didn't need it often enough). Any time you were outdoors, you needed to wear a gas mask.

We would listen to the radio every time there was yet another eruption, listening for the direction of the wind. If the winds were blowing away from us and the weather was clear, we would sit on the roofs of our houses with a cold beer in hand and belch along with Mother Nature.

At the time, people said that the last time St. Helens erupted, it kept blowing ash for 50 years. I looked at the half inch already piled on my roof, did the math, and imagined how I had just sunk my life's savings into an ash-hole. Fortunately, it wasn't that bad. After the first year, the eruptions stopped, however the damage to the financial stability of the region was done. 8 years later when I moved out of Oregon, my house was worth 15% less than what I paid.



Relative economies. My first major lesson in finance.

Catch Me If You Can

Computer viruses have become a horrible abuse of the technology, now primarily destructive programs sent out by retarded children with small penis syndrome. Back in pre-history, though, when we were first setting up the early computer networks, they were just another way to pull pranks on our friends. I am sure there were probably earlier viruses than mine, but mine was the first I ever heard of.

We had recently installed the big fat cables that routed Ethernet through the ceilings. We had lots of 286-based desktop computers running Xenix, an early version of UNIX, as our development environment. I had joined the Software CAD group to deploy this new network and to develop tools to make them friendlier and easier to use. Of course, in a friendly local environment, security was one of the last concerns, and there were lots of back doors on the network into people's systems.

April Fools Day 1983 was coming up and I started to think about what kind of gag I could pull on my buddies, and then it occurred to me that I could write a program that would print messages to every computer screen attached to each of the Xenix computers on the network, one at a time. However, a gag is not sporting if you don't make a game of it!

At 7:30 in the morning I set it loose on the network. The program selected a random victim on the network, made a copy of itself on that computer, and the first thing the copy did was to go back to

the previous computer, kill its parent, and erase any trace that it had been there. Then the program printed on every terminal attached to that computer the simple message

**Run, run, as fast as you can.
You can't catch me, I'm the Gingerbread Man!**

Then it counted down sixty seconds on their screens, giving them that much time to figure out how my program worked and kill it before it ran away to the next victim computer.

It died at 11:30 when one of the other network hackers came up with a brilliant way to kill my April Fools joke. He waited until it came back to his computer and started to count down, then he reached back and pulled the network cable from his computer, preventing my program from escaping. As a result, he was able to take as much time as he needed to track down the program and put a bullet to its little head.

7:30 to 11:30. One jump per minute. 240 jumps. Hee hee.

When is a DOS a DOS?

Back before Apple stole the great idea of WIMPs (windows, icons, mice, and pointers) from Xerox and popularized these WIMPs, real men programmed computers using the arcane skill called TYPING. Everything was handled by command line interfaces, and the command line interpreter (CLI) was your tiny window into the larger world inside your rocking 64 kilobytes of memory. The best known of these CLIs was MS-DOS. It's famous "C:" prompt was as well known to the world, and just as despised as Papa Smurf or the Teletubbies.

This command line interpreter was an obvious target for a nerd gag. All I had to do was to write a program that resembled the MS-DOS prompt, make it look like it was doing the same actions as MS-DOS, then slightly twist the output in humorous ways. Simple, eh? My CLI reacted to the command commands like "DIR", "COPY", "DELETE", and so forth, and even took time to flash the lights on the disk drives and make the little nerker sounds that the floppy disk drives of the day sang every time you issued one of those commands.

I put my CLI on a few computers in the lab and waited for the sound of laughter. Sure enough, within minutes people were chuckling, and since I was known for being a prankster, all of them wanted copies of it to pass around other parts of Intel. Then we heard a scream.

Big Bill had just finished development of the final release of his project, took his precious master disk out to the lab, and proceeded to make a backup copy of his master disk. Carefully, checking to make sure he had the one and only master disk, Big Bill typed in the command to display the disk directory:

```
C:> DIR A:  
Directory of your BLOWN DISK  
ICE51.SRC  
ICE51.DAT  
ICE51.BAT  
ICE51.EXE  
UTILS.SRC  
UTILS.OBJ  
896KB Total  
C:>
```

Apparently, Big Bill didn't catch the first joke or he would have known that his master disk would not have had the label "BLOWN DISK". Instead, he only checked the file names, and satisfied that he had his master disk in the first floppy disk drive, he put a blank disk into the second floppy disk drive and typed the COPY command to duplicate all files from his master disk to the backup disk.

```
C:> COPY A:*. * B:  
ICE51.SRC, DELETED  
ICE51.DAT, DELETED  
ICE51.BAT, DELETED  
ICE51.EXE, DELETED  
UTILS.SRC, DELETED  
UTILS.OBJ, DELETED  
C :>
```

Maybe calling what Big Bill let out a “scream” is discounting the ability of his big lungs to release air. Maybe “bellow” is a better term. Convinced that his master disk was now a useless bit of plastic, Big Bill went storming around the lab muttering “Oh my God, what did I do? What did I do?” This went on for about two minutes before someone else decided Big Bill had suffered enough, took Big Bill by the arm and showed him this gag software in action and then showed Big Bill that his master disk was completely unharmed and intact.

Big Bill came to my office. He was not smiling. I wonder if he laughs about it now in retrospect. I should google him and ask.

When Does Life Parody Art?

On the other hand, it is hard to argue that my spoof of MS-DOS was any more surreal than some real life computer system software.

```
Detecting Primary Master    ... WDC WD200EB-00BH
Detecting Primary Slave    ... None
Detecting Secondary Master ... SAMSUNG CDRW/DUD
Detecting Secondary Slave  ... None

Keyboard error or no keyboard present

Press F1 to continue, DEL to enter SETUP
```

Big Bill = B2

Actually, Big Bill was just one of his nicknames. His formal nickname was B2. Everyone knows that Bill is a fairly common name, but that engineering department had a plethora of Billnesses. There were four of us named Bill in that department so we were simply numbered B1 through B4. I was fortunate enough to have the cool primary nickname B4. “B4 what?” was the obvious response.

However, most people I’ve worked with eventually switched over to my secondary nickname, Wild Bill. I wonder why.

B1 Versus B4

It was well known that B1 was a distance runner. He and his girlfriend Lisa could be seen almost daily after work in their shorts running out of the Intel parking lot onto the side streets behind the facility. The group also knew that I taught aerobics in my spare time and they would often catch me zooming out of the parking lot around the same time to head to some health club nearby to torment a group of people for an hour.

The Portland Rose Festival was coming up. B1 and Lisa were preparing to participate in the Fun Run that preceded the parade that kicked off Rose Festival Week. Over lunch one day, B1 suggested that I join them in the Fun Run, but I begged off explaining that I pretty much sucked at distance running. Back in high school I did the track decathlon, I told them, and my mile run score kept me out of the winner's circle. The table of co-workers pressured me, and I gave in and agreed to run with B1 and Lisa.

The factor that got me to join the run was when they explained that the Fun Run was not a serious race, and that many people did the race in funny costumes. I figured I could cover up my lack of distance running skills by coming up with a ridiculous costume that I could blame for my poor showing. I guess I was in better shape than I thought, because I ran with B1 and Lisa that day the entire 5K course which ends on an uphill climb into the park, but I had enough energy left over for a final sprinting burst.

I beat B1 and Lisa while dressed as an overgrown bumble bee.

Smokin' In the Boy's Room

Some people think their computer is a tool. Some people think their computer is their friend. Then there are those who worship their computers, stroke them gently, and mutter “My Precious!” under their breath every now and then. Marty was so into his computer that he would freak out if anyone touched the keyboard except him.

Marty was such a walking stereotype that it would be a crime to leave out a description of his appearance. Being a nerd myself gives me a little extra leeway in bringing this up, in case you wondered. Marty was fresh out of college, with a bold shock of red hair over his pasty white face. His chin was covered ear to ear in fresh pimples, some popped and some sporting white Vesuvius heads. His clothes were ultraconservative short sleeved shirts with pressed jeans – I didn't even know til I met Marty that jeans could have a crease in them. If they ever do a remake of “The Computer Wore Tennis Shoes,” Marty is the obvious lead.

His kind of obsessive-compulsive disorder with his computer made Marty an obvious target for a gag. The gang hung out in the lab, which fortunately was right on the other side of his cubicle, quietly plotting Marty's downfall, wondering what kind of trick would strike to the heart of his nearly perverse relationship with his computer. The solution hit us when we were measuring the breaking point of some high wattage, low voltage resistors that a vendor had sampled us and we noticed how hot they got when we applied some juice from a variable power supply to them.

One day while Marty was out to lunch, we broke into his Precious. We took the resistors we had been working with, wrapped rubber bands around them, and ran some long wires off the assembly. Deep inside Marty's computer we positioned the bundle so nothing would get damaged, ran the wires out the back of the computer, under the cubicle wall, and over to the variable power supply in the lab.

Then we waited.

Marty came back from lunch, sat at his Precious and went to work. Patiently, we waited for a half hour or so until he could get engrossed in his work, then we turned on the power supply, heating up the resistors. At first it just left a funny scent of burning rubber floating out of his computer, and over the cubicle wall we could hear Marty sniffing around. Then we turned the supply back off and let the stench dissipate. Marty went back to work.

A half hour later, we turned the supply back on, a little higher this time, and now the smell of burning rubber was all over the area. Still, Marty wasn't sure what was going on or where it was coming from, so when we turned the power supply back off and the smell went away, he eventually went back to work.

An hour later we really cranked it up. The rubber bands must have been half melted already from playing this trick all afternoon, and within seconds, thick black smoke came pouring out of Marty's computer. We heard Marty scream like a girl. He panicked and

started to run for a fire extinguisher. At that point we had to stop him and let him in on the gag we'd been playing on him all day.

The next day we saw that Marty had installed a lock on his Precious. He wore a most smug smile for a week.

A Plethora of Crap

David was a know-it-all combined with a severe case of superiority complex. It didn't help that he was a tall man with a square head, broad and severe looking, so you couldn't help but see him from a distance, and up close he was almost scary. Coupled with his lack of personality disorder (I am sure LPD will be an approved acronym in the medical dictionaries any day now and the pharma companies will have ads on TV for an expensive cure), he had an exceptionally annoying habit of clearing his throat every few minutes. Not just a subtle "ahem", but I mean a deep rattle like he had tuberculosis and he was preparing to shoot a wad of gray lung tissue across the engineering lab any second.

Usually we ignored David's habit of showing off his knowledge of who cares what because we normally just ignored David in general. However, he made it completely impossible to ignore him when we were at a quarterly update and the General Manager of the division was describing to us the "plethora of new products" we would be producing over the coming year. All of us ignored the way the GM pronounced "plethora". All of us except David, who raised his hand.

The GM called on David who stood up, walked to a microphone and told the GM, "For your future information, it's pronounced *PLETH-o-ra*, not *ple-THOR-a*." He stood there at the microphone waiting for the GM to respond, and since we knew that the GM had to be thinking "Dear God why do I have to speak to these

jackasses?” we were completely impressed that he simply thanked David and went on with his presentation.

Stupidity should come in colors, don't you think? David would go through life in a lovely shade of “flaming asshole red”. At least I think Crayola should have that color in every box of crayons if they don't already.

It's a Small Joke

Musical birthday cards are kind of cute, and the best thing about them is that you only open them once and let them play their annoying little tune, close the card, and never think about them again. Meanwhile, the person who gave you the card is happy that you're so surprised, giggles fiercely that you enjoyed the annoying little song, then they go home having done their birthday wishes duty and they forget about it as well. Normally, you quickly bury the card deeply in your trash bin.

One year when I received a particularly annoying musical birthday card – a Disney card – and I am pretty sure that the person who gave me the card knew that the song “It’s a Small World After All” had been outlawed in Geneva as a form of torture. However, I was not about to let myself be the only recipient of this wonderful gift! Oh, no, but the card having been written in could not be regifted. I had to think of some other use for it.

Cutting the electronic circuit out of the card was easy, leaving just enough of its switch mechanism exposed that basically all you had to do was bump the button and the lilting strains of “It’s a Small World After All” would begin the process of melting your brain. One other subtle detail of its operation, relevant to the story, is that after you pressed the button, it took about one second before the tune would start to play.

I took the button to work and taped it to the far back side of my friend Mike’s desk, right behind his pen drawer. I tested it. Sure

enough, every time I closed the pen drawer firmly, about a second later the world's most annoying song would begin. Because of the one second delay, odds were that he wouldn't even associate the closing of the desk drawer with the playing of the music. Worst of all, because of the gadget location under the desk, it was impossible to tell where the music was coming from. It could have come from Heaven. Or Hell.

So impossible was it to tell where the source of the music was located that it was a year before Mike figured it out. It might still be there if Mike hadn't dropped a pen under his desk one day and gone crawling under to retrieve it. I suspect this explains why Mike had a dart board in his office with a picture of Mickey Mouse taped to it.

Packing Heat

Being a practical joker is also like walking around wearing a shirt with a target on your back. Someone is always looking for a chance for revenge.

Intel had (and has) a great sabbatical program. Every seven years they made you take eight weeks off in addition to your normal vacation. Three months away from the pressures in the office is an amazing rejuvenation. It takes about two weeks to forget about the project you're working on, and the rest of the time is pretty much like retirement living without the back aches, just having fun relaxing.

For my first sabbatical, I took my family from Oregon south to California, rented a house in the mountains with a hot tub overlooking a peaceful valley, and truly decompressed. I can almost still taste the warmed amaretto in a snifter, smell the barbecuing ribs on the grill, and hear the sound of the breeze through the redwood trees all around. We spent time at the beach, too, and my kids learned how to skim board that summer.

