The Egg and II

More ideas collected by the
Data Egg in daily use.

by Gary L. Friedman

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Introduction

The original edition of this collection, titled "The Egg and I", was published after the first anniversary of the working prototype, and it concentrated on showing off just how many ideas (and their variety) I was able to capture during the Data Egg's first year of daily use. One of the questions posed in that publication's introduction was, "Are these thoughts even worth capturing?", a question that cannot be properly evaluated without first publishing the thoughts and then allowing for the benefits of time and perspective. I continue capturing ideas to this day, keeping in mind that the best inventors, humorists, and writers keep such a diary of thoughts, and even publish them on occasion. My habits have been affirmed.

Now, four years later, I find that my usage of the Egg has shifted away from capturing humorous tidbits and towards a greater number of brainstorms, inventions, and items for my ever-expanding to-do list. Thus I find that the Egg has allowed me to amplify one of my strengths -- identifying problems that few seem to recognize as a problem, and adopting existing technology to solve it. It also keeps a billion things that need doing from falling through the cracks. Almost as important, it lowers my stress, since I no longer remember only that an idea existed but not its content.

These four years have seen the Data Egg capture no less than 3 patentable invention ideas; ideas that were promptly forgotten after capture, which were later recovered and expanded upon. The first, the Trustworthy Digital Camera, started as a 2:00 AM thought and evolved into a JPL Patent which is due to issue in January 1996. The second, electronic sheet music, started out as a thought "Why hasn't anybody addressed the problem of musicians having to turn pages while playing?"

The third, called Optimize!®, promised to fill a gap between the rapid increase in desktop computing power and the software publisher's reluctance to utilize this power in favor of appealing to the older, larger installed base of previous-generation equipment. There are also a few hundred other ideas of varying value, which have been collected and made presentable for you, kind reader.

Merely having good ideas, though, is not enough. Like many other lies we were told in kindergarten, building a better mousetrap doesn't guarantee success of any kind. Over the years I have endured inventions that went nowhere and false starts in business ventures; I have learned that there are precious few business people having the vision, savvy, and resources to successfully produce and market a new and different idea. In January 1995 I left JPL to try my hand at running a business, convinced that if any of my inventions are to come to fruition, it will be up to me to make it happen.

Ultimately, even business knowledge may not be enough. As demonstrated by the long adoption curves of the microwave oven, the pager, the credit card, and even the telephone answering machine, society takes a long while to adapt to new ideas. This booklet, then, is but one piece of my continuing propaganda campaign to promote the utility of my most useful invention, and plant the seeds of social change by showing the world the tremendous benefits that came to one person who embraced a new operating paradigm.

Data Egg Features & Marketing Ideas

Pie-in-Sky Features

- Employ pressure-sensitive keys in the next-generation data egg; use fuzzy logic to figure out what letter was probably meant. Benefits: Higher accuracy, silent operation, easier to build ruggedized version.
- Characters must be able to be "rolled" in.
- Add a calculator mode
- A bar graph should appear across the bottom showing how much battery power and/or memory is left.
- High-frequency generator acts as a dog-deterrent function.
- Fake beeper
- Touch tone dialing
- Infrared download link.
- Time module-like functions (repeating alarms especially; great for taking pills and as a travel alarm); count-down timer with auto reset for exercising.
- Camera time exposure control port.
- Extend I/O so muscular dystrophy patients can use it to trigger the muscle stimulators at the proper time. (This was a JPL project for which the principal investigator hadn't figured out how to do the user interface.)
- Charge pump power supply
- Terminal emulation; auto-download feature.
- Noise mode for audio feedback; facilitates blind typing. (My prototype has this feature.)
- Infrared learning remote control - for X-10 controllers, and to replace bolted down remote controls in hotel rooms.
- modem and FAX
- bar code reader
- Handy thesaurus/spell checker program
- Temperature? Relative Humidity? Acceleration? Altitude? [Marketing will determine which of these people find useful. -Ed.]
- Macros capability for commonly-spelled words and frequent calculations like currency exchange
- language translator
- have it record sound for musicians who might forget that great lick they just thought of.
- reverse-search phone book file, so you can cross-reference who just paged you.
- Sort ideas on the fly and view by category later.
- Grocery shopping mode for Egg - Check off items, keep running cost total.
- Electronic score keeper for 2- and 3-person games, especially miniature golf. (If for golf, add an electronic golf ball finder. The world needs one of those.)
- 8 ball program? Wumpus program? [It'll sell billions. -Ed.]
- Tiny embedded printer - scan barcodes of cheap items, print out replication stickers for more expensive items in the supermarket. (Seriously, perhaps it could replace a pen for the handicapped?)
- Text-to-Speech synthesizer for those with speech problems. (You should see the bulky units available on the market!)
- Have the display confirm the function selected while keys held down; activate upon release. (Not unlike the way the HP41 used to do it.)

