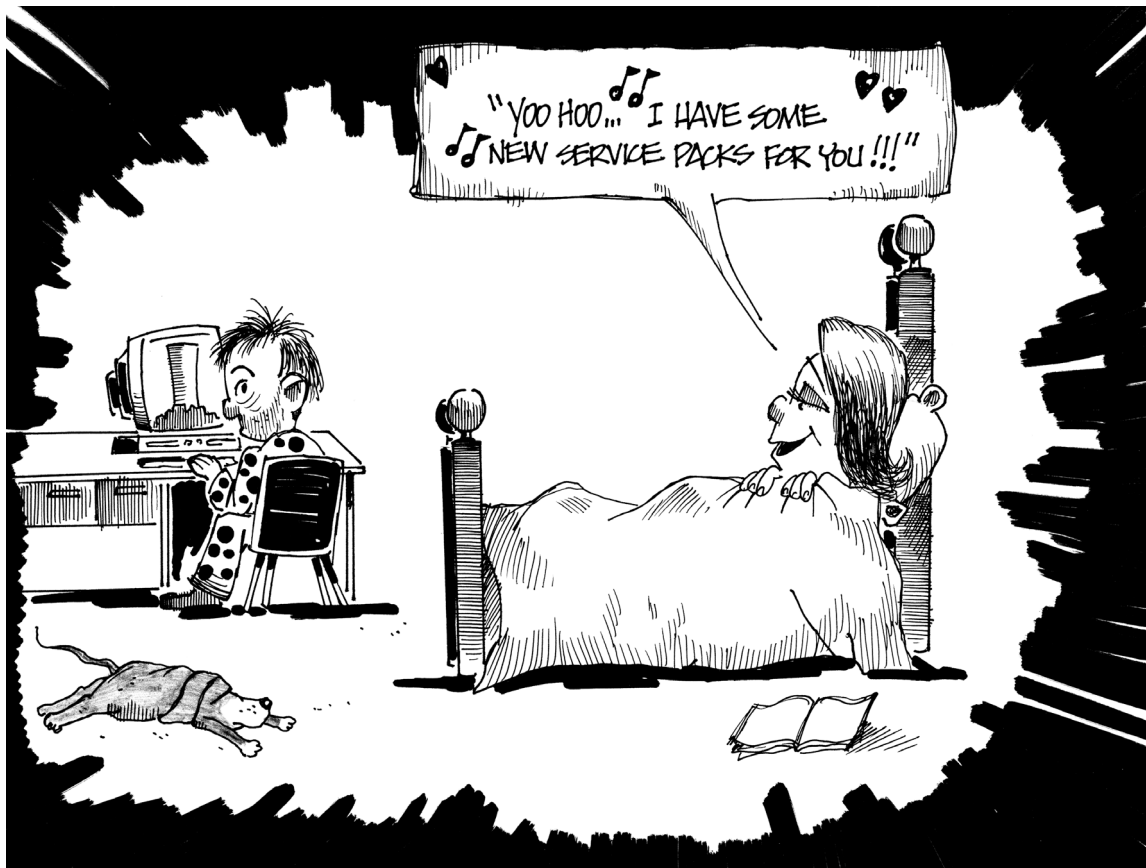


From the control room...

“I’m fair but I’m rigid.” – Dana

“I was in the throngs of passion.” – Dirck





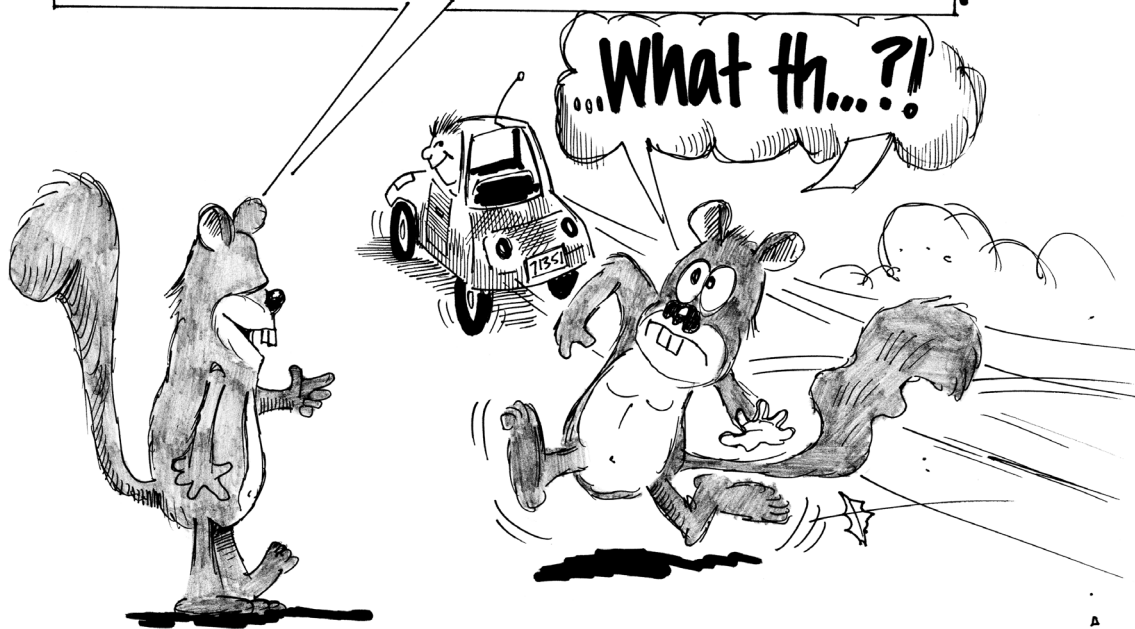
From the control room...

“This is one of those airless all electric valves.” – Purdy

“It doesn’t smell like transmission fluid and it has a different velocity.” – Robbie



"I THINK YOU NEEDED MORE
DERIVATIVE THAN INTEGRAL ACTION!"



From the control room...

“This is humidity rain.” – Dana

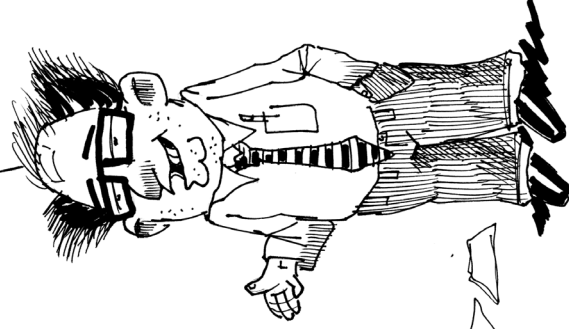
“The pump has 23 umps.” – Purdy



WHAT WAS THE GREATEST
INNOVATION FOR REDUCING
CAPITAL PROJECTS IN THE '60's?

"MY GUESS IS THE
INTRODUCTION OF
MOUNTAIN DEW."

BREAK
ROOM



From the control room...

“I’m saying the same thing but it’s different.” – Brillo

“ROE means Return On Investment.” – Purdy



"LIKE, THE DUDE IS STICKING IT CLEAN AND TOTALLY DIALED IN ON SURFING THE NET WITH A FLAT COMPUTER IN A TOTALLY RAD CUBE!"



From the control room...

"I weigh 205 cold naked." – Bodene

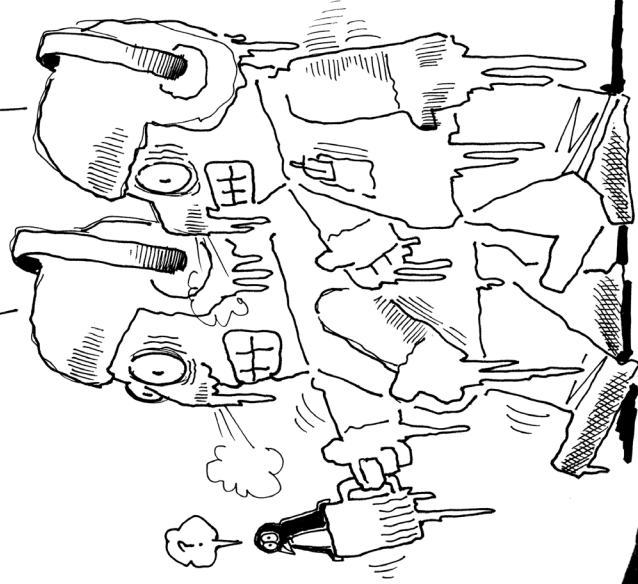
"Is that your frozen ice?" – Thad



"I-I-I UN-UN-UNDERSTAND
TH-TH-THE HVAC E-ENGINEER IS
F-F-F-FROM ALASKA!"

"...AND QUITE MAD, THEY SAY."

COMPLETE



From the control room...

“You stay here and go home.” – Bodene

“My mom is related to her but I’m not.” – Sam



"APPARENTLY, EXTRATERRESTRIALS AREN'T
SCREENED OUT BY OUR NEW SECURITY SYSTEM!"