Tanned and mellowed, I headed north back to Oregon with a whole new attitude. I realized there was more to life than just work, so I had to force myself to readopt the motivation to head back to work at the end of that three months. I found my work badge buried in the night stand, and sleepily headed to the office. Passing through security, I headed through the ocean of work cubicles like a mouse seeking cheese.

However, when I got to the aisle of cubicles where my office was located, I couldn't see a cubicle door where my office should have been. My first thought was that maybe Intel had moved our entire department somewhere while I was gone, but I saw my co-workers offices where they used to be. Realizing that nothing else looked changed, fear crept into my heart as I got closer, wondering what my buddies had done while I was gone.

My fear was not misplaced. I was perhaps ten or fifteen feet away from where my cubicle door should have been when I saw, over the tops of the cubicle walls which were a little over five feet tall, the horrible sight of peanuts. No, not Charlie Brown, and no, not Planters. I mean packing material peanuts, those small peanut shaped bits of Styrofoam used to keep things from rattling around in a shipping box. In this case, the peanuts were level with the top of my cubicle wall.

My buddies had filled my office to the brim with packing material. They were in the aisle with me now, laughing their asses off. Mike, the victim of my noise maker gag, handed me a wrench with which to unbolt the section of cubicle wall they had added. My first day back at work did not truly start until after noon that day.

Cleaning House Just a Little Too Soon

You can tell the state of the project I am working on by the depth of the paper on my desktop. When I am in the groove, the papers on the desk build up in layers, and I pretty much know where things are and what layer to dig down to get the documentation I need. When I am between projects is when I clear out my desktop, file everything I want to keep, and get out a can of Pledge before the next project gets fully under way.

I had just finished a pretty major project and decided to do an equally major housecleaning. Not only did I clear my desktop, I decided to clear out my bookshelves to make room for the next few projects. I went down to the facilities department and borrowed a large trash bin, parked it outside my office, and started to clear away old files. Since I had transferred within Intel from California to Oregon, a lot of my files were from projects I had done in Santa Clara, so they were a prime target, and I cleared out two drawers from the file cabinet and three feet of bookshelf space. The trash bin was nearly full by the time I was done... isn't it amazing how much clutter we can accumulate?

Just as I was about to call facilities and have them haul my stuff away, the phone rang. The call was from our customer service center in Germany, and he was asking a technical question about a Peripheral Simulator I had designed in Santa Clara three years previously. I looked at my bookshelf to find the answer, then immediately realized I was looking in the wrong place. I dove into

the trash bin, pulled out the binder I needed, answered the guy's question, and carefully put that binder back on my bookshelf.

Another fifteen minutes and his call would have come too late for me to help him.

Do You Hear What I Hear?

I have had pretty amazing luck to have been with a number of start-up companies that went public, and one such company was Octel Communications, a voice mail company that figured out how to plug into the proprietary phone switches of the day to offer this function. Everyone was ecstatic over the initial public offering, and the Marketing team organized a party for everyone in the company to celebrate the IPO.

They did a great job putting together a video for the event, showing the company execs as well as the rest of us dancing around the building, flashy shows of the product, the building, everything about the company. Of course, everyone in the video was flashing huge smiles, which was appropriate for such an accomplishment. Possibly not so appropriate, however, was the theme song that they chose as the background of the video: Peter Gabriel's song "Big Time".

While the video was playing and I recognized the music instantly, I quickly strode across the room to the head of Marketing and whispered to him, "Are you sure that's the best song for this video?" He looked sideways at me and waved me off, "Of course, Octel's hitting the big time by going IPO." I nudged him again and asked, "Have you listened to the lyrics of the song?" He went silent for a while, listening to the song, and it dawned on him that the song was about conceit and people thinking that they are "larger than life". He shrugged, put his finger to his lips, and just replied "Shhhh..."

Just Like Starting Over

Startup companies are hard to get out of the garage for about a thousand reasons, and money is typically the top ten reasons each time. A group of about 20 engineers met one night with the simple idea that a room full of smart guys should be able to come up with some cool product ideas. We bin listed about a dozen ideas, then whittled it down to four ideas that had some chance for success. My buddy Jeff and I picked one of the four ideas and formed a startup company to pursue the idea.

The company name we came up with was PEX, short for “Peripheral Electronics”, and we developed a device for sharing a printer from multiple computers that we called the Plexor. Basically a smart switch, the Plexor would let one computer use the printer until it was done then switch to the next printer in order. The PEX Plexor... catchy, eh?

A big electronics trade show was coming up in San Francisco and since we were in the Portland, Oregon area, and the cost of a plane ticket to SFO at that time was nearly \$500, ‘way ‘way out of our personal budgets, we decided to save money and take a train ride to San Francisco which came in around \$100 each, even though the train took 18 hours instead of 2 hours for a flight. We also skimped on getting a sleeper, figuring we could sleep in our seats. We didn’t know at that time that Amtrak’s design engineers intentionally made their seats as uncomfortable as possible, nor that they made sure that the arm rests were fixed so you could not stretch out across multiple seats and lay down. Giving up on sleeping at around 3AM, we found a table where we could play cards to kill time.

Jeff and I made our way from the train station over to Moscone Center where the trade show was held. We took our travel bags into the bathroom, took a sponge bath using the paper towels, shaved, and changed into our suits. We left our travel bags at the coat check and went out onto the trade show floor to look for similar products, companies to partner with, potential customers... the full gamut of preparation for marketing our product. Though tired as hell, we happily headed back to the train station after a long day at the show and somehow managed to sleep for an hour or so on the way home.

Startups are always hard, and it was even harder to get PEX going when the country entered a serious recession. We completed the design, but could not get anyone to invest in setting up the manufacturing. We tried to sell the idea without success. In a recession, companies don't like risks. In frustration we let the idea slip away.

By the time the economy was better, perhaps a year and a half later, the "computer network" was the hot buzz, and when we realized that a computer network could do printer sharing better and easier than the Plexor, we decided not to try marketing it again. This turned out to be the best lesson in how slowly markets evolve: it took ten years for local area networks to become popular after "The Year of the LAN". The Plexor could have had many years of production before being replaced.

Live and learn.

Winners Talk, Losers Walk

Intel had a habit of allowing parallel project teams develop similar ideas, then have an executive review to determine which project should move forward to completion. I was heading one such project team, and Paul was heading the other. Both of our systems were revision control projects; ours was fairly simple, theirs was far more complex. Ours used a small set of environment variables to control the build process, theirs used object oriented descriptor files to guide their processes. Ours had a 16 page reference card, theirs had four user's manuals averaging 200 pages each.

Development of both systems proceeded for about six months before the executive shootout was held. Both teams got before the execs and we made our cases for why our projects should be chosen. When the results came a week later, Paul's team was disbanded and my team was allowed to take the project forward to completion. My team cheered and had a party, and a few months later another party when the project was released and put into production. Our revision control system was in use at Intel from 1986 until 1994 when the underlying Xenix system environment was finally decommissioned.

As elated as we were that our project had been chosen, we never expected that Paul's team would be so upset that they would actually leave the company over their rejection. As a group, they left Intel to go to Microsoft where they took over management of Microsoft's Xenix operating system, and eventually Windows itself.

In a year, every one of the guys from Paul's team had stock options that were worth enough to buy and sell each of us about a dozen times over.

Paul Maritz, the head of the other project, went on to become the vice president of Platform Strategy for Microsoft. Brian Valentine, his software project team leader, became the senior vice president of Microsoft's Windows program.

But our revision control program kicked their revision control program's ass back in the day, so there.

I take my victories where I get 'em. This glass of spoiled milk is not 99% empty, it's 1% full.

Windoze

The engineer's chosen work environment in those days was Xenix, a derivative of the UNIX operating system in use at most colleges, and what was to become over time the Linux movement. It was such a wonderful environment, based almost entirely on simple text files and the idea that you could write your own programs, called shell scripts, to manipulate that data the way you needed at the time. For example, if you wanted to get someone's telephone number out of an address book, it would take only a few seconds of scripting to pull that field out of your address book database. Just try to do that with today's supposedly superior graphical interface programs, such as Outlook or Palm Pilot or whatever; we were more productive 30 years ago under Xenix than we are today under Windows.

The best thing about Xenix was its separation of the operating system and user programs into separate protected spaces. Each user on a computer had a login and no program he was running could affect other users nor affect the operating system itself. This level of security prevented user programs from crashing the computer, such as the famous MS-DOS Blue Screen of Death, or from being viruses that could wipe out the underlying system.



When Windows 3.0 was released, we were so excited to install it, assuming that Microsoft would have used Xenix as the kernel and

put their proposed graphical interface on top of Xenix. We expected the best of all worlds: what you see is what you get graphics, scripting, and protection. We were sorely disappointed to find out it was nothing but a pretty face painted on the old ugly MS-DOS.

Microsoft explained why Windows was such a piece of crap using the following arguments:

1. Home computer users did not need security.
2. Xenix was not “owned” by Microsoft so they couldn’t control it.
3. They needed a “cheap” operating system for the masses (Windows) and an “expensive” operating system for businesses (OS/2).

Naturally, OS/2 sailed like the Titanic and the world adopted the useless, buggy Windows instead. In retrospect, history could not have played out better for the anti-virus software vendors (or the assholes who write viruses).

Another bit of irony is that Apple did not see the light for another 20 years, either, when their release OS X finally adopted the UNIX kernel. Now Apple is known for having a virus-proof environment. And Microsoft still has their collective heads up their collective butts.

So Many Horses, So Little Time

Growing up in California, we can't help but absorb car culture through osmosis. We intuitively understand the color scheme of the lights, the way to zipper as we merge in traffic, and when to wave with one or more fingers. Our parents stop the car on a hill and put us behind the wheel of a car with manual shift transmission and tell us to drive it out. 25 stalls later, we know for life how a car works.

Not so with people from places with mass transit, like, say, Tokyo. My friend Atsuo grew up in that great city and therefore could rely on the trains to take him pretty much anywhere he needed to go. Also, having been born to a wealthy family, he had chauffeurs drive him when he did need to leave town. He never sat behind the steering wheel of a car until he was 26 years old and had moved to the US.

I did not know this when Atsuo and I discussed going skiing together, nor especially when we discussed who would drive. On our first trip to Mt. Hood, I let Atsuo drive and I settled into the passenger seat. To say that I was unsettled in the passenger seat by the time we got to the ski slopes is an understatement.

The speed limit going up the mountain is 55 MPH. How would someone who grew up in the car culture handle that? We'd apply enough pressure on the accelerator pedal, say half the way to the floor, to keep the car at an even speed. Not Atsuo. His approach was to slam the gas pedal of his Mustang all the way to the floor,

revving the engine ‘way up as the car lurched forward. Just as the speedometer would reach 55, Atsuo would release the pedal completely, but of course the Mustang with its 302 V-8 would keep going past 55, perhaps up to 65, before the incline of the hill would slow us down, then the car would slowly drop back down to 55, at which time Atsuo’s foot would go to the floor again. Surging between 55 and 65 the whole way up the mountain had me so car sick I swore I would never let him drive us skiing again. I kept that promise.

Atsuo and I made great ski partners. He was a fairly stereotypical Japanese man, calm and concentrated and measured in everything he did. He made perfect S-turns on the snow, graceful and smooth, and it was amazing to see him slide through a mogul field like there were no bumps at all. I was a typical testosterone driven young American male, and I skied with the philosophy that I had paid a lot of money for those lift tickets, so the more times I could catch air, the more vertical footage I was getting for my ski dollars. I jumped off bumps and over cliffs, screaming like a madman with every jump I made.

Since we lived an hour from Mt. Hood, Atsuo and I made a lot of trips to the snow together. We were the closest of pals at work, programming side by side on project after project. We learned a lot about programming from each other at work, so naturally this kinship carried over to the slopes, and within a couple of years, I was a much better skier, paying attention to my form as I made beautiful S-turns down the mountain.

Atsuo learned from me as well. The sight of his long beard streaming in the wind as he flew wild eyed and screaming over bumps and cliffs was a testament to synergy, and a disgrace I am sure to the centuries of Japanese culture in his blood.

Water Skiing in a Canoe

My buddy Pat and I seemed to get into trouble whenever we were together, and the day that our department decided to have a water skiing day on the Willamette River was no exception. About 15 of us met up at the boat launch and started loading picnic supplies into the speed boat when Pat came driving up with his canoe strapped to the top of his truck. We helped him unload it, then the ski boat driver mentioned that the place where we were going to lay out was a mile and a half upstream from the launch, and he wondered how we would get the canoe up there. Pat said he'd just paddle upriver and we imagined him getting to the picnic spot around the time we were leaving.

Pat had a brilliant idea, and asked the ski boat driver to toss the water skiing rope out. "Tow me up river!" he shouted, so we started to pull him behind us while he used the oar to steer the canoe. Naturally, it failed miserably as the canoe kept turning sideways. I drew the canoe to the side of the ski boat, jumped into the front of the canoe, took hold of the ski rope, and we headed upstream with Pat in the back steering us.

The ski boat sped up a little, then a little more, then full throttle and soon the canoe was hydroplaning behind the ski boat. Pat, realizing that at that speed he didn't need to steer with the oar, came up behind me as we were pulled upstream. Water was splashing over the bow of the canoe into our faces, but we hung on. People along the river were laughing their asses off watching these crazy fools in a hydroplaning canoe.



We had gone pretty far but were still a quarter mile downstream from the picnic site, and my arms were getting really tired. After all, between me and Pat we weighed over 400 pounds in addition to the drag of the water on the canoe, increasing in surges when we went skipping over the waves on the river. I gave the ski boat driver the universal signal for “slow down” to take some of the pressure off my arms. I didn’t expect him to read that as “STOP NOW”. He throttled the boat down all the way.

400 pounds of male human in the front of a canoe doing perhaps 30 miles an hour does not stop well. Not well at all. When the ski boat stopped suddenly, the canoe nose dived into the Willamette River and Pat and I launched out of the canoe and at least 15 feet through the air before coming down in a loud splash. We weren’t hurt, but we would never forget the day we water skied in a canoe.

I would bet the people laughing at us from shore won’t forget, either.

High Key, Low Key, Anywhere You Go Key

Pat plus me plus water equals disaster. On another fun trip with the engineering guys was out to eastern Oregon for some white water rafting on the Butte River. We left Pat's VW van at the take out point on the river and drove upstream in Paul's van. The stretch of river we were about to hit had a number of class 3 rapids, and at least two rapids of class 4 plus, which can be pretty tricky.

However, like most rivers, there are long stretches between the rapids where there's nothing to do but drift. What do a bunch of rowdy guys do during these long stretches? Why, have water battles between the rafts, of course! We splashed with buckets of water, we splashed with the oars, we splashed with anything that could get our friends wet.

Then Pat's raft came on a collision course with ours, and Pat attempted to board our raft, shouting "Arggh, Mateys, avast!" and naturally we repelled him back into his raft. Unfortunately, while we were struggling, we saw something fly off his wrist and into the fast moving river. Of course, it was the key to his van on a plastic strap. For the next hour until we were too cold to continue trying, we dove into the river, looking for that stupid key which by that time was probably floating somewhere near Bali. We got back into the rafts and completed the trip downstream to where Pat's van was parked.

We were able to pry a side window and open the door to Pat's van, but of course unable to turn the ignition. Obviously, the best

solution at a time like this was to hotwire Pat's van. Pat pulled out the wires from under the steering column, spliced a couple of them, and soon we were on our way back home. We stopped by the van parked at the top of the river run, then both vehicles headed back across Oregon, stopping at the other van's owner's house where we all went in, sunburned and exhausted, for a couple of cold beers.

It got dark, so we figured it was time to head home. Pat hotwired his van again, but as we were about to drive away, we quickly noticed something. A hotwired VW van's headlights don't come on just because the engine is running! Pat played with the other wires in the cluster but could not figure out a way to get the headlights lit. In desperation, we decided to take the two flashlights out of Pat's glove box and have two of us hold a flashlight out the side windows of the van and make the five mile trip the rest of the way home by flashlight.

The plan was reasonably foolproof since it was a seldom used back road the rest of the way, and sure enough we almost made it without even seeing another vehicle. Almost. The final 100 yards of the trip were to make a quick crossing through the Hank's Grocery Store parking lot on the side street where Pat lived. We could see his house, and we looked around to make sure there were no cars around that late at night, then we tried to sneak across the parking lot.

The flashing lights of a police car informed us that we were not successful after all. The police officer asked us to step out of the van and present our identification. His partner stood by as we

complied. We opened the door of the van and a cloud of pot smoke rolled out. As the smoke cleared, the cops could see roughly 30 empty beer cans rolling around the back of the van (being environmentally conscious, we couldn't leave those cans back at the river!). They looked in the front and saw no key in the ignition and a tangle of wires coming out of the steering console. They shook their heads, and silently took all our licenses and listened as we rambled on about how we had lost the keys to the van in the Butte River.

The cops, doing due diligence, checked out Pat's van to verify ownership. They looked at the rear license plate and saw that it was from North Carolina. Frowning, they checked the front license plate which naturally was from Texas. Pat explained that he had moved from Texas, which required plates on front and rear, to North Carolina, which only required plates on the rear, and from there to Oregon where he hadn't gotten around to registering his van.

It all sounded very plausible and we were wondering how many months in jail all this represented.

This was long before computerized access to vehicle records, so one of the cops called North Carolina, but since it was after 2:00 AM back there, no one answered the phone. He then called Texas, and someone answered, looked up the license plate number, and replied that no such vehicle was ever registered in the state of Texas (when Pat checked the next day, he learned that the data

entry clerk in Texas had accidentally mis-typed one of the digits on the plate when she entered it into the Texas system.)

Now we were wondering how many years in jail we were going to enjoy.

Both cops stepped out of ear shot, but as we watched them talking, one kept pointing at his watch. All we could imagine was that it was getting near the end of his work shift, and that he could see that processing our stupidity was going to take hours and hours of paperwork, because the cops walked back up to us, put us back in our van, and followed Pat the 100 yards to his house telling us very clearly that if they ever saw us again, we were going to prison.

Yes, sir! Thank you, sir! You'll never see us again, sir!

That rafting trip was the last time Pat and I were ever on a body of water at the same time.

Do You Drive Like I Drive?

Moving to Oregon from California was full of cultural adjustments. I expected the sidewalks to be rolled up at night and for there to be no evening entertainment. I knew it rained more than I was used to so eventually I got used to the idea of mowing my lawn in the rain. What I was not quite prepared for were Oregon drivers.

I happened to be living in Oregon at a time when Oregon was transitioning from agricultural to industrial, and as a result, Oregon drivers acted like they were still behind the wheel of the old John Deere tractors they grew up on. I could not count how many near-wrecks I was in because of some bizarre Oregon driver habit like swinging to the left to make a right turn, or stopping on a freeway onramp to look for a hole in traffic rather than speeding up to freeway speed and zippering in. They would see a hole in oncoming traffic that was perhaps three car lengths and pull out into it then slowly speed up – it's like their physics teachers taught them about velocity but not acceleration as the drivers as the cars behind that tiny gap slammed on their brakes to avoid a pileup.

Stop lights in Oregon were frustrating. When a light turned green, the first car in line went through the intersection, and the second car waited before the first car was completely out of the intersection before starting up. This continued in turn until the light turned yellow at which point the traffic stopped moving again. It was not uncommon for only three cars to make it through a cycle of a green traffic light. However, it was the 4-way stop signs that were hilarious in a slip-on-a-banana-peel way. The drivers

apparently understood the concept of “right-of-way” but never figured out the zen of it. You could hear their tiny brains working, “Okay, I am to this guy’s right, so I have right-of-way, but I am to that guy’s left so he has right-of-way. What do I do???” As a result, drivers of all four cars at such an intersection would sit there, not moving, staring at one another. For a long, long time. Then, as though someone timed the explosion of firecrackers in each one’s ass, they would all start to move forward at the same time. Seeing each other move, they would all stop part way into the intersection. Start. Stop. I would not be surprised if they are all still sitting at the same intersection texting their congressmen for a rewrite of the right-of-way laws.



However, I eventually developed a sense for Oregon driver habits and could categorize them reasonably quickly and put myself behind the least stupid of the drivers. Portland is right across the river from Washington, though, and when I saw a Washington license plate, I would immediately think “I see the enemy, how do I defeat him?” Washington drivers had all the tractor driving habits of Oregonians, but with a mean streak painted on top. They would drive in the fast lane of a freeway at 45 MPH, then swerve out of that lane to prevent you from passing on the right. It was as though they had decided that 65 MPH is far too fast for anyone to drive, so they wouldn’t allow anyone to do it.

I once actually took an off-ramp then the on-ramp on the other side to pass a Washington driver. And he flipped me off.

When I worked in Oregon, I was glad that my home was only seven miles from work. Ironically, when I moved back to California eight years later, I lived 22 miles from work, but it took the same amount of time to get to work as it took in Oregon because California drivers don't know John Deere from Shinola. When people would ask me why I moved from Oregon to California, and I half jokingly said "to get away from the housing and traffic problems", they'd always look away and say "Yeah, right." Little did they know.

Small Fries, Big Guys

During the ramp up of the great computer revolution, computer stores were tiny, cramped places that looked more like basements than stores. Cement floors, glass-topped counters with gray haired geeks behind them, cheap metal shelves cluttered with boxes. Most of all, these stores only carried one of each thing: one brand of keyboard, monitor, mouse, and usually next to speaker wire, DIP sockets, soldering irons, and a thousand other bits of basic electronics gear.

The first time I walked into a Fry's Electronics, I stopped after doing a classic double-take at the front door. "What the hell is this?" I wondered, "Shopping carts at an electronics store???" I walked through the huge double doors, electronically opened like the grocery store Fry's used to be, and I wondered if I had flown to another planet.

Fry's aisles were as wide as normal grocery store aisles, and sure enough I saw people pushing shopping carts through them. I gazed in wonder at a sign that read "Keyboards" and when I wandered there I was stunned to see 15 different keyboards, and 10 different brands of mice under the sign next to it. They had ten different brands of computer monitors on display, and printers, and modems, etc. It was a nerd's dream and I walked around in a daze, leaving the store hundreds of dollars poorer with a huge smile on my face.

Brilliant.

Intel Bastardized Oh Hell game

Board games were not the only games we rewrote rules for. The rules for card games fell victim to engineering imaginations as well. We started playing a card game generally known as Oh Hell but fairly quickly the rules had been changed to the point where we started calling the game Intel's Bastardized Oh Hell Game, or iBOG.

The rules for iBOG at first glance resemble other trump games, like Spades. A round of cards are dealt to the players and a trump suit is chosen (in Spades, the trump is always spades... duh). In iBOG, the trump suit is chosen after dealing the cards to the players by cutting the remaining card deck to reveal the trump for that hand. A "trick" is a round of one card played by each player, and the winner of that trick is the player with the highest card played.

The number of tricks in each round changes each round. In the first half of the game, the first round is played with 10 tricks, the second round with 9, and so forth down to a 1 trick round. The second half of the game reverses that, starting with a 1 trick round, then a 2 trick round, and so forth up to 10 tricks. If the number of players is large, play starts and ends with the largest number of tricks possible with that many players. (Examples: 54 cards total, so up to 5 players start with a 10 trick round, 6 players start with a 9 trick round, 7 players start with a 7 trick round, etc.)

Players must follow the suit led if possible, and only if they have no cards in the suit led may instead play a card in any other suit except the trump suit to intentionally rid themselves of an unwanted card, or play in the trump suit in order to take the trick, or dump an unwanted trump card by playing lower than another trump played. When more than one player uses a trump card, the highest trump played wins the trick.

“Breaking trump” means that until at least one player has trumped a suit led, no player can lead trump suit unless trump are the only cards remaining in their hand. Once trump is broken, any player may lead trump suit even if they have non-trump cards in their hands.

Scoring in trick games often includes “bidding”, or predicting how many tricks you will take before the round begins. In most trick games, the more tricks you take, the higher your score.

At this point, like Oh Hell, iBOG strayed from the family of trump based games significantly. The first major change was that in the bidding you needed to predict exactly how many tricks you would take in that round. Only if you took the exact number of tricks would you get a positive score for the round; taking fewer or more than your bid would cause you to lose points.

IBOG further modified scoring to incentivize players to take risks in their bidding. We invented the concept of “expected bid” (or “E-bid”) which was the number of possible tricks in the round divided by the number of players, yielding on average the “easy”

bid. If there were 8 cards in the round, for example, and 4 players, the E-bid would be 2 tricks per player. We wanted a system that would reward a player in such a round to bid higher, such as 4 tricks, or lower, such as 0 tricks.

Scoring iBOG was an engineer's dream. Making trump (i.e., taking exactly the number of tricks bid) was scored as 10 points for making bid plus a bonus of 5 points for every point difference between the bid and the E-bid. For example, if E-bid was 2 for that round and a player made a bid of 0, they scored 20 points. Similarly, a player making a bid of 4 scored 20 points. A player making a bid of 2 would score only 10 points for that round.

E-bid is rounded down to the next lower real number during the first half of the game, and rounded up to the next higher real number during the second half of the game. Example 1: with 10 tricks and 4 players, $10/4 = 2.5$; E-bid is 2 in the first half of the game or 3 in the second half of the game. True rounding is used, so in example 2: with 7 tricks and 4 players, $7/4 = 1.75$ so the E-bid is 2 in both first and second halves of the game; rounding in first and second halves of the game for the same number of tricks is only different if the part past the decimal point is “.5”.

Failing to make bid, or “going set”, caused a player to lose points. The number of points subtracted from their total score was the square of the difference between the number bid and the number taken. Bidding 2 and taking 1 or taking 3 tricks resulted in a loss of 1 point, however bidding 2 but taking 0 or 4 tricks resulted in a loss of 4 points (2 squared). Bidding 4 and taking 0 meant losing 16

points, and so forth. At the end of the game, the player with the highest score wins.

In many trump games, the truism “The dealer always wins” pervades. The dealer, by bidding last, gets an advantage in most trick games by getting to hear how everyone else had bid then they adjust their bid to match. The “Screw the dealer” rule compensates for this advantage. The dealer is not permitted to bid such that the number of total tricks bid by all players equals the number of possible tricks that round. For example, in the example where there are 8 tricks with 4 players, if the three other players’ bids total 6 tricks, the dealer is not permitted to bid 2 because that would total 8 and in theory everyone could make their bid. This rule could really suck, for example, in a 1 trick round where the dealer is forced to bid 0 while holding the ace of trump.

IBOG includes an addition of two jokers to the deck, and the invention of joker rules. The first implication was that it was possible, when the trump suit for a round was being determined, that a joker could appear which meant that the round would be played with no trump suit defined. In this case, tricks played would go to the highest card in the suit led.