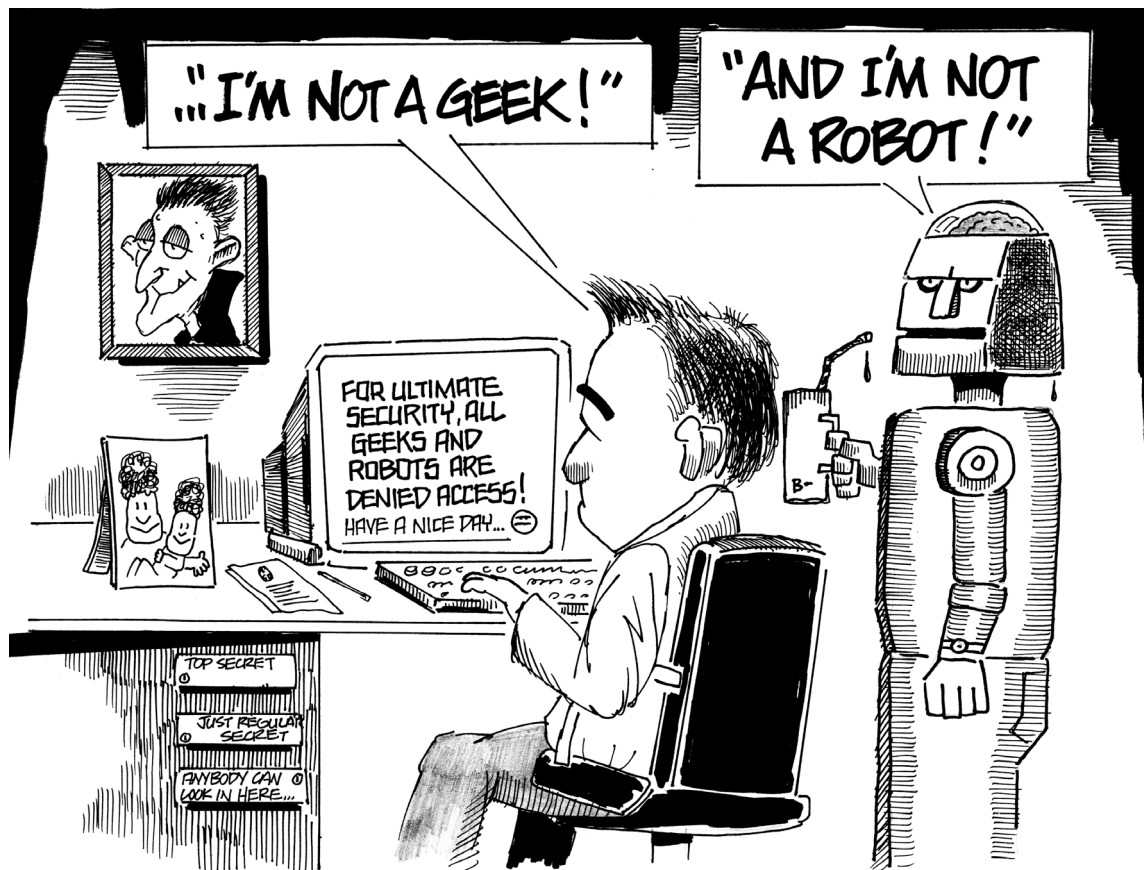


From the control room...

“You can tell a lot about a bird by looking at his butt.” – Brad

“Are you a hydroconrick?” – Dirck



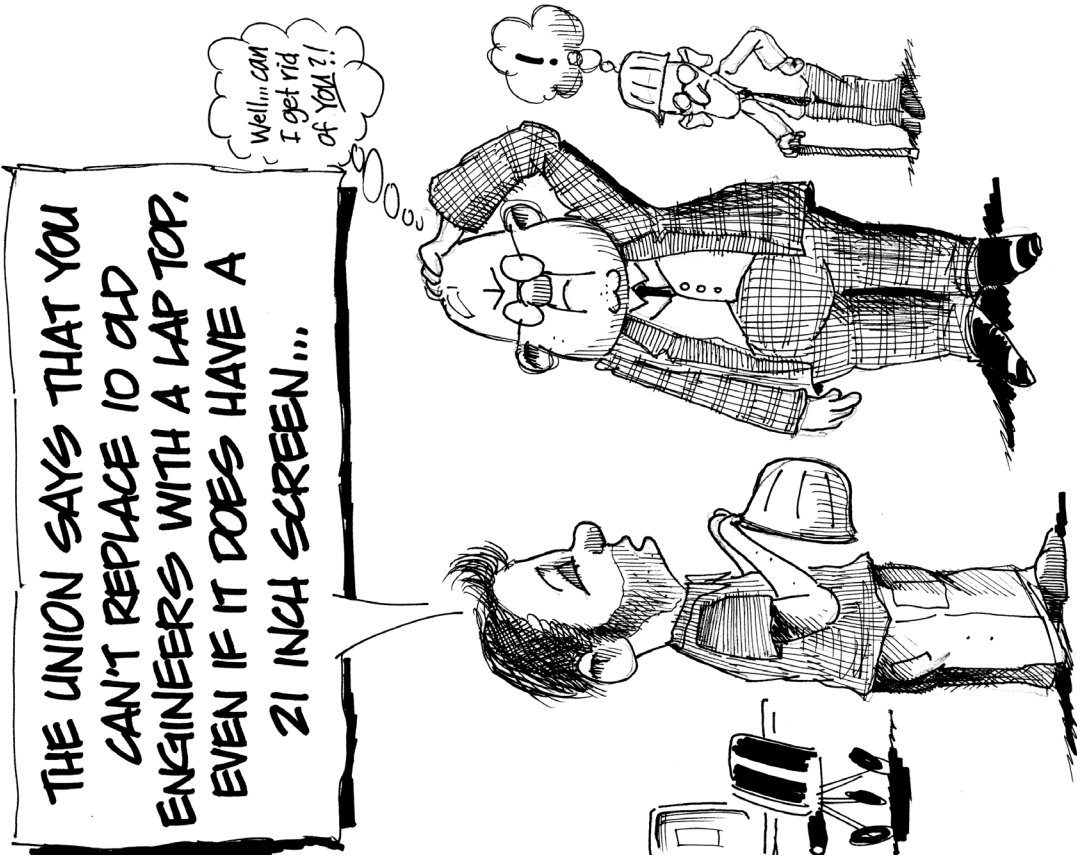


From the control room...

“There’s a flicker at the end of the tunnel.” – Howes

“His pay will be retrofitted.” – Robbie, talking about back pay





From the control room...

“I just got my thing cut in half.” – Purdy

“You had that funny look on your eyes.” – Janet



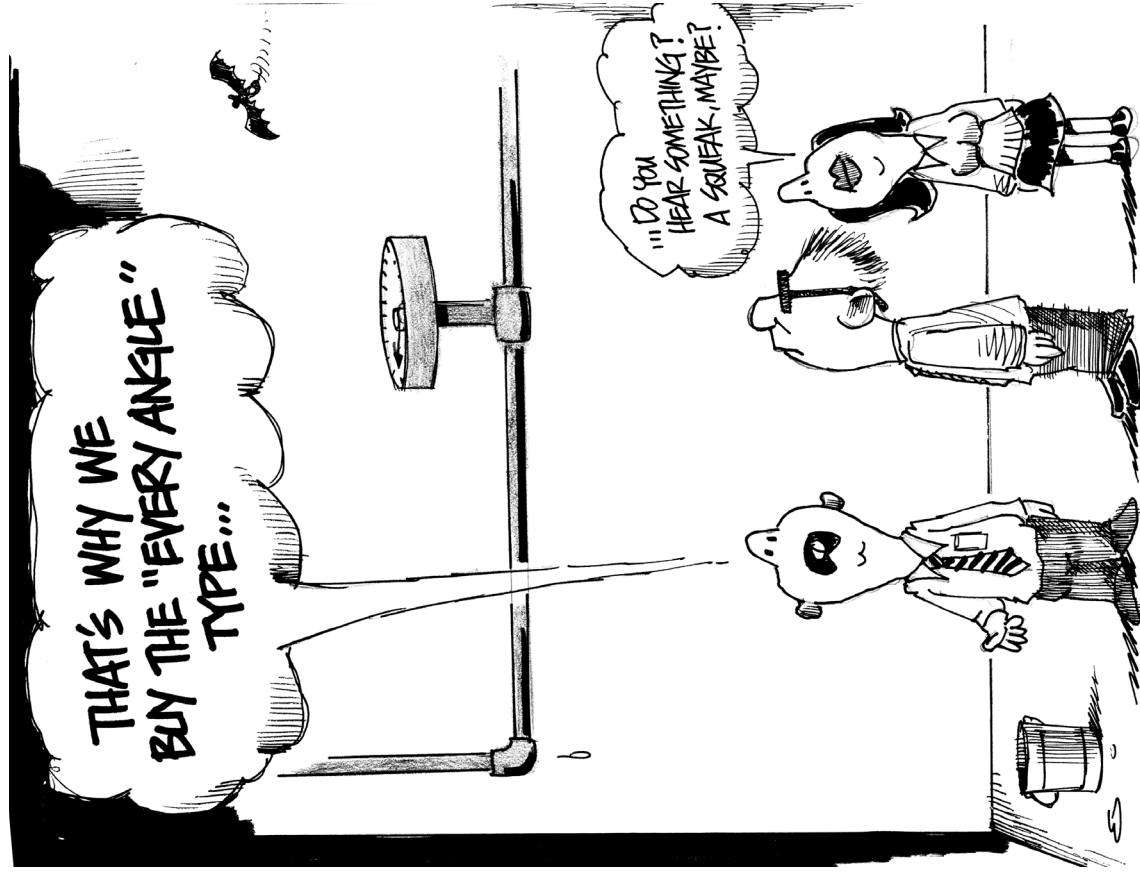


From the control room...