Since two jokers could appear in the same trick, each joker rule needed to be split by “first joker” and “second joker” to represent the order in which jokers were played during the trick. These joker rules also applied most of the time to both jokers played in the round, even when played in separate tricks in the round. The

definitions of joker rules grew over time, but included at least the following:

First Joker	Second Joker	Definition
True Wild	True Wild	Either joker played could be any card, including “Boss Trump” (a trump higher than any other card) or “Bosser Trump” (higher than any other card including the first joker played during that trick). The card could also be “Baby”, i.e., lower than a 2 of any suit to intentionally lose the trick. When playing a True Wild card, it was required to specifically name the suit being played.
Boss Trump	Baby Trump	The first joker played in the round acted as Boss Trump, a trump suit card higher than the ace of that suit. The second joker played in the round was Baby Trump, still a member of trump suit, but lower than the 2 of that suit.
Reverse Rank	Unreverse or Reverse	Normally, within a trick, the ace is considered the highest rank and the 2 the lowest. When the first joker is played, for that trick only the rank is reversed with 2 being highest and ace being lowest. If the second joker is played in the same trick, it “unreverses” the rank, making ace high again. If the second joker is played during a different trick, it acts as though played as a first joker, i.e., reverses rank for that trick. . If a joker is led, the suit for that trick is set by the next player’s card.
Boss Trump	Null	Use it or lose it. The first joker played during the round acts as Boss Trump. The second joker played is a null

First Joker	Second Joker	Definition
		card as though blank. If the second joker is led, the suit for that trick is set by the next player's card.
Null	Boss Trump	Lose it or use it. The first joker played is a null card, the second joker played is Boss Trump. If the first joker is led, the suit for that trick is set by the next player's card.
Cancel Trick	Cancel or Uncancel	The first joker played cancels the trick and no one gets the trick. If the second joker is played during the same trick, it "uncancels" the trick. If the second joker is played in a different trick, it acts like a first joker, i.e., cancels that trick also. If a joker is led, the suit for that trick is set by the next player's card, and play must follow normal trick rules but then the results are discarded if no uncancel joker is played.

In the case of a no trump round, the First Joker rule is canceled and the Second Joker rule applies to the other joker, if played during the round. If the joker rule is a trump rule such as baby trump, in a no trump game the joker becomes the only trump card in the deck.

The sequence of play:

1. Dealer chooses and declares the joker rule for the round
2. Cards are then dealt to all players
3. Trump suit (or no trump) selected by a cut of the remaining deck by the player to the dealer's right. If there are no cards left in the deck after dealing, such as a 9 trick hand dealt to 6 players, the round is played with no trump. If a joker comes up, the trick is played with no trump

and the First Joker rule is voided; if the second joker appears during play, it acts like a second trump by the current joker rule

4. Bids are made and written down starting with the player to the dealer's left and proceeding clockwise
5. The dealer bids last, ensuring that the total of all bids made does not match the number of possible tricks that round
6. The player to the left of the dealer leads play for the first trick
7. The winner of each trick plays the lead card for the next trick
8. In the case of a canceled trick, the player of the joker that canceled the trick leads the next trick
9. Tricks continue until all cards have been played
10. Score for the round is tallied and added or subtracted from each player's total score

An example score sheet might look like this (obviously, with more columns for all players), however a simple spreadsheet with the number of players as a variable can speed up play by pre-calculating the E-bid for each round.

The 1980s

Round		Player 1				Player 2			
Tricks	E-bid	Bid	Taken	Score	Total	Bid	Taken	Score	Total
10									
9									
8									
7									
6									
5									
4									
3									
2									
1									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Fat Cables

One of the functions of the Software CAD group at Intel was to provide and support an infrastructure for raising engineering to a new level of sophistication. At the time, there were no computer networks, and everyone worked at standalone PCs and shared files using floppy disks. Intel was a co-inventor, along with Xerox and Digital Equipment, of a proposal for computer sharing networks called Ethernet, something that at the time we figured would last us for ten years before being replaced by the next best thing. Had someone told us at the time that Ethernet would be the dominant networking technology for at least 30 years, we would have been blown away.

And a bit surprised, since at the time, Ethernet was a cumbersome beast using a fat coaxial cable, and up to three cables with repeater hubs between them was the limit of its reach. However, to a group of nerds whose sneakers were worn out shuffling floppies around, the fat cable was our savior.

One weekend, the Software CAD team came in with ladders and the bunch of us opened up the panels from the suspended ceiling and started draping meter after meter of fat coax cable in the ceiling suspension cabling overhead. We drilled into the coax to send taps off the cable down to the repeater boxes in the labs which would provide the heavy duty jacks from cable connectors to each computer in the new network.

While Saturday we laid the cable, Sunday was consumed with troubleshooting why it wouldn't work. That was the day I learned how to use a Time Domain Reflectometer to locate the two places in this massive network where our drilling into the fat cable had left tiny bits of copper shrapnel, shorting out the whole network. Finally, Sunday night, everything was up and running and we were ready for the mob the next day to see what we'd accomplished.

Engineering started to power up their computers and plug them into the new network, and things just worked. 10, 20, 30 computers came on and still the network was running. We finally went for it and powered up all 120 computers and nothing crashed, nothing stopped. We copied files between computers, we printed files from a remote print server... it all just did what it was supposed to do.

When there was an all-hands meeting called to congratulate us on the successful deployment of the new computer network, we beamed with pride and were ready to accept the gratitude of the management as well as the masses whose lives would be improved.

What we did not expect was that we'd get our asses chewed out after the all hands meeting by the facilities manager who attended the meeting. "Don't you realize that the Unions own everything from the ceiling tiles up? If they find out you climbed into the ceiling last weekend, we could get sued." We struggled to wrap our minds around the idea that we were not supposed to have laid the cables at all, and worse, we realized that if we ever needed to troubleshoot problems, or drill more taps to add new repeaters, we

would be required to fill out a request for a Union worker to do it for us, which of course was impossible since Ethernet was so new, no Union worker would even know how to do it.

The solution was ugly, literally. We paid the Union to take the cables out of the ceiling, drop cable trays *BELOW* the ceiling tiles, then lay the cable in the trays. Unfortunately, it would be another 15 years before phone plug style networking was available, and 25 years before wireless, so the ugly trays were a part of the décor for a long, long time.

Top Secret

Working on a top secret project is rather ego flattering, but can often be a source of major frustration as well. I was on the team that designed the emulator for the Intel 286 microprocessor. An emulator is a device that plugs into the socket that a real microprocessor would normally plug into, and run like it was a real microprocessor, but instead it would have superhuman ninja skills like the ability to start and stop running at any time and at any place in the computer's programs, and also provide traces of where the computer has run. Emulators are a great way to debug both computer hardware and software.

Our first customer for the 286 emulator was unknown to us, and the guys from that company who came to Oregon to work with us as we debugged the 286 emulator would not give us business cards. To make matters worse, the cable from the emulator went through a tiny slit in a wall and the customer's hardware was on the other side of the wall, completely hidden from view.

The problem with testing an unknown emulator plugged into an unknown system is fairly obvious. You never know if a problem is with the emulator or the system. The way you normally figure out which is causing the problem is to examine the target system's memory or input/output ports, and to analyze the traces of program execution.

Unless of course the customer's engineer is sitting next to you telling you that you can't do it, as this customer did for his top

secret project. “No, you can’t display that trace,” he might say, “but I can let you see this other trace.” Another time he might say, “Sorry, you are not allowed to display this section of the computer program.” It was damned tough to figure out what the problems were, but eventually we got the emulator and the customer’s system both working.

It wasn’t to be for another year that we learned we had been working with IBM on the PC/AT computer.

Leaving a Key by the Back Door

The Software CAD team had been struggling to find a solution to a problem posed to us by the engineering staff. They complained that with their current software maintenance methods that when a customer had a problem, there were only two solutions to the problem: sell or give the customer the latest version of the software. What they wanted was a way to apply a fix to the customer's current software for the specific problem.

Six months went by and we had no solution until one night at 3 AM I had a dream of how to solve the problem. If the engineers put all their files under revision control, then added revision control information to the process of rebuilding software, it seemed to me that we could "branch off" these special customer versions of the programs. No one had merged automated program builds with version control before, so we would have to invent the concept ourselves.

The next day I explained my dream to the team but they didn't see how it solved the problem. I waited a day, then called them into a conference room and explained the idea again. The second time they got part of it, but still couldn't grasp some of the details. Fortunately, we had just worked together on another 10 man-year project and we had established a sense of trust, so they gave me the project management role and let me loose to direct the team.

I was a bit of a tyrant when it came to running a software development group, and did something really unusual for this

project because they still didn't get the overall concept: I made them put their keyboards aside, pull out 11x17 sheets of paper, and diagram the entire system using a methodology called "Structured Analysis" by which we would diagram all the pieces we needed to design and implement, and define all the data that would pass around the system. I even made a poster for the team that read "Have You Hugged Your Structure Charts Today?" All our design reviews for the first six weeks of the project were done using the charts.

Finally, we were happy with our charts, so we had our department admin convert the charts into a pseudo code language that we invented, had our team expert, Dzung, write a compiler to turn the pseudo code into C programming "wrappers" with all the pre-defined data structures included, and within a week we jumped into the coding phase. The coding phase still took another six weeks, but finally we had "everything done".

"Everything done" of course is a meaningless phrase in software design, since engineers are NEVER done. At best, we grudgingly allow our software to hit completion dates, otherwise we would keep fine tuning and improving the damned programs forever. Perhaps it would be better to say that we were ready to start testing. We fired up the program, and after a few minor core dumps due to operator error, we watched it start to do its thing.

We threw simple test cases at it, and it worked. We threw harder test cases at it, and it still worked. We decided to shoot the moon... we threw a complex test case at it where we didn't even

know the answer. Crunch, crunch, crunch... the program ran for a couple of hours, and we watched in amazement as its thought processes scrolled down the screen and into a progress log. Finally, much like in the Hitchhiker's Guide to the Galaxy, we were left with a single resulting answer to life, the universe, and everything, the program builder's equivalent of "42". We spent the next three days pouring over the progress log before coming to the realization that the answer was the right answer. This was a special event for us because we realized we had designed a program that was smarter than any of us. We released our program into general use shortly after that, with cleanups and improvements of course, but for the most part it looked like what I had dreamed about that night months before.

I drove the team crazy by making them keep the Structure Charts up to date as we modified things during final development and deployment. I figured it would be an important piece of documentation in case we had to make any major changes in the future. However, I was pretty sure that by that time I was the only one paying attention to the charts.

Then I got a job offer from outside Intel, an offer that for many reasons was too good to pass up, and I announced to the team that I was leaving the company. I gave six weeks notice so that I would have plenty of time to find my replacement, hire her in, and train her on how the program worked. Donna joined the group three weeks before I left, and the Structure Charts were now a critical part of the training process. I relied heavily on them to give Donna

a feel for how the flow of the program worked, and how to break into the structure if necessary to make major changes in the future.

My final week before leaving, someone jokingly (I think) suggested that the team was worried that I would leave a “back door” in my software that would allow me to break in from the outside after I left the company. This was silly since I was not even going to a competitor, but maybe my reputation as a joker had them worried. Naturally, this planted an idea in my head. I snuck the master set of Structure Charts out of Donna’s office, scanned through what was now in excess of 50 pages of bubbles, and found just the right place... at the bottom of page 38 I added one more bubble labeled “Bill’s Back Door”. I snuck the charts back into Donna’s office.

Four months went by and I had forgotten my last gag before leaving Intel. I was surprised when one day I got a phone call from Donna. She was laughing. “I found your back door on the structure charts,” she chuckled, “And went into the code to make sure it wasn’t actually in the program. I just wanted to give you a call and let you know I found it and that I appreciated your sense of humor.”

Some stories don’t have a punch line, really, yet the ending can be just as sweet. A couple of years later, Donna also moved from Oregon to California where she met a co-worker of mine from the Intel sales office in California on one of our Dive Lunch Club Wednesdays. She and Greg married a year later, and together they moved back to Oregon.

Nerd Fashion

Engineers are an odd bunch. They are not like ordinary mortals, but instead share some intense and eclectic interest in figuring out how things work then creating something new and unique. It's a combination of art and science and math with a required skepticism of authority or the status quo. For some reason, sometimes these personality traits also manifest themselves in really odd ways like a disregard for hygiene or an almost fanatical disregard for even the most basic of fashions, like matching the color of their right and left socks.

Knowing that engineers are so eccentric, Robert's wardrobe was not as patently offensive as it might have been in real life, like in a law office, an accounting firm, or a fast food restaurant. Robert wore the same outfit every day: tan corduroy pants, black socks, black tennis shoes, and a t-shirt with some large and usually dumb logo splashed across the chest. Especially since Robert was a particularly intelligent software engineer, it almost made sense that the hem of Robert's left pant leg settled about an inch above the top of his left tennis shoe.

It was the right leg that defined the mystery. Robert's right pant leg settled easily five inches above the top of his right tennis shoe, exposing his lovely black sock and typically even an inch or so of lily white flesh. We tilted our heads to try to solve the mystery... how could his left and right pant legs be 4" different? Was one leg longer than the other? Did Robert walk oddly, favoring one leg over another? We initiated a secret reward program for anyone

who could solve the Mystery of the Missing 4” of Robert’s Pant Leg.

The prize went unclaimed for months, deepening the aura of uncertainty. Rumors abounded of alien abductions, mirrors and optical illusions, LSD in the water cooler... none of these explanations, logical as they all were, held up to the scientific scrutiny required to claim the reward. Morale began to plummet since of course we thought we were the most brilliant minds in the known universe, and Canada.

The answer came to us in the most unexpected way, on a Dive Lunch Club Wednesday when a large group of us headed to a local Mexican food hole in the wall for lunch. Robert had become a regular in the Dive Lunch Club, so we’re not exactly sure how the simple truth eluded us for so long, but that special day when we went to the cashier to pay for lunch, a magical thing happened. Robert pulled his wallet out of his right rear pocket, and like a venetian blind with the strings cut, his right pant leg fell even with his left pant leg.