“That’s one of those rubber booty things.” – Uzi, explaining an expansion joint to Dodie

“If you want it, just go and buy it. That’s my motto.” – Thad





From the control room...

“Have you ever had hair?” – Jenny, talking to Dirck

“Rod is infringing on my pattern rights.” – Fred



...I DON'T CARE IF EVERYONE HAS
HEARING PROTECTION... STOP PLAYING
RAP AND HEAVY METAL IN THE
CONTROL ROOM!



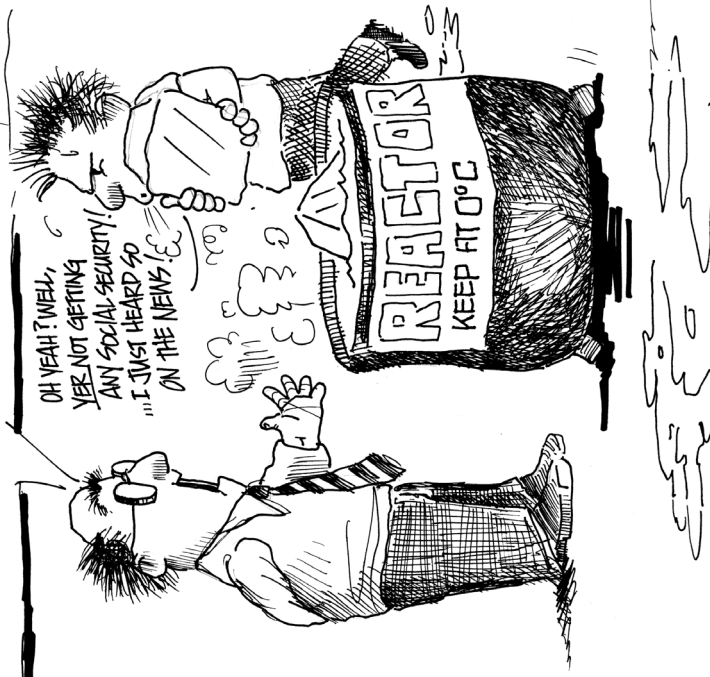
From the control room...

“I could start making snard comments.” – Dodie

“We all know who runs the pants in your family.” – Purdy



"WHEN YOUR WAGES GET
UP TO \$10 AN HOUR, I'LL REPLACE
YOU WITH ONE OF THOSE NEW
PROGRAMMABLE BOXES!"



From the control room...

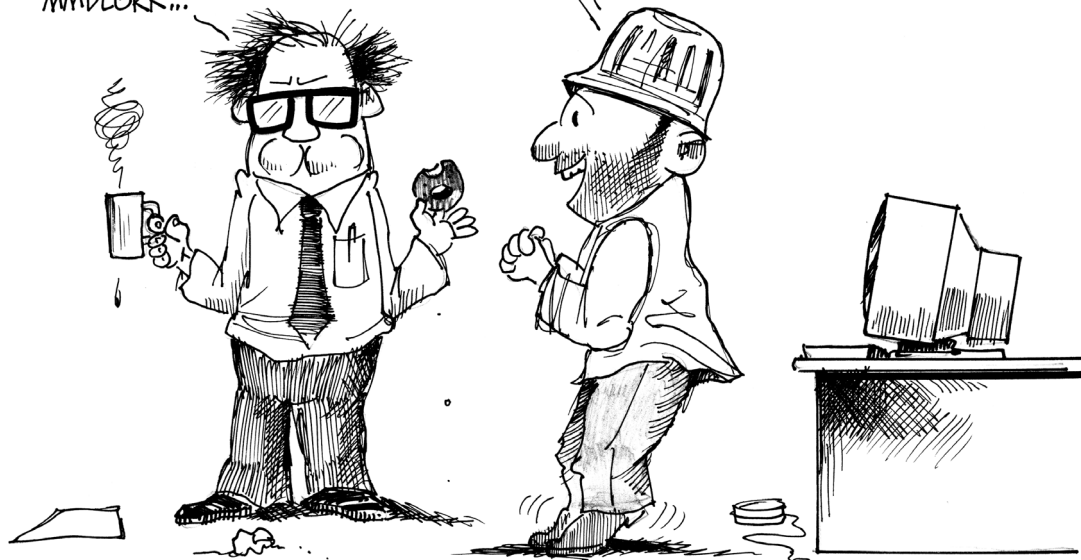
“Fred, how do you spell caulk?” – Sam

“Meeker has three disks that are inflamminized.” – Purdy



IF SPELLING ISN'T IMPORTANT, CAN I
WRITE THE INSTRUCTION BOOK IN EXCEL?

MMDLGRK...

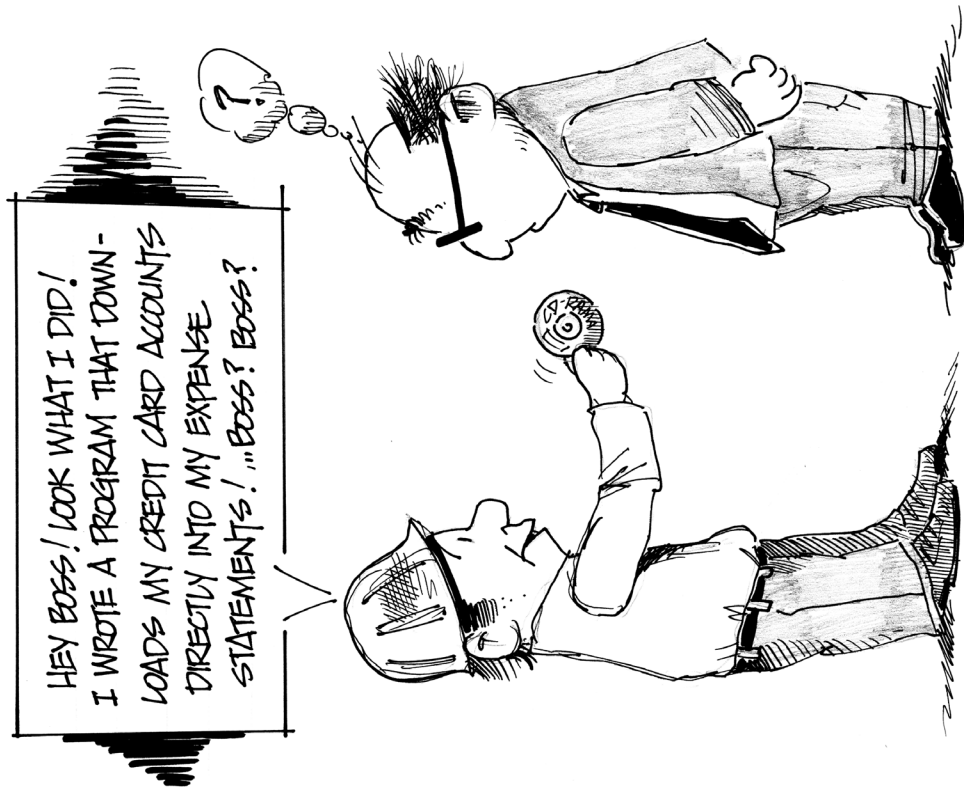


From the control room...

“Are those steel toed shoes?” – Jeff

“Define steel toed shoes.” – John Powell





HEY BOSS! LOOK WHAT I DID!
I WROTE A PROGRAM THAT DOWN-
LOADS MY CREDIT CARD ACCOUNTS
DIRECTLY INTO MY EXPENSE
STATEMENTS! "...BOSS? BOSS?"

From the control room...

“Poor Eric. He works himself to the fingers.” – Janet

“If you have time to lean you have time to clean.” – Thad





From the control room...

“Thad, your hat looks like one from Irabia!” – Dirck

“Anything you buy you have to purchase.” – Purdy



"I'M CONVERTING CIRCULAR CHART
RECORDERS INTO DATA LOGGERS!"

...ARE YOU O.K.?



From the control room...

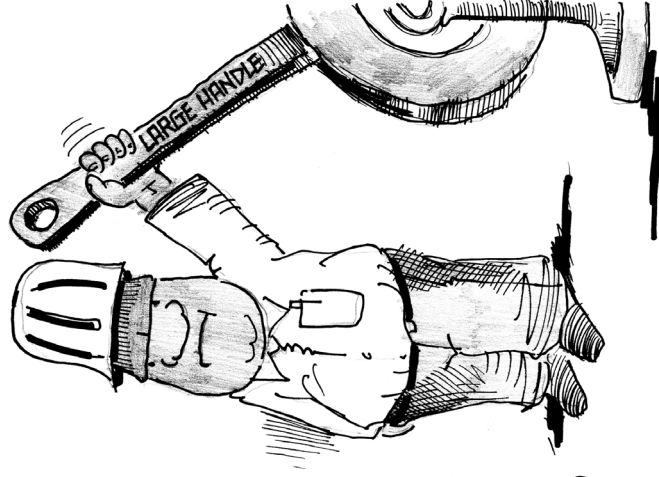
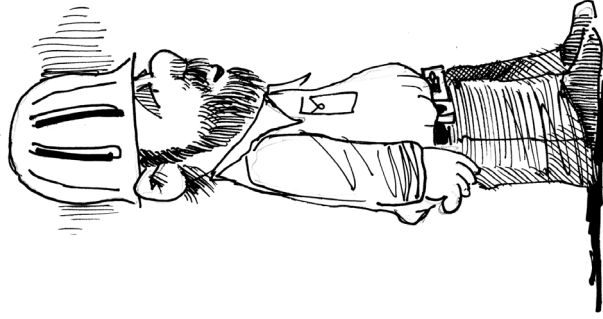
“How come we took that valve off the handle?” – Cole

“Is it supposed to be doing that?” – Diane, as water dripped down from the control room ceiling



UMM... AUTOMATION DOES NOT
MEAN PUTTING LARGER HANDLES
ON THE VALVES...