At first, we were too stunned to speak. Then all at once the rest of us started talking at the same time, all saying the same thing: Robert, can we see your wallet? Robert, who of course had no clue about the contest for his missing pant leg, gladly showed us his wallet which was so thick, bulging, and tattered that it looked like a rotted orange. Robert, wondering why we were curious, opened his wallet to show us his collection of photographs, which must have taken years to assemble. Though Robert was in his mid-30s, he still had

at least a dozen pictures from high school friends. He had pictures of nieces and nephews. He had pictures of his parents. Robert even had pictures of his next door neighbor's dog (his wife having asthma, they couldn't have pets of their own).

He paid for his part of lunch, put his wallet back in his pocket, and his right pant leg rose back up to its position in the heavens. All was right with the world again.

Mr. and Mrs. Nerd's Wild Party

Robert was a kind, happy man, friendly as they come, but visually he was something of a distance painting. Up close you could see that his mustache had never quite filled in, and his long brown hair was always greasy as though he used olive oil for conditioner. We had never met his wife, but he had mentioned to us that she was also a software engineer. We assumed she was partly blind or something.

Robert had a party at his house, which was our first opportunity to meet his wife. When my wife and I arrived unfashionably on time, Mrs. Robert opened the door and if not for the lack of a mustache, I would have thought it was Robert. She had the same long, scraggly, greasy hair. She was wearing jeans (at least they weren't tan corduroy pants) and a t-shirt with a silly logo splashed across the front. Aside from those minor cosmetic differences, they could have been twins. She smiled, and the same goofy but friendly personality came through in an instant and we were welcomed into the Campbell household.

We entered and headed to the table to grab a drink, noting that the choices of drinks were Coca Cola, Orange Crush, or 7-up. No alcohol, which I suppose is fine except that it left our brains far too sober to take in and process the visuals that came as we wandered into the living room. Robert, ever the techie geek who had to have the latest toys, was showing off his brand new 32" television set. Since the set was so much larger than the TVs of that time, he and his wife had to modify the wall unit into which the TV set was

housed. Below the TV was a top of the line VCR (and yes, the time was set correctly on the VCR... no blinking 12:00s for the Campbells).

The rest of the wall unit was packed with every pornography video tape possibly ever produced. The covers of the more famous ones were proudly displayed facing forward: Deep Throat, The Devil in Miss Jones, Debbie Does Dallas. The hundreds of others simply had the sides showing, alphabetically sorted of course.

Written somewhere I am sure is a book of things you never want to know about other people. Especially people you know. Especially software engineers you know. Chapter One of said book I would guess is that you don't ever want to imagine their sex lives.

Included in that particular chapter is that you never ever want to imagine two software engineers watching porn while engaging in their sex lives. And I am pretty sure that the idea that they might breed is a violation of Darwin and the origin of species. On the other hand, maybe that's where microcode engineers come from. Science (or science fiction) may never know the truth.

Nerd Breeds

It would be overly simplistic to lump all engineers into the same “Nerd” category. Certainly, all engineers share a number of characteristics, which must be a side effect of the combination of artistic and analytical skills needed to perform the job. However, there are subspecies that must be considered. The difference between hardware design engineers and software design engineers, for example, was broadcast in high definition in the following story.

I was working as a diagnostic engineer at the time, which is essentially the software member of the hardware design team. There were two of us, and our function was to write test programs to tell the hardware designers whether their inventions worked, and help them troubleshoot problems that we could catch. This was distinct from the software members of the product team who wrote the programs that customers would run to actually use the products we sold them.

As all product teams should do, we held team building parties at key milestones in the product development, and one such party was held to celebrate the first customer shipment of our gadget. We reserved the back room at a local pizza parlor and left work a couple of hours early.

Birds of a feather. When we got to the party, like a migration of swallows, the software engineers were all seated together at one end of the long table, and all the hardware engineers at the opposite end of the table. Charlie and I, being the two diagnostic

engineers on the team, ended up sitting across from each other in the middle between the two groups. The restaurant's wait staff came by, took drink orders, then returned to the party room a minute later with large pitchers in hand.

I looked to my right then to my left. Charlie looked to his left then his right. We looked at each other and started laughing our asses off. At the end of the table with the 14 software engineers were 4 pitchers of Diet Coke to be shared among them. At the end of the table with the 8 hardware engineers were 8 pitchers of beer, one per engineer. Charlie and I raised our beer mugs, clinked them, and wondered why the difference between the two engineering disciplines was so clear cut.

Nerd Women

Some of the unsung heroes of the computer revolution were the department secretaries. These people, usually women during the 70s and 80s, were often more computer literate than their bosses, and were the ones who really ran the office. While we dreaded getting a pile of pink “While You Were Out” phone call slips from them, we always appreciated how well they covered for us when we did not want to be bothered by trivial calls.

If there was any doubt about the desperate need for secretarial skills, Vice President Earl Whetstone of Intel dispelled any doubts. We were driving a program to outfit every member of the Intel sales department with laptop computers when we discovered that Earl could not type. Since his review of our program was critical, we panicked. It was his secretary that put our project back on track by getting Earl a copy of Mavis Beacon typing tutor software. She patiently set Earl’s computer up with the program, showed him how to start it, and let him loose.

We sent her a bunch of flowers to thank her for rescuing our program.

To B or Not to B

Octel Communications had some pretty progressive policies regarding the health of its employees, though in my humble opinion, they went ‘way overboard with one program that they brought in to deal with employee stress. It was mandatory attendance for all employees, and we packed the entire company into the auditorium to listen to talks given by a hired health consultant firm. The first few minutes were pretty predictable, talking about stress and the health issues associated with stress.

The next hour of the training was dedicated to describing Type A people (aggressive and ambitious) and Type B people (patient and easy going). So far, I was with the program, until the trainers took a much more aggressive position which basically stated that Type A people are sick and Type B people are healthy, and that the rest of the 4 hour training event was going to be about how Type A people could train themselves to be more Type B. At that point I had to stand up to them, saying “I am a Type A person, I love being a Type A person, and if my multitasking lifestyle makes me break down, I will pay doctors to fix me, but I have no intention of changing into a Type B person.”

The trainers’ stern look of disapproval at my comment was not enough. They explained to the rest of the crowd that I was a typical example of a Type A personality, and a good example of what they wanted to avoid. For the remainder of the training, every time they needed an example of Type A behavior, they would

point at me as proof of their positions, and proof why the others should learn their techniques for becoming more Type B-ish.

One of the best techniques for stress management, they explained, was to exercise more often. “In fact,” one of the trainers added, “One of your co-workers will be teaching aerobic fitness classes here on your campus. Is that instructor here?”

They could not hide the draining of all the blood from their faces when I stood up and waved, though the blood rushed back in, turning them red, when the Octel crowd roared with laughter for the next two minutes.

Disorientation

Octel did have some of the healthiest employee policies I have had the pleasure to work with, and one of the unusual policies was that they did not hold employee orientation until a month after joining the company. The first words from Debbie Dash, the human resources person running orientation, have stayed with me all these years: “You may have noticed that you are over-qualified for your job.”

Debbie was absolutely right. Within a week of joining the company I realized that I was capable of doing everything on the job description and had time left over. Having extra time, however, enabled me to do things outside my job description, like training some of the other engineers on the use of In-Circuit Emulators for debugging their designs, creating macros to automate downloading the system software, and so forth. I set up the lab debugging environment and organized the equipment. I helped create the computer file archives and logging procedures.

“We intentionally hire over-qualified people so that you have plenty of spare time to take on the many tasks that never show up in a job description but are needed to grow the company,” Debbie continued. That simple statement of company policy changed forever the way I think of employees as partners, not resources.

The 1990s



1992: IBM PS/2 signals the beginning of the end

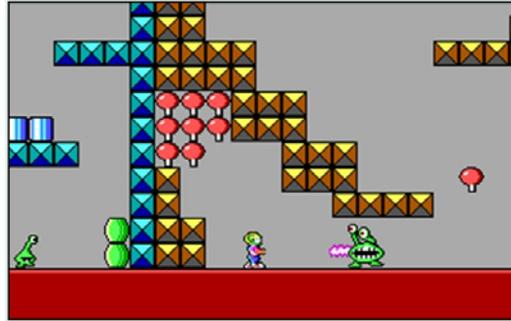
1995: Microsoft Windows 95

1996: Netscape Navigator

1997: First Platform Conference

1999: The world panics with fears of Y2K

Commander Keen



The first games were mostly side scrollers. A fixed background that at most shifted to the left or right as player's small character icons moved around it were the state of the art at that time. On the consoles, games like Donkey Kong were popular. On the personal computers, we saw the rise of games like Commander Keen.

Duke Nukem

A natural evolution of the kid oriented games like Commander Keen were the more aggressive shoot-em-ups. Duke Nukem was a great example of the adult class of the side scrollers, and we merrily led Duke through caverns, up ladders, jumped over pits, all in the joyful pursuit of alien blobs to disintegrate.



Two and a Half D Games

During the generation of side scrollers came some experiments in 3D gaming. Essentially these games were two dimensional, but with a real floor plan that allowed you to wander corridors in something that looked three dimensional. The games were pretty immersive. These games, like *Catacombs of the Abyss* and *Castle Wolfenstein*, opened new vistas for gaming. They forced users to hold images in their mind of the overhead view of the world they inhabited.



We noticed something bizarre with this first generation of almost 3D games... nausea. Walking through the corridors of the fantasy worlds actually made some of us physically ill. It took a while to find the root cause of this problem, which turned out to be that it was related to the complexity of what was on screen at that time. When there were only a few graphic objects to display, the entire screen could be updated at a full 24 frames per second. However, when the screen was cluttered with many objects to display, the limited processors of that day would run out of time and the frame rate might drop below 15 frames per second. The speeding up and

slowing down of the frame rate as you wandered the corridors affected your inner ear, which essentially led to seasickness on land. To fix the problem, game developers changed to a fixed frame rate, and if the screen complexity got too high to complete the screen updates in the fixed amount of time, they simply stopped drawing until the beginning of the next frame period.

Such a flaw could have stopped computer gaming cold without such a solution.

3D Games – Duke Nukem

Having become accustomed to side scrolling games, and their bastard step children the overhead view role playing games, we really did not expect quantum leaps in sophistication. When we picked up a copy of Duke Nukem 3D, naturally we assumed that the “3D” was hyperbole. We booted the game, expecting yet another side scroller, but instead a virtual reality world opened to us. A new world order had begun, one with a full three dimensional view of the world where you could randomly walk around corners or look up and down.



Duke Nukem 3D combined the joys of total mayhem with a bit of PG-rated sex and the wisecracking voiceover of the Evil Dead movies. “Who’s your daddy?” became the war cry for our hero Duke as he wasted monsters with every other step.

Shadow Warrior

Shadow Warrior was not a change in game play, and in fact was basically a rehash of the mostly three dimensional Duke Nukem 3D, but it broke new ground in another way by integrating a keen sense of humor throughout the entire game. Who could do anything but laugh out loud when fragging enemies while your main character Lo Wang muttered in a faked Asian accent “Everybody dead. I like that.”? Ooh, you are tiny grasshopper.



Descent

The next generation of 3D games stepped outside the limits of the Duke Nukem 3D world. These limits included not being able to move up except in jumps, or randomly look up, down, or anywhere you wanted with complete freedom. To get to the next level of game playing, full flight simulation worlds needed to be created. When Descent was released, we finally felt the gaming equivalent of weightlessness. In Descent, you piloted a space ship in a space world of complete $(4/3)\pi r^3$ freedom.



The Descent generation of flight simulation was notable for another reason. These games came out when personal computer networks were increasingly deployed and popular. These networks could be as crude as a cable connecting two computer's serial ports together, or full fledged Ethernet based networks with nearly unlimited bandwidth. At S3, a graphics company, we clearly had the need to test the Descent playing capabilities of the Virge controller fully by connecting 8 computers simultaneously into a massive multiplayer Descent world and we spent hours flying

around fragging each other. Virge passed the test. Yay. Now eat missiles and die, scumbags.

Another aspect of the games released in this time frame included the support of user level editors. A number of these games, including *Shadow Warrior* and *Descent*, came with an editor allowing people to create their own levels for personal enjoyment, like at our home, or for submitting to the world at large, mostly through bulletin boards and much later through internet web sites.

My kids and I spent hours fragging each other in worlds they created using the level editors.

Girls Games

Let's face it, guys like to blow shit up. The bigger the explosion and the noisier, the better. Give a guy a choice between a cherry bomb and a cold beer and odds are he'll take the cherry bomb, light it off, then say "Isn't that cool? Now didn't I just earn that beer, too?"



While the game designers for guy's games were giving us ways to blow up entire planets with the press of a controller button, games targeting girls were also gaining a head of steam. These games tended to be more about problem solving and building character relationships. Roberta Williams and her team from Sierra Online came out with King's Quest, followed by dozens of other similar titles with one thread in common: the characters moved at your speed. Women had discovered the joys of eyestrain from computer monitors.

Gag Gone Sour

I am always up for a good gag, but even I have to admit that sometimes they can get out of control. This one started out as a little revenge and ended up with a private investigator hunting me down.

My friend Carmine should have known that having an affair with a married man could only end up badly, but love is one of those things that people can only marginally fool themselves in believing that they control. For years she hung on believing that Victor would leave his wife for her, and when Victor finally admitted that he would never leave his wife, Carmine broke down.