...SAYS WHO?



From the control room...

“I made cookies but they are not mine.” – Dodie

“I even took piano lessons for seven years.” – Dirck



**PAINTING THE VALVES GREEN DOES
NOT MAKE THEM CONTROL VALVES!**

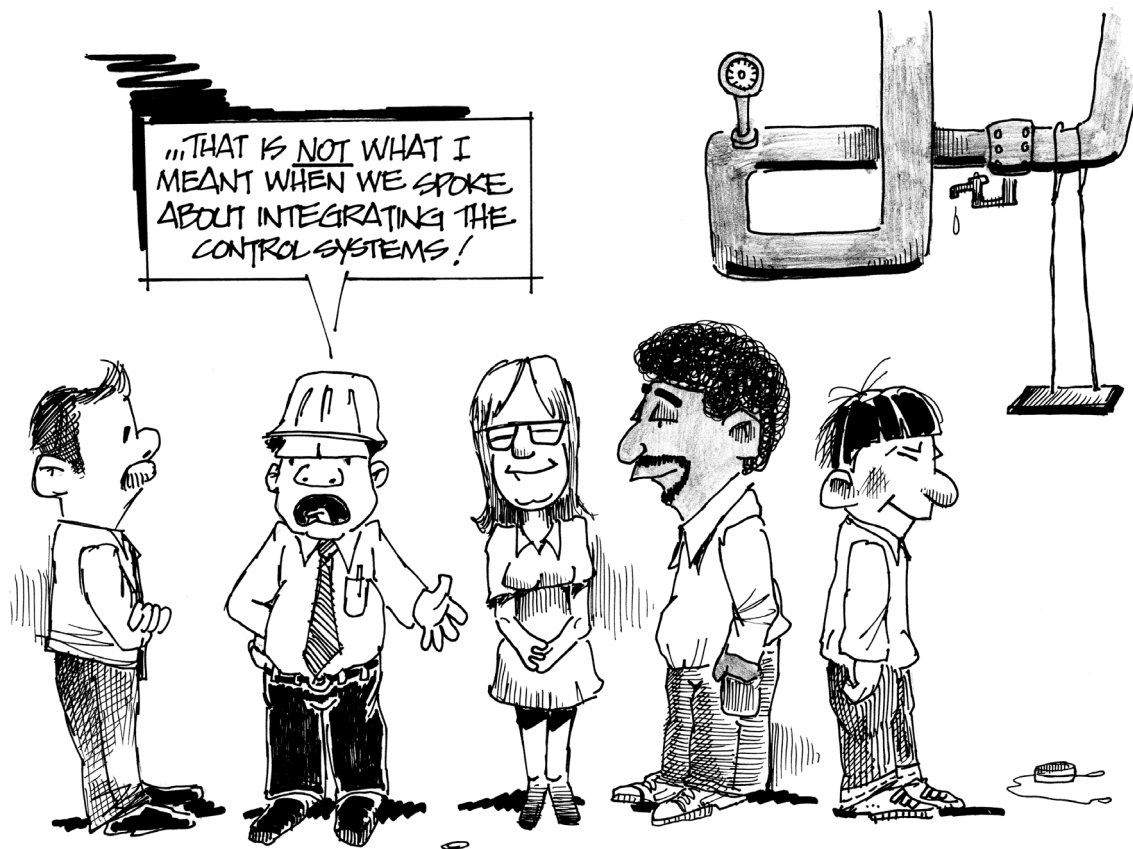


From the control room...

“She was working with a temp of crews.” – Brian W.

“This condensate is like boiling water.” – Robbie



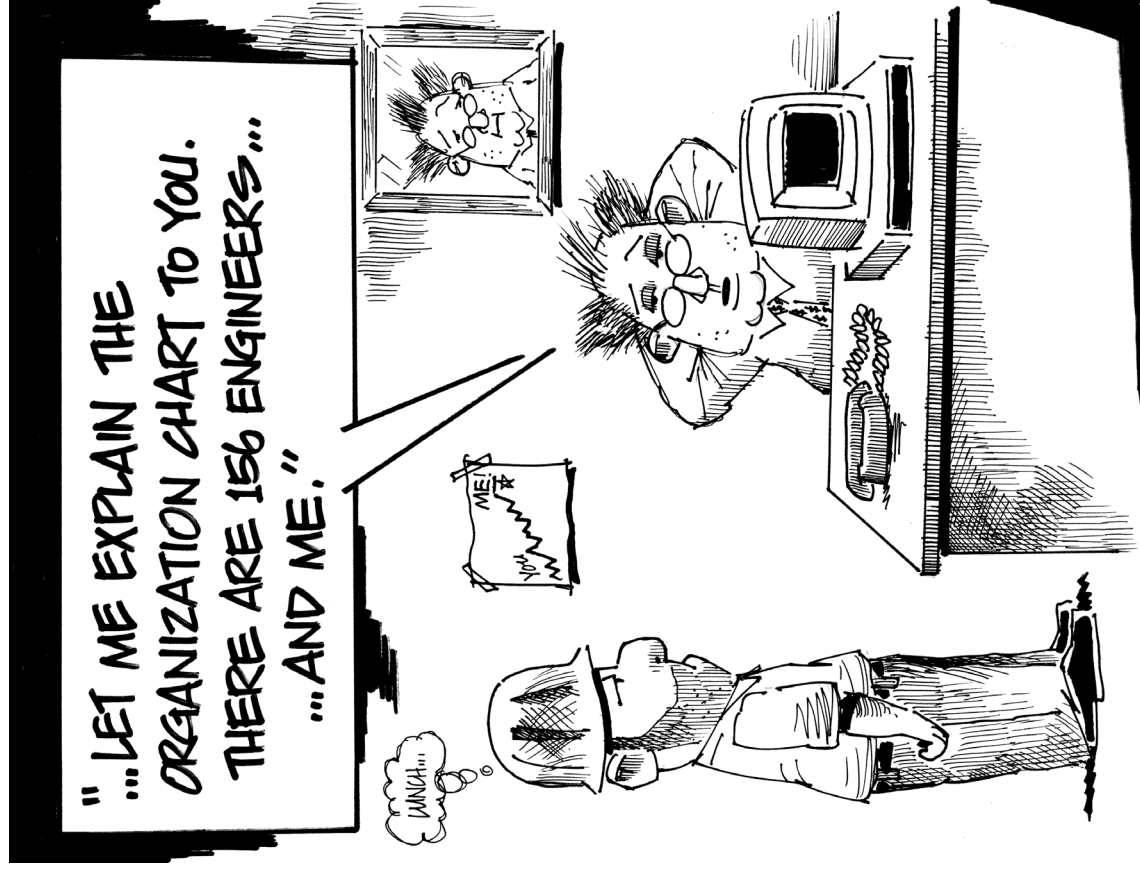


From the control room...

“I wonder if my ex-nephew in law still works there.” – Dodie

“Jim, I need you to order your time card.” – Cole





From the control room...

“We’ve got over 100 hours of pog time in 3 days.” – Cole

“The pipe supports filled up with ice and cracked.” – Sonny



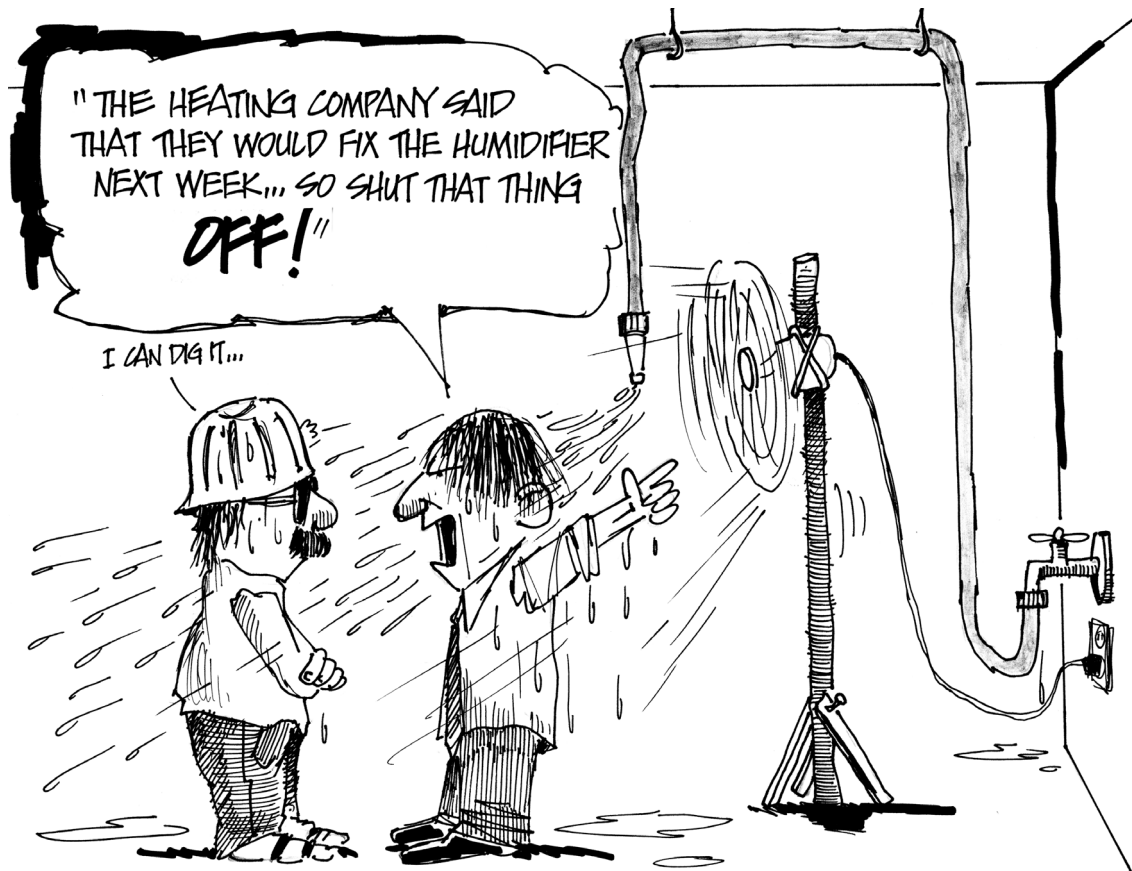


From the control room...

“Everyone can breath easier, the butt can is cleaned out.” – Dodie

“Yeah, Bodene is probably sitting in a naked chair.” – Thad





From the control room...

“I thought you had to use them before they were dead.” – Dodie, talking about organ transplants

“Remember the bi-centennial in 1969?” – Cole



"LOOK, YOU'VE BEEN WORKING ON THAT
PNEUMATIC COMPUTER SINCE 1961... DON'T
YOU THINK IT'S TIME TO BUY A PC?"

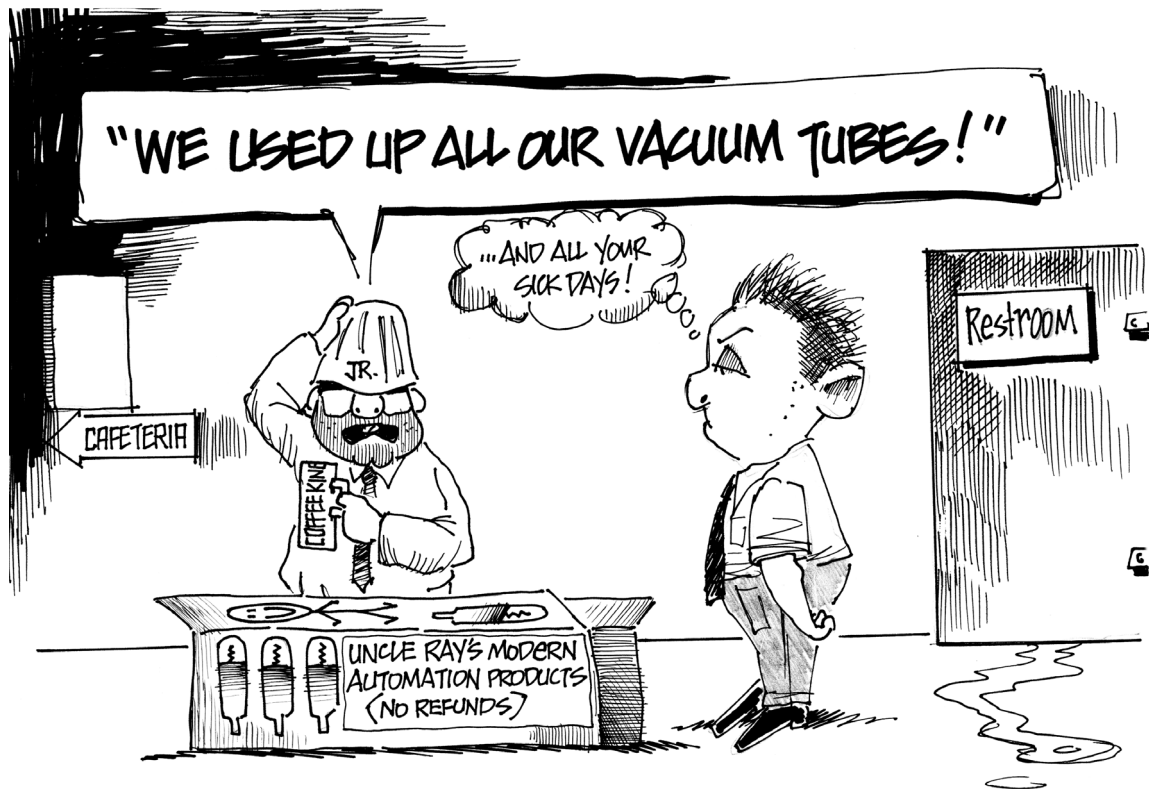


From the control room...

“Why didn’t you tell us this was Ugly Day Hat?” – Purdy

“Thirty dollars of my pocket is coming out of my money.” – Lucas





From the control room...

Uzi – “Bruce, what kind of bread is that?”

Bruce – “It’s white wheat bread.”



"THAT RETIRED ENGINEER THAT YOU
HIRED WANTS TO SELL THE PURGE WATER
FROM THE BOILERS AND COOLING TOWERS
TO THE CITY!"

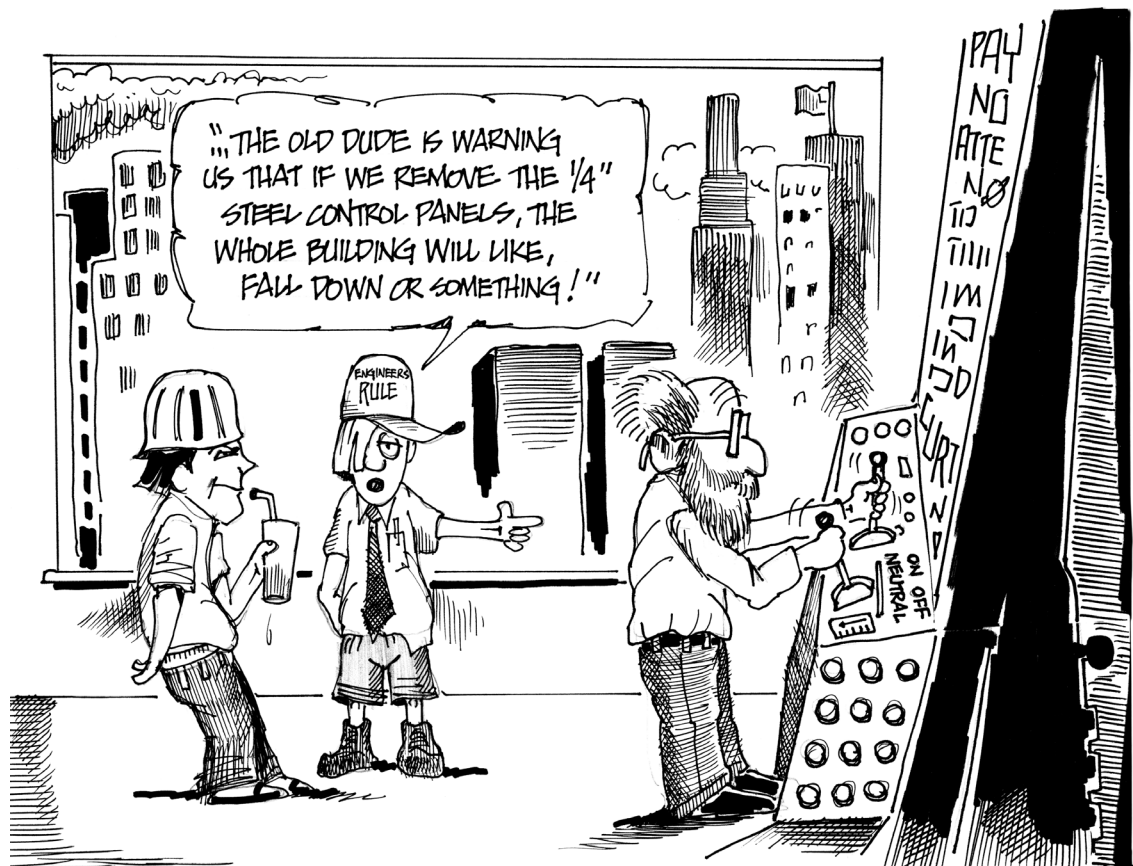


From the control room...

“What is that new show that just came out on BVD?” – Dub

“They should last until they fail.” – Kevin H.