A woman scorned is a dangerous beast, and I should have known better than to be drawn into this mess, however when Carmine approached me with her plan it sounded innocent enough. She fed me with lots of details of Victor's life when he had lived in Chicago, about his boat and about the fishing trips he used to have with his friends. She gave me names and dates and basically everything I needed to work the plan.

Victor was about to turn 50, and he was a good old boy from the Midwest. Macho, demanding, homophobic, drank too much, ate too much, spent too much, basically he lived life as though it was a pig to be greased and tackled. Nothing stood in his way, he was never beaten, and his success was almost a given result.

Victor was a vice president at his company, so of course had a personal secretary. I called Victor's secretary with the story that I was an old friend of his from Chicago, and that since Victor's 50th birthday was coming up, a few of us wanted to surprise Victor with a party. The secretary was cautious at first, but when I was able to feed her enough names and dates, not only was she convinced of my veracity, she thought possibly she had even met me before on a fishing trip. She was not only in on the gag now, she was an active participant.

Over the course of the next week, we plotted in secret. I told Victor's secretary that we would need a nice restaurant for the party, so she made reservations for a party of 10 at a high end Italian place in a nearby town. I told her that all of us were flying in from Chicago that afternoon, and even gave her a valid airline and flight number that would have us just getting to the restaurant at around 7:00. Everything was set.

The secretary wasn't about to miss the fun, so she not only came to the dinner under the pretense of designated driver, but also invited Victor's co-worker who had also come from Chicago and would probably know the gang who was flying in for the party. They arrived at the restaurant and waited for the fun.

However, when the "fun" arrived, instead of Victor's old gang of buddies, it was a sexy, slinky, slutty looking woman in a mini-skirt, wearing some Fuck Me Pumps, showing lots of cleavage, and who proceeded to put on a huge show of brazenly flirting with Victor.

She sat in his lap, arms around his neck, kissing him while the secretary and his co-worker watched.



Then the woman stood up, pointed at Victor, and in a loud voice at least an octave lower, said “You bastard, I am half way through my sex change operation. You said you’d pay for it. How dare you cut off my money now?” Victor looked for, and found, the Adam’s apple that confirmed that he had just been making out with a transvestite. The night of Victor’s birthday was not the fun filled party the secretary had hoped for, and she felt incredibly guilty about her role in setting it up.

Carmine was still not satisfied, and she revealed to me a closely guarded secret. She was also a writer for the largest trade publication of the day and wrote a weekly column for that magazine under a pen name. Carmine suggested I keep an eye on that column, and sure enough the following week there was a scathing story about some drunken local executives that seem to be unable to tell boys from girls.

Carmine also had paid for a photographer to be nearby, so everything was caught on film as well. She sent to me photographs of Victor with his transvestite, and asked what we could do with them. I was ready to drop the issue, but Carmine pressed on and when she found out that I used to work with the president of the company Victor worked at, she convinced me to create an

overhead projection transparency of the picture of Victor with the transvestite on his lap and a copy of the magazine article and send it to Victor's boss, the president of the company, suggesting that he show it at the next executive staff meeting.

It took Victor ten months and from what I hear, nearly \$40,000 before his private investigator tracked me down. Triumphant, Victor called me one day to confront me over the phone that he knew who I was and what I had done. I think he was disappointed when I agreed that the gag had gotten carried away. Though I never apologized, I never heard from Victor again either. And I never helped anyone else pull a gag again if I wasn't sure about its innocence and intent.

Intel Inside

I learned an important lesson about marketing when Intel brilliantly started the “Intel Inside” program. Why, we thought, should anyone care about who manufactured one of the roughly 200 chips inside of a personal computer? When the campaign turned out to be the most successful in Intel history, and probably the entire computer industry, I realized the power of name recognition.

In the sales office, though, we were possibly a bit jaded since we saw some of the ugly politicking and underhanded back stabbing that turns a multi million dollar company into a multi billion dollar company. We discussed the possibility of repackaging condoms with Intel Inside logos for our customers. Fortunately, we never got past joking about it.

You've Got Mail

The best gifts are the gifts that keep on giving, and giving, and giving. It was actually kind of fun going to COMDEX in Las Vegas with a marketing guy, Bruce, as my roommate, and we teased each other mercilessly about marketing guys who turn engineer's lovely products into bullshit, and he teased me about engineering guys who don't have sufficient social graces to be allowed to meet customers. The playful ribbing went on all week, but alas, he had to leave to go back to the office a day earlier than I had to.

Bruce left early in the morning to go to the airport, and he tossed one last insult at me before the door closed behind him. Then I smiled. On the counter he had left his show badge and I immediately got a wonderfully evil idea how to have the last laugh. COMDEX was a huge show in those days. Hundreds of thousands of attendees, thousands of vendors displaying their good, lots of beautiful bimbos in skimpy outfits showing off products they had never heard of before, huge late night parties, hour-long lines to get taxis, it was truly insane but magical in so many ways.

This was also before the age of internet advertising, and one of the most important functions of COMDEX was to gather names for your product customer prospects list. The way you gathered this data was to have some booth giveaway gift like a yoyo, a laser pointer, etc. that was tempting enough that people would want them but cheap enough not to break the budget for the show. However, in order to get their booth gift, attendees of the show

had to slide their trade show card through a card reader. This made a huge database of potential customers to sort through after the show, most of which were probably useless since the person just wanted your gift, and probably didn't care about your product.

The next step once a vendor had this massive database of potential customers was to blast them with junk mail... er, product brochures.

On the final day of the show, I went back to the COMDEX convention hall armed with two badges, my own and Bruce's, and as I walked down the aisles, I stopped at every booth and swiped Bruce's badge in their card reader. In a fairly short time I had registered Bruce as a potential customer to at least 300 companies.

The following week I was back in the office, and Bruce asked how the last day of the show went. I told him it was pretty uneventful except that I had seen a few new exciting product ideas. When he asked what my favorites were, I chuckled and simply said, "You'll see." He looked at me quizzically, and went back to his office.

By the end of the week his mail slot was packed with product brochures. Bruce was inundated with flyers for low insertion force connectors, pictures of multi-output voltage regulator chips, ads for anti-static packing foam injection systems, inquiries about his interest in modem subassembly testing platforms, promises that no one else's PASCAL compilers could compete... and of course, Bruce had less of an idea what all these things meant than you do. Bruce got so many letters, brochures, flyers, even product samples,

that the corporate mail handlers expanded Bruce's mail slot to include the next 3 slots next to his.

Bruce said he'd get me back. I'm still waiting to see what he comes up with.

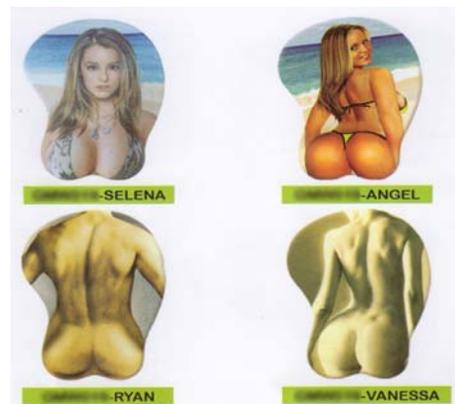
Trade Show Freebies

The freebies at product booths at trade shows are usually rather mundane. A pen with the company logo, or a pad of post-its, or just a bowl with Hershey's Kisses. Every once in a while, the freebie is memorable. One rather unusual gadget I remember getting at a show was a vibrating foot massager that plugged into your computer's USB port.



The company giving out this goofy monitor topper had to keep refilling their bowl every five minutes or so until they eventually ran out.

At the Consumer Electronics Show, there was a line of nerdy engineers lined up to drop off their business cards to win a free anatomical mouse pad, with very suggestively shaped wrist rests. I noticed that they had mouse pads that both men and women could love (or hate).



Intel's Bunny People were so popular that they started selling them in the Intel store at the headquarters in Santa Clara.

Who's Your Daddy?

Word spread through the Marketing department after Bruce came out on the wrong end of the marketing versus engineering war, so when Sanjay was my partner at the next COMDEX, he warned me ahead of time, “No junk mail, okay?” I readily agreed, but of course mostly because junk mail tsunami represented the past, and any good engineer looks to the future. Sanjay was a nice guy, but he was in marketing so it was obvious that I had to pull some kind of gag on him. However, it needed to be more subtle.

Las Vegas literally rides the tides on a silicone ocean of breast implants, and the business practices of the hookers are blatant. Walking down any sidewalk near the Strip, you hear the universal sound of snapping, which is intended to catch your attention so you'll look at the slimeball guys who are sticking the hookers' business cards into your hands.

Actually, calling these “business cards” is a bit like reading Playboy Magazine “for the articles”. My business card, for example, does not have a photograph of me naked with little stars over my nipples. These hookers' business cards have at least that, if not more graphic demonstrations of their romantic charms. In an evening's stroll down the Strip, it is hard not to acquire a couple of hundred of these cards.



Sanjay and I had a great week at COMDEX, enjoying the show booths, the talks, the parties and dinners, all the trappings of the event. The final day came and we were about to part ways when Sanjay called home to tell his wife he was on his way to the airport. He stepped into the nearest phone booth [historical note: “phone booths” were public access stations for telecommunications before the cell phone was affordable, or simply a way to get out of the direct sun in 109 degree Las Vegas weather].

I looked down and saw Sanjay’s briefcase leaning against the wall of the phone booth, and on the ground next to it were at least 50 hookers’ business cards. The marriage was too obvious, and too tempting to pass up. I took five of the sexiest cards and gently slipped them into the open briefcase while Sanjay’s back was to me.

I shook his hand and waved goodbye as he got into the taxi to the airport. My intent had been that he would go home, unpack his things, see the cards, and get a laugh at the joke I had pulled on

him. What I did not anticipate was that his wife would unpack his things for him. It also did not occur to me that Sanjay's wife would not have a sense of humor about such things.

What happens in Vegas stays in Vegas... unless I send it home with you. Years later, Sanjay was able to laugh about it. Just not at the time.

For the Ladies

Las Vegas is smart enough to realize that they need to draw in both men and women in order to realize their dream of “What Happens in Vegas”, which was made very obvious by their advertisement for the dance revue Thunder Down Under.



Age and Treachery Versus Youth and Skill

Not all rivalries are between marketing and engineering, of course. At one time, Intel had gone through an intense round of new college graduate hiring and our department swelled. A new rivalry arose between the new kids and “the old men” (pretty funny in retrospect since most of us “old men” were in our 30s, but our perception of age has a way of sliding out, doesn’t it?) One day, the new kids were bragging about their physical prowess and how the “old men” were getting soft around the middle, and we reminded them of the truism, “Age and treachery will defeat youth and skill.” They laughed and told us to prove it, and challenged us to a game of softball.

The company was happy to sponsor the game, so it turned into a team building event complete with barbeque and beer. We picked a day about two weeks out, reserved a park, and set about mercilessly teasing each other for the next 14 days. The younger bunch assumed that the game was already a done deal and they were the winners, it was just a matter of embarrassing us old guys on the field.

Game day came, and we headed to the park. After a flip of a coin, the team of younger players got first at-bat. In the first inning, they scored on a home run and we went into the bottom of the first with a 1-0 deficit. However, as the young kids were walking out onto the field, they completely failed to notice that we were reaching into an equipment bag in our dugout and taking out a

special bat. This was not your standard softball bat, this was basically a tree trunk barely lathed into the shape of a bat.

It was heavy and hard to swing, but you barely had to come within a yard of the ball to send it blasting into the ditch beyond the outfield. I am not even sure that we hit the ball so much as that the ball was scared of our bat and willingly flung itself into the orbit of Pluto (which was still a planet in those days). The looks on the faces of the kids were precious as batter after batter got up to bat, then jogged around the bases with home run after home run. The first inning ended with the score 9-1.

Stunned, the kids headed back into the infield, and we slipped our secret weapon back into the bag and handed them the standard softball bat. The second inning went even worse for them, and their rapidly deflating egos. They resigned after the second inning ended with the score now 22-2. Embarrassed, depressed, and thoroughly demoralized, the kids poured our drinks for us at the keg.

We laughed loudly, and said nothing for about an hour until everyone had possibly too much of the Henry Weinhardt's beer from that keg. Our team captain, who was so old that he actually had some gray hair (he might have been in his 40s), finally broke the mystery. "What did we tell you kids before the game," he asked the younger team. Still smarting from their defeat, one of them replied despondently, "Age and treachery will defeat youth and skill."

Our captain slid our secret weapon out of the duffel bag and showed it to them. At first it didn't dawn on them until one of the kids took it in his hands, swung it around feeling the weight and seeing how wide the sweet spot was. Laughing, he shouted out "YOU CHEATED!" We shrugged and drank our beers.

Winners never need to apologize.

Intel Meets AMD in Court

Intel and AMD had spent years fighting over the rights to the x86 microprocessor architecture and naming rights, with no end in sight when one of our distributors, Hamilton Avnet, had a brilliant idea. What if we held a volleyball game between Intel and AMD and settled the issue in a volleyball court instead of the law courts? The joke grew into a full competition, and Hamilton Avnet invited other companies to join in and make it a real corporate competition. They set a date a full month later.

I was chosen as the Intel team captain, and I recruited some other volleyball enthusiasts from the Sales department and scheduled practices three nights a week after work. However, before the first practice was held, I got an unexpected and mysterious one line email from Craig Barrett saying simply, "I AM ON THE TEAM."

Craig Barrett? Really??? I double checked the sender's name and confirmed that it was Intel's Senior Vice President of Manufacturing, a man I had seen speak at quarterly events but had never met in person. A tall man, apparently in decent shape, but OLD with all capital letters intended. He was pushing 60 years old, and he wanted to be on our team? I kept an open mind, and responded to his email thanking him and giving him the times and location for our practices.