From the control room...

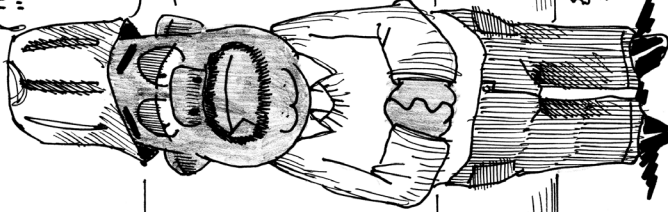
“You have 20 guys out on the basketball field.” – Dodie

“I feel like I’m in a wax museum. No one is moving.” – Ryan



"THE PLANT MANAGER WANTS
A CLICKING TOTALIZER NEXT TO
THE DOOR, SO HE CAN TELL IF THE
PLANT IS OPTIMIZED!"

"BUT I LIKE THE
WAY WE ARE NOW!
I DON'T WANNA
GET OPTIMIZED!"

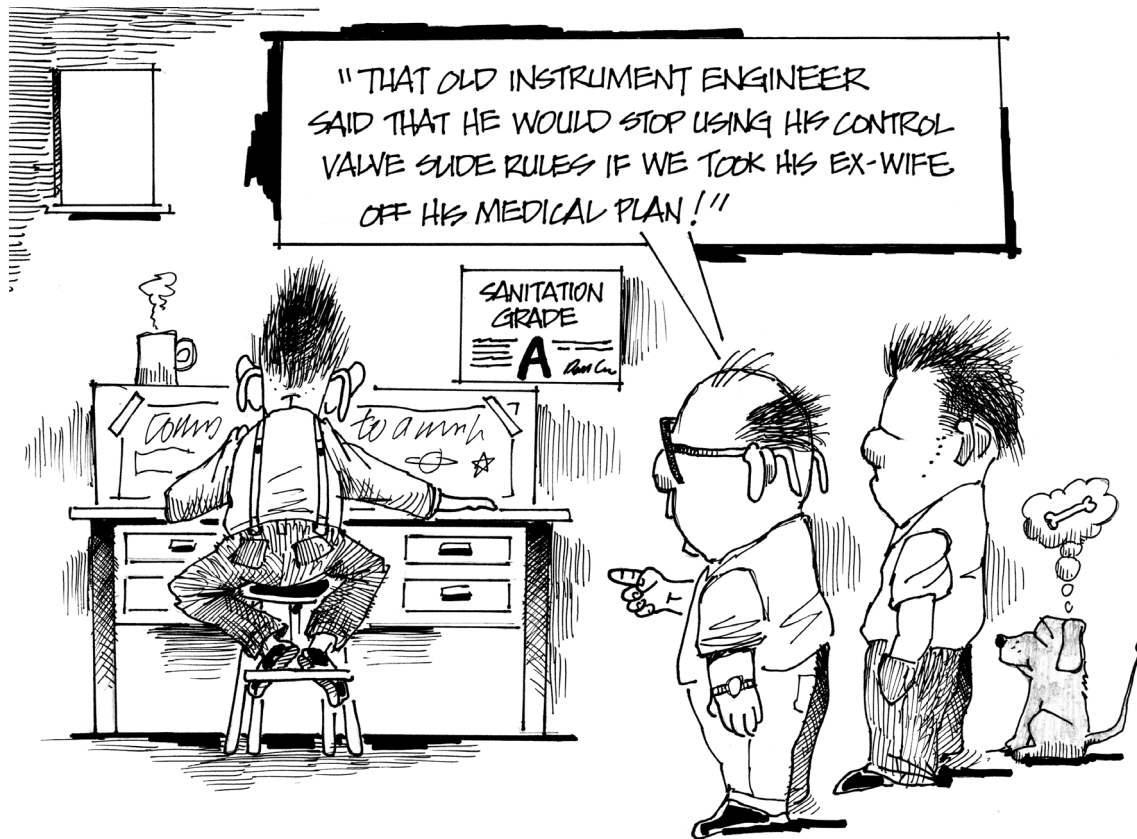


From the control room...

“My wedding is the 27th of the Halloween month.” – Felix

“He was a pallbearer in the wedding.” – Dodie





From the control room...

“You could be like Larry with your earballs sunk in.” – Dirck

“You can hear the air.” – Quinton, during a rain storm



"THE VALVE COMPANY SAID THAT
THE CRYOGENIC CONTROL VALVE
WOULDN'T MAKE SO MUCH NOISE
IF WE WOULD STOP STRAPPING
WARM SODA CANS TO THE BODY!"



From the control room...

“That guy had 15 bags in his clubs.” – Purdy

“Eating a grapefruit is like eating less than nothing.” – Janet





From the control room...

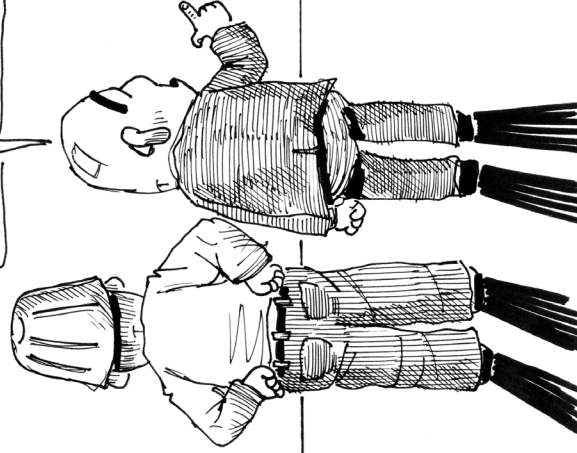
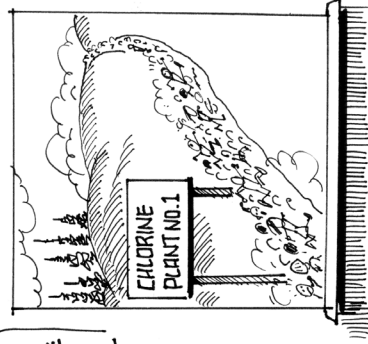
“I think I’ll take a couple of days’ vacation tomorrow.” – Janet

“If you’re not running so fast you are not running.” – Scrap Iron



"THAT NEW CONTROL ENGINEER SAID
THAT THERE WAS TOO MUCH FRICTION IN
THE VALVE STEMS, SO WE'RE GOING TO
LOOSEN ALL THE PACKING IN THE
CHLORINE PLANT."

"UH... WHY IS EVERYONE
RUNNING AWAY FROM THE
CHLORINE PLANT?"



From the control room...

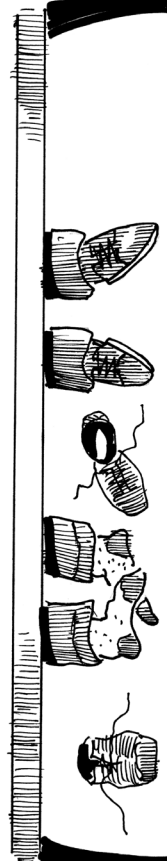
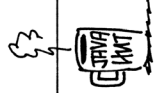
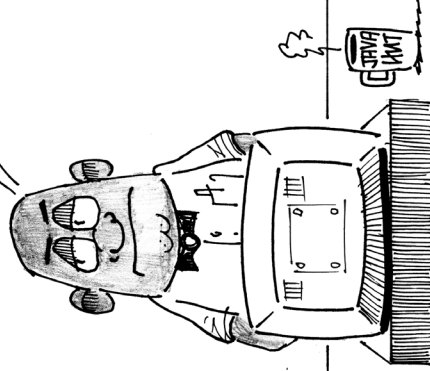
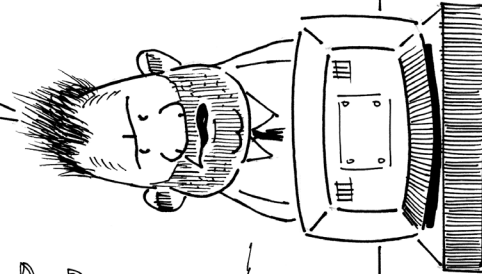
“Have you seen any of those gold silver dollars?” – Ron

“The law is 99/100th of the possession.” – Brian



"...THEM CONTROL ENGINEERS WANT
TO ADJUST THE KNOBS ON THOSE
CONTROLLERS INSTEAD OF THE
NIGHT CREW!"

"THE DOUGHNUT WAS
LAYING RIGHT THERE
WHEN I WENT TO THE
RESTROOM..."



From the control room...

“It was based on fictional facts.” – Dirck

“They are trying to put a square hole into a round peg.” – Dodie





From the control room...

“Where is your headache Bodene, in your back?” – Fred

“... as long as it don’t get drugged out more than a few days.” – Purdy, talking about repairs to Finisher III





From the control room...

“He could see an elephant on a gnat’s butt.” – Dirck, talking about aerial photography

“A buddy of mine got his nose worked on and they didn’t even use antiseptic.” – Steve A.



"...SO FAR, I HAVE: 2 PAGES, 788 WORDS,
3,396 CHARACTERS, (NO SPACES) 4,166
CHARACTERS WITH SPACES, 35 LINES
AND 43 PARAGRAPHS. I ALWAYS WONDERED
WHAT WOULD HAPPEN IF I PUSHED THAT
BUTTON UNDER 'TOOLS'...." and it's not even lunch yet...



From the control room...

“Just think Zeek, that’s 18 months of sleeping in early.” – Uzi

“I thought I had a hole in my lip but it was in the can.” – Dodie





From the control room...

“That’s like crying wolf when there is no sheep around.” – Dub

“They take the dead animals out and kill them.” – Cole



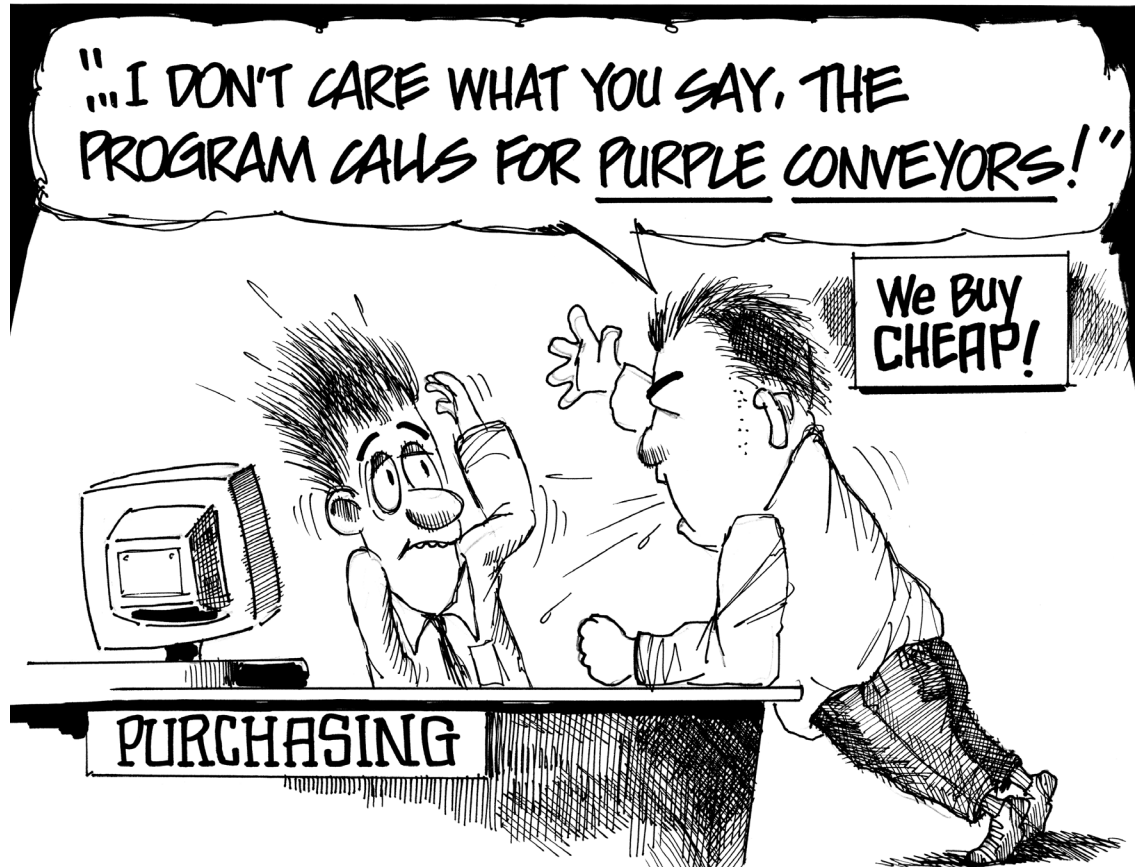


From the control room...

“They’re turkey tenderloins. There ain’t no turkey in it.” – Dirck

“They drew money out of my artillery vein!” – Robbie





From the control room...

“I went from smoking Lucky Strikes to smoking methanol.” – Dub

“The stuff coming over the weir is dark black.” – Uzi





From the control room...

“Those are the top of the art.” – Dub

“They have a ten foot gate all around the place.” – Purdy





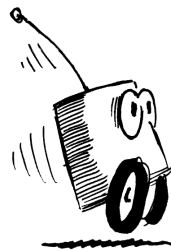
From the control room...

“What time does the noon group tee off?” – Brian W.

“There is no white water rapiding in North Carolina.” – Uzi







Certifiable Top Ten Lists

After the core dump of “Top Ten Lists” that went into the book *Dispersing Heat by Conviction* and startups were only a distant memory, we briefly considered maybe the best lists were behind us. The preparation of a monthly column in *Control* magazine and the contributions of other graduates of the Monsanto family, notably Bob Cameron, Glenn Metz, and Mark Sowell, have enabled us to carry on the tradition. The following is a collection of Top Ten Lists from our “Control Talk” column since its inception in 2002.

Top Ten Signs a Startup Has Gone Wrong

- 10) Product tanks are empty.
- 9) Waste tanks are full.
- 8) The startup team and DCS have negative free time.
- 7) The entire design team is in the control room.
- 6) The whole research team is the control room.
- 5) The managers have left the control room.
- 4) The consoles are lit up like pin ball machines.

- 3) Operators keel over from doughnut overdose.
- 2) A collection is taken for the startup budget.
- 1) The order for souvenir baseball caps is cancelled.

Top Ten Ways to Maintain Your Sanity on the Job

- 10) Insist on being addressed by your superhero's name, “The Great Automator.”
- 9) Put mosquito netting around your work area and play tropical sounds all day.
- 8) As often as possible, skip rather than walk.
- 7) Finish all your sentences with “in accordance with the prophecy.”
- 6) Put decaf in the coffee maker for 3 weeks. Once everyone has gotten over their caffeine addictions, switch to espresso.
- 5) Put your garbage can on your desk and label it “In”.
- 4) Every time someone asks you to do something, ask if they want fries with that.

- 3) Page yourself over the intercom. Don't disguise your voice.
- 2) At lunchtime, sit in your parked car with sunglasses on and point a hair dryer at passing cars. See if they slow down.
- 1) Wear headphones and bring your favorite comic book to departmental meetings.

Top Ten Signs of a Valve Problem

- 10) The pipe fitters are complaining about trying to fit a 1-inch valve into a 10-inch pipe.
- 9) You bought the valve suppliers' "monthly special."
- 8) A butterfly disc won't open because the lined pipe ID is smaller than the disc OD.
- 7) The maintenance department personally put the valve on your desk.
- 6) A red slide ruler was used to size a green valve.
- 5) Your latest valve catalog is dated 1976.
- 4) The maintenance department said they don't want a double seat "A" body.

- 3) The valve was specified to have 0% leakage for all conditions including all signals.
- 2) The fluid field in the sizing program was left as water.
- 1) The valve is bigger than the pipe.

Top Ten Holiday Gifts for Control Engineers

- 10) A book titled, "Project Management Made Easy" or "How to Rewire the Instruments on the 3rd Shift".
- 9) Short-life batteries for your pager that will conveniently die when you get home.
- 8) "New and improved" products that didn't break the features of the previous version that were critical to your operation.
- 7) An automated voice recognition system and translator for the help line.
- 6) A fully automated brewery in your basement.
- 5) A remote control for your mother-in-law with a mute button.
- 4) Tee shirt with "Control Freak in the Room" on it.
- 3) A swimming pool with Model Predictive Control.

- 2) Life size photos of *Models Unleashed*.
- 1) The "Swimsuit Issue" of Control.

Top Twenty Signs Your Son Knows More about Computers than You

- 20) You are wired and your son is wireless.
- 19) Your son is working and living in Silicon Valley with two more computer jocks whose girlfriends work for software companies. You call to ask why your computer won't do anything. After a long conference, the five of them tell you to shut it off.
- 18) After one week with the new computer, your 12-year old is rewriting the game programs because they are too easy.
- 17) Your 15-year old is rewriting the control valve sizing programs because the local vendor doesn't understand the manufacturer's version.
- 16) Your son gets a higher starting salary than you make after 30 years on the job.
- 15) Your son refuses to work on your system because it is too primitive.
- 14) Your kid 5p34k5 1n 1337 4nd y0u c4n7 und3r574nd 17.
- 13) You use your computer for playing games and he uses it for writing games.
- 12) You use your computer for watching videos and he uses it for making videos.
- 11) You find a website that's really cool and later learn that your son created it.
- 10) You still use Windows 95 (or 98, or 3.1, or NT) and he is telling you about the expected advancements in Longhorn.
- 9) Your kid is using operating systems that you haven't even heard of.
- 8) Your kid has more computers than the rest of the family combined.
- 7) You use a soldering iron to repair old stereos and he uses it to repair old motherboards.
- 6) You don't know how many megs are in your son's terrabyte RAID array.
- 5) Your son tells you he wants to major in EE and you think he means Elementary Education.

- 4) You think that when your son is doing peer-to-peer he's talking with friends.
- 3) Your son asks for Ethernet and when you show him a bundle of 10-Base2 coax, you're promptly informed that it's about 15 years out of date.
- 2) Your kid is studying networking and you wonder why he needs a course on people.
- 1) Your son can turn off the parental controls faster than you can set them up.

Top Ten Signs of an Advanced Control Addiction

- 10) You try to use Neural Networks to predict the behavior of your children.
- 9) You attempt to use fuzzy logic to explain your last performance review.
- 8) You use so much feed forward, you eat before you are hungry.
- 7) You propose Model Predictive Control for the "Miss USA" contest.