Which he never attended, of course, and my nervousness grew as the weeks went by. We wrote out our plays and formations and sent copies to Craig's office, but never even got confirmation

whether this made it past the screening of his personal assistant. Finally, game day came without a word from him, and secretly we hoped that he wouldn't show. We warmed up, bumped, set, and practiced our spikes, without our senior executive team member.

However, five minutes before game time, I saw a mop of gray hair move across the grass toward the tournament area, and I walked towards him with my hand extended. I introduced myself as the team captain, mentioned that I had mailed him a packet with our



plays, and asked if he had played any volleyball. "I've played a little," he replied, and moved straight out onto the court for the first game. I took my position.

I had never seen a player like this OLD man. Ever. He launched himself easily two feet above the height of the net to spike in the opponents' faces. His serves were literally impossible to return, somehow curving downward as they flew over the net. But it was his sets that I

cannot comprehend, since all my physics training taught me that it is impossible for a volleyball to float perfectly horizontally 4' above the net, allowing the spikers to choose the point at which to send the ball into the opposite court.

We destroyed the competition, and AMD fell to us in the second round of the tournament by 21-4. I guess it would be a nice finish to the story to say that they gave up the legal battle over x86 rights because of that game, but no, that didn't happen. Besides, that would actually be an anti-climax.

After the tournament was over, and our Intel team collected the trophy, we headed to the food and drink tables that Hamilton Avnet had set up... except for Craig Barrett who thanked us and then went back to work. Seeing the dumbstruck look on my face as I watched Craig walk away, my sales buddy James who did not play in the game but who had come to cheer us on explained to me, "Didn't you know that Craig Barrett was on the 1968 US Olympic volleyball team?"

Sheepishly, I admitted to James that this bit of trivia had somehow escaped me prior to that moment. My words, "Have you played any volleyball?" echoed in my red ears.

Jokes From Heaven

Emperor for Life Jim Townsend. The label he wore proudly as the honorary chairman of our standards group, and would remind us of often when we got out of line. He was a wonderful man, warm, friendly, enjoyed a good meal and a fine glass of wine with gusto, and loved to tell a good joke with a twinkle in his eye.

Most internet mail is not worth opening. When you get some stupid chain mail saying that if you don't immediately forward this message to 20 of your friends you will die painfully in a car accident, you can't help but wonder about the sanity of your friends who send such crap.

Not Jim. Jim was selective in his emails, and he maintained a distribution list for internet jokes. He personally screened all the humor passing his way and he only sent along the best of the best. When you got email from Jim, it was ALWAYS worth opening and reading.

Jim was sick, though, and often had to slip away from the meetings to have dialysis treatments at some hospital nearby. His skin turned an ugly shade of yellow as his health slipped away, yet through it all he was cheerful and optimistic. And of course his jokes kept coming.

One meeting week we were in Seattle, and the hotel's antiquated telecommunications equipment was so bad and limited that we were unable to get onto the internet all week to check email. As a

result, it wasn't until the first day of the meeting that we got the announcement that Jim would not make it to the meeting, as he was in the hospital. Worse, on the last day of the meeting, our new leader stood before us to announce sadly that on Wednesday night, Jim had passed away. We had a long moment of silence as every one of us remembered the great times we had shared with our beloved Emperor for Life.

The next day, Saturday, I flew back home, but it still wasn't until Monday that I went back into the office to connect to the network and fire up my email. Goosebumps formed on my arms and neck as I saw a flood of emails from Jim. His joke distributions had not stopped until sometime Wednesday afternoon the week before, and were waiting in my inbox until I could reconnect to the email server. However, seeing the jokes come in that day felt like the Emperor for Life had somehow beaten Death and managed to send his jokes from the great beyond.

Jim, my friend, your legacy still brings a smile to my lips. I hope St. Peter didn't read the contents of your jokes too carefully.

Drunk Driving

Another interesting group of people in the corporate structure are sales people. The vast majority of them have Type A personalities, are aggressive and loud, and won't take "no" for an answer, all of which are positive qualities in people who collect money from customers. In small groups this is entertaining enough, but when you hold a sales conference and put them all together in the same place and it's like putting gasoline on a flame.

Intel's sales conferences were 1200 people events back in the early 1990s, held in pretty fancy resorts, and the parties went on all night, every night. Liquor flowed, hot tubs were packed, and at times things got a bit crazy. Intel was kicked out of the entire chain of Pointe resorts in Phoenix, Arizona when a drunken marketing guy drove a golf cart into the swimming pool in the middle of the night.

Rock This House

Programming computers does not have to be a dull, repetitive process, especially not when you have a great roommate. Bruce and I somehow scored big time when we were given a huge conference room in the corner of the Octel engineering building to share as our office. It had a view of the garden-like grounds of the business complex where we could watch squirrels hop in and out of redwood trees. There were ducks in the pond between us and the next building over. Vines of ivy gently laced the low river rock walls.

Tranquil.

We set up a desk for each of us at either end of the conference room, then put a small bookshelf between the desks on which we placed a boom box with large speakers. Both of us loved rock and roll, and we both brought in our favorite cassette tapes to blast all day long. Our office was the favorite place for other guys from Engineering to come and hang out.

Tranquility is overrated anyway.

Joining JEDEC

JEDEC is an organization that defines international standards for electronic devices and packages. It's been around since the vacuum tube days, and originally the name stood for "Joint Electron Device Engineering Council." Now, JEDEC is just JEDEC. I first got involved with JEDEC in December 1995, and within a short time the work became an addiction.

When 22 to 1 In Favor Means "No"

When I first got involved with the JEDEC standards organization, I was pretty clueless what it was and how it worked. I assumed that it was a pretty dry and straightforward process by which engineers read and signed off on data sheets for computer chips. At my first meeting, however, I discovered there was a lot more to it. Engineers from dozens of companies met to discuss each feature one at a time, debate the merits and demerits, analyze options, and finally vote on the preferred option. It still seemed like going down a checklist until I saw something that dispelled that simplistic notion.

A particular feature for a proposed new type of memory chip had gone through a months-long review process before going out for vote. When the vote was tallied, with 22 YES votes and only one NO vote, I assumed the feature would be approved. Following procedure, the person casting the NO vote stood up to explain his vote. A tall, red headed, eloquent Canadian man stood up, saying,

“The problem with this proposal is that it won’t work.” He then showed a fundamental flaw in the concept that had escaped every other reviewer of the ballot. The room nodded, and the ballot failed based on that single NO vote.

I realized I had just witnessed an exhibition of power that I had never experienced before. I had seen how an individual, with the right logic and ability to persuade others, could change the industry. I was hooked. Within a year I was vice chairman to that Canadian, and when his company withdrew from JEDEC, I took over as chairman of his committee.

Sweating the Expense Account

Getting involved with JEDEC was a lucky fluke for me when a director at S3 was promoted to vice president and he asked my boss if I would take over his JEDEC duties. My boss thought it made sense and handed me a large envelope of information without even opening it. I opened the package and my eyes popped wide open. A week long meeting in Maui? Sweet!

When I arrived in Maui, the only person I knew was Paul, a memory marketing guy from a small specialty memory company who had called on me at S3 and been encouraging me to get more involved with memory issues, so Paul and I spent a lot of time hanging out together. One night we were invited to dinner by the two top chairmen, Jim and Desi, who wanted to welcome us to JEDEC.

I expected that we would hit the cheap burger or rib joints like Paul and I had been going to all week in order to keep our expense reports from getting bloated. We knew that when our accounting departments saw Maui on the forms, they would go over them with microscopes looking for reasons to punish us. Instead, Jim drove down the street of luxury hotels until we got to the Prince, a luxurious palace overlooking the island of Molokini. We valet parked, and walked on up to a Japanese restaurant, Hakone, on the upper floor of the hotel arboretum.

Jim and Desi introduced me to the joys of shabu shabu, a huge pot of broth in which you toss veggies and meats and create your own

marvelous meal a little at a time. It's a very social thing since the cooking pot is shared, much like tapas or other snacking approaches to dining, and as such we had plenty of time for wine.

And more wine. And desserts and after dinner drinks. Unfortunately, I had seen the prices on the menu and by this time my enjoyment of the meal was in danger of being spoiled by trying to figure out how I was going to explain a \$150 dinner, which at the time was far more than I had ever tried to expense. I was sweating bullets but Jim and Desi just kept ordering, and the evening continued quite late at night as these talented chairmen gave Paul and me a great beginner's coaching in JEDEC policies and politics.

To say that I was relieved and extremely grateful when Jim and Desi insisted on paying our dinner tab would be a major understatement. My greatest enjoyment of the meal started after it was over and free. A blank cell on an expense report raises no red flags.

Less Really is More

Desi has been a participant in JEDEC since they worked on the early drafts of the *Magna Carta*. He knows the system in and out, and is brilliant when it comes to getting what he wants done. Early on, I had a habit of making my proposals long and detailed, with wording for every special exception or footnotes for every possible argument with my proposal. Unfortunately, my proposals were taking months of rewording and resubmitting before I got them approved.

Desi's advice to me one day stuck with me since. He said, "A proposal with one word has twice as much chance of passing as a proposal with two words." I thought about what he had said and realized that the delays in moving my proposals forward were mostly from people arguing with my choices of words, not with the ideas themselves.

After that, my proposals were much shorter, and I avoided adding anything more than just the essential parts of the proposals. Sure enough, they started taking a lot less time to get approval.

Cliffy

There is a danger in being around brilliant people and that is the likelihood that you will meet people who want to exhibit their brilliance, hour after hour after long hour. Warren was one of those guys, a real Cliff Clavin of JEDEC.

He really did seem to have a photographic memory and knew everything about everything. In detail. In relentless detail. If the topic of airplanes came up, Cliff could tell you the difference between seventeen types of single engine planes, the attack angle of the wings, the material used in the skin, and the suspension on the wheels. After a while, you were pretty sorry that the topic of planes had come up.

The best coping mechanism for such a situation is obvious... to change the subject! You might have casually asked someone else in the group if they had heard the music of Camel, for example. Warren unfortunately knew everything about Camel, too, and every other progressive music group. He would go on about how Camel was influenced by Nova and Coltrane, and that if you listened carefully you'd also hear the relationship to Pink Floyd and Genesis. He'd mention what groups the players were in before they formed Camel.

Still attempting escape, perhaps someone else would have tried changing topics to politics and what was happening in Myanmar. No good, Cliffy, I mean Warren, knew about that too and would tell you about how the Burmese lost control. A change in topics to

microbiology. A change in topics to women's handbags. A change in topics to dark matter theory. It didn't matter. There was no escape.

I would excuse myself to the bathroom more often than I needed to at some meetings.

Penny Pinching

I am a fan of saving money, and I am just as likely as anyone with a reasonable grasp of math to recognize that buying two 14 ounce boxes of cereal for \$2 each is a better deal than one of the larger 28 ounce boxes at \$5. However, I am just as likely not to even blink when Starbucks asks for \$4 for a venti café latte. I can appreciate quality of life, and I most certainly put a value on my time, and given the choice between paying \$200 for a direct flight taking 4 hours and \$150 for an indirect flight taking 7 hours to get to the same place, I will always take the shorter flight duration.

Not Kevin. This gentle, mild mannered guy takes penny pinching to a whole new level. He will not have just rubbed the faces off the pennies, he will have ground his pennies into powder and mixed them with grout to save the cost of pre-colored grout. Before each JEDEC meeting, Kevin emailed the entire JEDEC organization with detailed explanations of the various ways to get from the airport to the hotel where the meeting would be held. This was really useful, especially when the direction included things like which exit from a train station to use. However, his thrifty nature invariably showed through. His directions often included something along the lines of “You can take a taxi from the airport which will run you about \$20, or you can take the Metro for \$5.20 to the Bungo station, get off and walk three blocks to the Geski bus station. Take the #86 bus for \$2.50 to Mu-Shu Avenue, cross the street and walk two blocks to the hotel.”

Yes, if you followed Kevin' directions you would have saved \$12.30, but you would have spent an extra hour or two getting to the hotel, carried all your travel bags over cracked sidewalks and sat on buses next to people who reeked of garlic because they packaged kimchee for a living.

After traveling over a million miles, I have learned the value of wear and tear on my body, my nose, and my feet. I don't even balk at the stupid \$4 smart cart luggage carriers at the airport baggage claim anymore.

Porn Break

Sometimes the arguments in the JEDEC meeting rooms can become pretty intense as the combatants dig their heels in and resist compromise. Of course, in a room with up to 100 people, seldom is everyone involved or interested at the same time in what's being debated. One day, while some obscure memory chip feature was being hotly argued, this guy Steve who didn't care one way or another about this argument, killed time by checking emails.

He saw that an email he got from a friend at work had a file attachment, innocently enough named RABBIT.EXE. Steve double clicked the file attachment...

...and the program turned on his notebook computer speakers to maximum volume...

...and Steve's computer cried out in a loud, clear voice...

“HEY, EVERYBODY, I’M WATCHING PORNO OVER HERE! WOO HOO!”

For the next ten minutes, everyone in the entire room was laughing so hard that it was quite impossible for any work to be accomplished. We were passing a floppy disk around with the RABBIT.EXE program on it because everyone wanted a copy. I shudder to think how many offices over the next few weeks were disrupted by shouts of “WOO HOO!”

Finally, we calmed down enough to think about continuing the meeting. The funny thing is that the argument over the arcane DRAM feature, which had dragged on for 45 minutes before the “break”, was resolved almost immediately and we were able to continue on to the next topic.

Never underestimate the value of comic relief!