- 6) You develop performance monitoring indices for your spouse.
- 5) You implement adaptive control on your stock portfolio.
- 4) You carry wallet photos of Auto Tuner trend results.
- 3) You apply dead time compensation by drinking before you go to a party.
- 2) You recommend a survivor show where consultants are placed in a stressed out old pneumatic plant with no staff or budget and are asked to add advanced control to increase plant efficiency.
- 1) Your wife has to lure you to bed by offering "expert options" for advanced control.

Top Ten Ways to Impress Your Management with the Trends of a Control System

- 10) Make large set point changes that will zip past valve dead band and nonlinearities.
- 9) Change the set point to operate on the flat part of the titration curve.

- 8) Select the tray with minimum process sensitivity for column temperature control.
- 7) Pick periods when the unit was down.
- 6) Decrease the time span so that just a couple data points are trended.
- 5) Increase the reporting interval so that just a couple data points are trended.
- 4) Use really thick line sizes.
- 3) Add huge signal filters.
- 2) Increase the process variable scale span so it is at least ten times the region of interest.
- 1) Increase the historian's data compression so that most changes are screened out as insignificant.

Top Ten Signs that a Batch Has Gone too Long

- 10) You have eaten so many doughnuts you look like the "Pillsbury Dough Boy."
- 9) The operators start showing you their favorite pictures of guns, cousins, and livestock.
- 8) Your CEO is on the phone holding for you.

- 7) The contract engineers are going online to buy SUVs with the overtime pay.
- 6) You suspect the contract firm's last job was the Mars Rover.
- 5) The phase of the batch appears correlated to the phase of the moon.
- 4) The displays appear to be in suspended animation.
- 3) The batch executive is referred to as "Hal".
- 2) Jupiter's moons are starting to look good as your motto becomes "anywhere but here."
- 1) Your company changes names several times before the batch is done.

My Top Ten Reasons for Becoming a Control Engineer

- 10) To meet girls. Unfortunately there were none in my class or on my job. I guess I was ahead of my time.
- 9) To impress girls. Boy was I wrong again. Have you ever tried to describe what you do as a control engineer in a bar?

- 8) I mistook all those personal ads asking for a “control freak” in the *Riverfront Times* as a career opportunity.
 - 7) It offered a chance to carry photos of my favorite pH electrodes in my wallet. Now I can carry CDs.
 - 6) I thought the control room would be like the bridge of the Starship Enterprise. I didn’t find any anti-matter drives but I did get to experience strange forces in project meetings, parallel universes in plants, and spin during performance reviews.
 - 5) I didn’t know the job would be teaching pipe fitters how to calibrate and install pneumatic instruments. I spent my formative years as a site construction engineer in West Virginia where the plant instrument technicians didn’t show up until after the units had started up and were running smoothly. Somehow I missed the courses on how to swap knives and accurately spit tobacco juice in a can or on a project manager’s shoes.
 - 4) An opportunity to learn “down home” cooking. Some of the best dinners I have had have been prepared in the kitchens of our Cajun control rooms.
 - 3) The flashing lights and sounds of big time action. As technologies advanced, so did the number of alarms. Now each point comes with 5 configurable alarms.
 - 2) The chance to get on the cover of *Control* magazine. My dream came true last December.
 - 1) It was the only job offer. Majoring in engineering physics, I should have been suspicious when all of the other students were nuclear submarine officers.
-
- ### **Top Ten Signs Your Company Has Downsized Too Much**
- 10) Consultations with yourself are the norm.
 - 9) It’s impossible to create a normal distribution of employee performances.
 - 8) None of your co-workers are employed by your company.
 - 7) The signatures on your “retirement” plant photo barely fill 25% of the border.
 - 6) The common reply to task requests is “yeah, whatever.”

- 5) The new corporate phone directory is distributed on a 3 x 5 note card.
- 4) The human resources department is a bulletin board in the lobby.
- 3) You call in, request to be transferred to your boss's secretary and get forwarded to yourself.
- 2) The "auditorium" for large corporate meetings is now the cubicle next to you.
- 1) Retirement "packages" are a box with the personal belongings from your desk.

Top Ten Email Notices Indicating Your Company Is Going Offshore

- 10) We have assigned you a bodyguard for your next trip.
- 9) Do you know any Arabic, Chinese, Russian, or Sanskrit?
- 8) Beards and turbans will be standard issue.
- 7) We have signed a corporate agreement with Hertz "Rent a Camel."
- 6) Fraternization with monkeys is strongly discouraged.
- 5) Can your job be done remotely?

- 4) Is there a closet big enough for the engineering department's home office?
- 3) We have an offer you cannot refuse.
- 2) The CEO has an important telecast for developing "World Class" engineering.
- 1) The name of your department is changed to "Virtual Reality."

Top Twenty Signs a Spin-off May Be Spinning toward Bankruptcy

- 20) As a parting gift your new company gets 35% of the assets and 90% of the debt.
- 19) You stop receiving copies of the free trade journals.
- 18) The bathrooms suddenly have toilet paper dispensers that accept quarters.
- 17) The "prior convictions" question is omitted from the company's employment application.
- 16) Human Resources laugh when you ask to sign up for the stock-based 401K plan.
- 15) There's a tollbooth at the entrance to the company parking lot.

- 14) You see an ad in the paper for a real estate open house at your company's address.
- 13) There have been an unusually high number of visitors with tape measures.
- 12) You find paper airplanes made from company stock certificates.
- 11) The only cost reduction plan implemented is head count reduction.
- 10) The CEO gets a huge bonus for losing less money than the budgeted loss. (Oh heck, give him one even if it's more just to ensure the captain goes down with the ship.)
- 9) The new medical benefits plan consists of a pair of dice.
- 8) You try to pay your suppliers with Monopoly money.
- 7) The executives are replaced with lawyers.
- 6) Domino's won't accept your check.
- 5) You have three phone messages from your financial planner.
- 4) You see your boss at the mall buying a new "interview" suit.
- 3) The evening shift Wal-Mart greeter vacancy was filled by one of your colleagues.
- 2) There are orange survey flags along the plant property lines.
- 1) Zeb the janitor is your DCS supplier's representative at your company's Vendor Alliance meeting.

Top Ten Signs You Are Ready for a Hawaiian Vacation

- 10) You give your boss the "hang loose" hand gesture.
- 9) You daydream about hula dancers in hardhats.
- 8) Your cubicle has a mosquito net with tropical sounds.
- 7) You bring a kayak to the company's waste pond.
- 6) You ask, "Where is the company's pupa stand?"
- 5) You tell your secretary she is wearing a nice muumuu.
- 4) You play a ukulele in your office.
- 3) You show up to a meeting in a Hawaiian shirt, shorts and thongs.
- 2) You start answering your phone saying, "Aloha."
- 1) You wear a snorkeling mask instead of glasses.

Top Ten Handy Uses for Large Case Circular Chart Recorders

- 10) Big bird feeders, or in my case, squirrel feeders.
- 9) Flower planters – you can pass them off as antiques.
- 8) Portrait frames for your long lost relatives.
- 7) Halloween masks for aspiring engineers.
- 6) Piggy banks so you can get the money back out.
- 5) Storage for your memorabilia such as valve sizing slide rulers.
- 4) Hi-tech picnic games – stand back 20 feet and toss your CDs.
- 3) Great nautical-themed lockers with those portholes.
- 2) Bourdon tubes make nice fishing lures - just add treble hooks.
- 1) Toilet seats for “Outhouses” – what an appropriate end.

Top Ten Signs you are an Endangered Species

- 10) You find conversations with yourself most productive.

- 9) Your discipline is no longer on any organization charts.
- 8) Your technical society changes its name.
- 7) Vendors go into a feeding frenzy when you show up at a society meeting.
- 6) Your youngest colleague is eligible for senior discounts.
- 5) The “Users Group” meeting is held at a retirement resort.
- 4) A natural history museum asks for your job paraphernalia.
- 3) The local zoo requests to put you on exhibit.
- 2) You become the “Poster Child” for the Sierra Club.
- 1) Your mating habits are featured on the “Discovery Channel.”

The ranks of automation professionals have become perilously thin so we conclude this book with a vain attempt to convince you not to crowd the retirement resorts. This new top ten list was concocted by Glenn Mertz prior to beer o'clock. If you want to improve them, just add beer.

Top Ten Reasons to Not Retire

- 10) You would really miss those 2-hour staff meetings every Friday morning.
- 9) You would have trouble finding how to use those hours you spend on your commute.
- 8) You can't bear the thought of not starting out your day with a delicious office cup of instant coffee under the flickering florescent lights with the crackle of office sounds.
- 7) You would have too much trouble finding reasons to use PowerPoint.
- 6) You could not live without an annual performance review.
- 5) Your fitness would be compromised by missing the strength training of carrying your laptop all over the world.
- 4) It is too difficult to figure out what you would do with your office wardrobe.
- 3) You are afraid of withdrawal symptoms if you can't spend 8 hours a day on the phone and doing email.
- 2) You don't like the idea of having 52 weeks of vacation every year.
- 1) The company canteen vending machines have the best hot dogs in town.