On Becoming a Critic

I never planned on becoming a restaurant critic. I slipped sideways into it by happy accident.

I had stayed in touch with my good buddy Ross from Intel through the years I lived in Oregon, and when I moved back to Silicon Valley, one of the first things I wanted to do was go to lunch with him. Ross is a crusty old fart, a former Navy man, with dirty jokes so dirty even I won't repeat them, so I asked a co-worker at my new job "Where should I take a low life to lunch?" She replied that her uncle had told her about a dive on the other end of Milpitas that he liked, and she offered to join us there.

We picked up Ross and the three of us, working from pretty vague directions, drove in a couple of circles before we saw a rusty sign saying "Lina's Place". The expression "rusty sign" does not at all do justice to what we saw, actually. The faded sign was high up above the street which partially explains why we drove by twice before seeing it, on a rusty flag pole of a support that was so old and in such bad shape that the entire sign post tilted easily 6" out of vertical towards the building. The tag line under the name of the joint read "Beer – Wine – Mexican Food".



We started laughing immediately when we saw the building, an ugly pink cinderblock ice house that assaulted our eyes. We parked in the dirt and gravel parking lot, locked the doors tightly, and wandered into the dim haze through Lina's front door. Our eyes became accustomed to the gloom inside, which was not necessarily a good thing since the inside of the dive made the outside look like a Taj Mahal in comparison. The bar ran nearly the length of the inside, with a handful of local bums slouched below a tattered cardboard sign that read "Hangovers Administered to Here". Opposite the bar, on the long wall, were paintings of nude women on black velvet. The floor was a lovely array of cheap white linoleum tiles with black speckles except for a rectangular repair job near some burn marks – the repairs done with completely mismatching brown linoleum.

We nervously took a table as far from the bar as possible. The paper placemats were laid over a cheap plastic red and white gingham tablecloth. The mismatched silverware caught my eye immediately, and when I picked up the fork (the most sophisticated looking in this motley collection) I was barely surprised to see the logo of Fisherman's Number 9, a famous restaurant on San Francisco's Fisherman's Wharf. I chuckled, imagining a sheepish look on the face of the owner of Lina's when he snuck this fork out of SF in his coat pocket.

The boisterous and friendly waitress with a dark black streak down the middle of her coarse straw mop of bleached blonde came by, chatting with us about Lina's and explaining that it had been in business for over 60 years. She took our orders, brought out some

cold beers, and pointed us to the salad bar in the corner. However, as I approached the salad bar, something about it just didn't look right, as though the bowls of lettuce and other condiments were sunken into the table but only by a couple of inches. The legs of the salad bar table poking out from under the cloth covering the table were a giveaway, but I motioned to my partners to look as I raised the edge of the cloth.

They laughed out loud. The salad bar was set up on the pool table.

Back at our table, and working on a second beer each, we noticed that in the few minutes we had been there, Lina's had gotten quite busy. In fact, there were a line of suits going out the front door and into that gravelly parking lot. Business suits, as in local high tech guys that were crowding this hole in the wall, and waiting in the hot sun for tables to open up.

A few minutes later, when the food arrived, we understood why. The Mexican food in this dive was to die for. The enchiladas were light and creamy, the salsa had a bite like a viper, the Spanish rice was perfectly light and spiced just right, the refried beans were soft and creamy and obviously home made. Fantastic.

That day the Dive Lunch Club was formed. What could keep a hell hole like this in business for 60 years with no ambience, no advertising, and a sign that you need a pet eagle to spot in front of a building that looks more like an outhouse than a restaurant? Obviously, it's the food that keeps customers happy decade after decade. We realized that there must be other off the main path

dives around like this, and since that day was a Wednesday, every Wednesday became Diving Day.

Faxes & Phones

The Dive Lunch Club pre-dated universal access to email, so in order to get the word out where the Dive of the Week was, we maintained a loose collection of fax numbers and would broadcast a location with no way to collect any kind of RSVP. This was mostly okay, since most of the dives didn't take reservations anyway. Instead, anywhere from four to twenty five people would show up, raid the place, and I would write up a review of the lunch. These reviews were originally intended to just be a local database that we could check out for personal use, or use to make recommendations for other people.

After a few months, my collection of restaurant reviews was growing, and it never really got used as the database we had planned it to be. Instead, my friends were suggesting that I send the manuscript into the local paper to get published. I had never been a professional writer, so I didn't take it too seriously, but put together a package and sent it to the paper anyway. Two weeks later, the paper wrote back to me saying that they wanted to start running my dive restaurant reviews as a regular column, and encouraged me to take black and white photos for the articles.

Excited, I got some black and white film for my camera and raced off to some of my favorite dives to capture the essence of what made them dives. All of the pictures turned out well, but some were truly an artist's dream, such as the picture from Manny's Cellar. Looking at this picture, it is very hard to tell that it was taken in the 1990s rather than the 1950s.



Another photo I particularly liked was the inside of Bini's, a local hangout where martinis were served for lunch by the blender. The food counter was picturesque enough, as it faced a huge, wild array of white boards, blackboards, cardboard signs, and plastic marquees that announced the literally dozens of available options for meals. However, what caught my eye was the far corner of the room where they had dart boards against the wall, and where they allowed the local dart champions to write their conquests on the wall by the boards.



The reviews began running in the paper, and soon I was getting reader feedback ranging from hate mail that called me a racist for saying that the waiter in a Mexican restaurant screwed up our orders so badly that he must have spoken English as a 6th language, to fan mail saying my dive reviews were among of the top reasons to read the newspaper.

When I moved out of the Silicon Valley to southern California, I took my manuscript of dive restaurant reviews and posted it on my personal family web page and the days of the Dive Lunch Club began to take on the sepia tone of memory.

Dive Business Lunches

During the years of the Dive Lunch Club I worked in the Intel sales office, and of course a regular part of doing business is to take customers to lunches. Typically, sales people take customers to the fanciest restaurants that their bosses will sign off on. Nice ambience, dim lighting, greeters at the front podium, fattening food... and usually, the “nice” places are chain restaurants, so after a while, you can get quite sick of the food because all of them basically taste like the same crap.

Not the dives, though. One of the key differences between a dive and a chain is that the food tastes like SOMETHING. Something unique, something distinct, something aromatic or spicy or garlicky or sour, but SOME flavor that you simply can't find at a chain restaurant because they are so afraid to drive any customer away. But what sales guy would take a customer to some tacky hole in the wall?

Besides me, that is. I took customers to dives regularly, the tackier the better, and they laughed hard when I would take them into some dumpy joint and make them order at the counter, and sit them at a picnic table or in plastic chairs. When the food would come out, they'd understand why I brought them there, and they would remember the novelty of it. In fact, after taking them to dives, a number of my customers joined the Dive Lunch Club and became personal friends.

Before long, the Dive Lunch Club became a cross section of the computer industry, with people from over a dozen companies joining in. People from Intel, Siemens, Hewlett-Packard, Acer, Canon, Sharp, Ricoh, and others became dive-aholics. Meanwhile, I was writing off my dive lunches as business expenses, plus getting paid for the articles and pictures too.

San Jose Historical Society Event

However, my life as a restaurant critic was not quite over yet. Years after I had moved, I received an unexpected email from the San Jose Historical Society. They explained that they were hosting a special event to honor Manny's Cellar, one of my favorite dives that had become an unfortunate victim of the renovation efforts in downtown San Jose. The lady from the Historical Society said that they had come across my review of Manny's on the internet and wondered if I would be so kind as to let them use it as part of their event handout.

I was naturally thrilled to be asked to help out, so after digging in my files, I wrote back saying that not only could they use my review, but that I had pictures and even had one of Manny's menus in my archives. They asked for a face to face meeting, and since I was in the Bay Area often, within a few days I was able to meet with the head of the Historical Society. Over coffee, I shared stories of how the Dive Lunch Club had formed, how a large group of us had visited Manny's, and even the story about how their feisty waitress had gotten into a fake boxing match with one of my buddies who was at least twice her height. The following week I received an invitation from the Historical Society to attend the event, along with the honor of being seated at the VIP table.

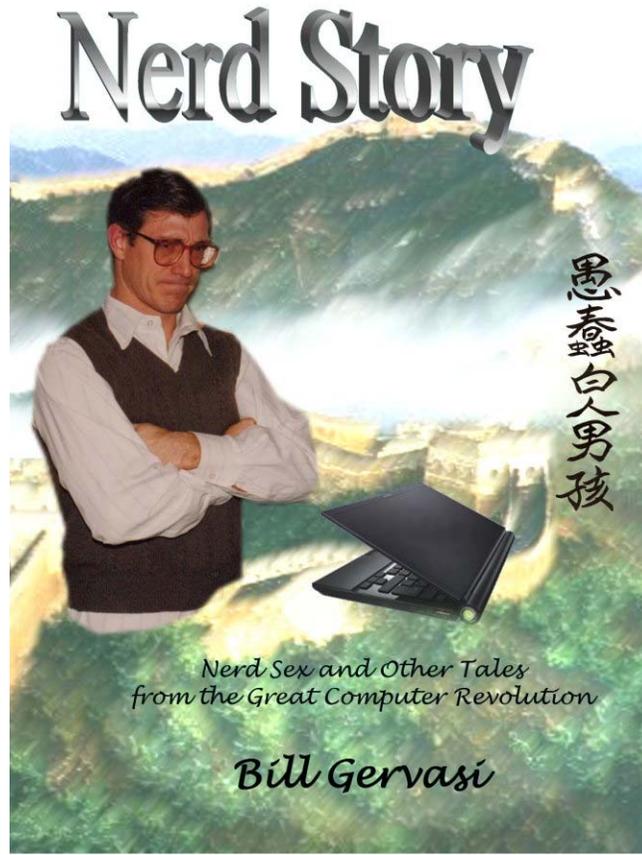
I arranged to be back in the Bay Area the day of the Manny's Cellar ceremony. As my wife and I entered the party and got our badges at the reception desk, we were excited to see my contributions proudly displayed in the lobby, and when we opened the event

program, the review was highlighted as a centerpiece of the handout. Beaming with pride, we followed the head of the Historical Society who led us to the VIP table.

My pride leaped twice again as I began to sit at the table and I looked to see who else was there and I immediately recognized Mark Purdy of the San Jose Mercury News and Lee Weimers of the San Francisco Chronicle, two large daily newspapers in the area, and two writers who had been my heroes for years. I immediately rose back up and reached forward to shake hands.

Lee shook my hand first, and when the Historical Society lady told him my name, his eyes shot open and he said to me, “Are you the author of the dive restaurant reviews? I love those!” Before I could recover from my shock, Mark similarly commented on how he checked my web page often to get ideas for where to go for lunch. Blushing, I thanked them and expressed my pleasure at meeting them both, then sat for an enjoyable meal sharing stories with my heroes, my peers.

What does restaurant reviewing have to do with high technology? Weimers and Purdy asked me the very same thing. I didn’t have an answer then, either. However, I noticed that we were at the VIP table but Steve Wozniak, co-founder of Apple Computer, and Ron Gonzalez, mayor of San Jose, were not.



Thank you for downloading this sample of Nerd Story. I sincerely hope you have enjoyed reading these stories as much as I enjoyed writing them. The entire book is available online for download in many file formats including HTML and PDF for viewing on any electronic display device. For details, please visit:

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Thank you,

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About the Author

Bill Gervasi joined Intel in 1976 in the computer systems group manufacturing department, eventually leaving Intel in 1995. During that period, the computer industry changed from computers that filled rooms the size of basketball courts to desktop and laptop form factors in nearly every home in the world.

Since then, Bill specialized in the computer memory technology arena, getting involved in international standards and battles for global dominance for this key part of computer systems. As a chairman of the JEDEC standards organization, he has had a role in paving the memory industry roadmap, and contributed to spreading these standards to the world including engagement with foreign governments. Bill is a public speaker in this niche, generating both excitement and controversy with his aggressive vision for change and progress.

Bill is an incurable practical joker who thrives on making people laugh (or periodically grimace), and his years in the nascent computer industry are polka dotted with gags on unsuspecting co-workers. Bill's eclectic background also includes years as a published food critic, and fortunately even more years as an aerobics fitness instructor, apparently to burn off the calories consumed while reviewing restaurants. He lives with his wife in Orange County, California.

Bill makes the best coffee in the world, in case you wondered.

NERD STORY

You know you're a nerd if:

- ∞ You get Best Buy gift cards from friends and family.
- ∞ You've hacked your gaming station.
- ∞ You carry a thumb drive on your key chain.
- ∞ You can press '3' twice to get an 'e' without looking at your phone.
- ∞ You chuckle at the definition "Recursive (adj): See recursive."
- ∞ Of course F is a number and G isn't. Duh.
- ∞ You know that DDR isn't just Dance Dance Revolution.
- ∞ You know that "42" is the answer to life, the universe, and everything.
- ∞ You've been on a geocache treasure hunt.

This memoir tells the personal story of a nerd who managed to be in the right place at the right time when the computer industry was in its infancy. The author was one of thousands of bobbleheads who didn't just watch but also participated in the Great Computer Revolution, cheating on their expense reports along the way.

Therefore, the book is also a historical novel, a retelling of the story of the personal computer revolution from the inside, with some of the people who made it happen seen not as icons but as a loose network of guys and girls who played together, pulled tricks on one another, ate and drank together, and for the most part had an incredible amount of fun along the way.

Nerd Story is a comedic story, mostly giving attention to the "unique" people and events that the author had contact with over the decades, with an occasional nod to the touching stories or peeks at corporate quirks that make such a life and career fully three dimensional. Travelers will laugh at the collisions of cultures as the Revolution spread around the world.