- Could FedEx use an Egg with a barcode scanner?
- Have egg appointment s/w recognize the lunar calendar as well. Might sell well in Jewish community.

Marketing Ideas

- "This is your brain. This is your brain with the data egg. Any questions?" (Print ad shows two photos, disorderly and orderly.) - Kevin Gershan
- "The Data Egg: All the power -- No cholesterol." - Larry Taube
- "Which came first -- the Data or the Egg?"
- "The Data Egg - Where great ideas are hatched."
- "The Data Egg. Capture the thought."
- "Watch my Data Egg Go."
- "10 seconds to Newton" - advertising as a Newton peripheral [This was back in the days when everyone thought the Newton would be the next Big Thing. - Ed.]
- Eggs spear a mint.
- Eggstrapolate your ideas.
- Go FIGure. (Good if sold as Newton peripheral)
- Become an Eggnostic.

Need a new logo: How about stylized letters with the last lower-case 'g' containing an egg within the round portion?

“Have the Egg packaged in a small nest”. - Joseph Horn's fellow priest.

Data Egghead software - (Vincent Price can endorse this)

The Datum Egg - Name for disposable version; only good for one idea.

Data Egg promo photo - Photo of Brent Spiner as Star Trek's DATA holding a chicken egg (or the product).

The Fig - [Product companion to the Newton]

Tricorder - text, voice, and pages. - Skip Matthew's name for next generation Data Egg.

We'll have to design a new handheld unit which can take PCMCIA cards (or a smaller version containing the same information. Franklin digital books has a useful format...). That way we can have packet radio modems and 2-way pagers.

What about a 2-way link to a larger LCD screen and PCMCIA card holder? You'd still have the local screen, and could have the PCMCIA card behind the screen and communicable even while in your pocket.

PC-Based Software User Interface Thoughts

3 fields: On top is your add-on s\w icons, with a horizontal gage indicating how much of the unit's memory they are occupying. On the bottom are all the text files into which all your category text goes. All windows have vertical and horiz. scroll bars.

In the middle...Phone book? Your permanent file?

Buttons on the bottom for "Transfer it"
"read egg contents"
"Make it so" :-)

Top of memory should be a list of starting addresses for each add-in, followed by an ffffffff, then your starting and stopping pointers should exist. The beginning of each routine should examine the contents of a pre-specified register and decide weather to return or take control.

"Use as remote keyboard" button to master PC software window.

Egg Strategies

We should sell a developer's kit.
We should offer classes.
We must have the 800 number emblazoned across the front: 1-800-DATA EGG
Eventually 1 or 2 add-on packages must be included in the generic product: Calculator, Spell Check & Thesaurus
Astronaut notepad.
Give sample units to Jerry Pournell, Steve Allen, Steven Speilberg, Steven Wright

Brainstorms for potential Data Egg markets

- Meter readers
- Inventory takers
- Poets
- Truck drivers?
- Airline pilots?
- FedEx package handlers (unit should have built-in barcode reader)
- Waiters in upscale restaurants.
- Law Enforcement Personnel for entering info into computer while driving.
- Busy executives
- Other creative people.
- Scientists and other field data gatherers.
- Clients see a real estate agent use it, and they want one, too!
- Journalists
- On-the-road sales people who use the car phone a lot and need to look up names and phone numbers.

Data Egg commercial ideas:

"My Data Egg" - Song to the 50's tune of "My Ding-a-ling"

Warm filter, autumn feel. Some guy is taking a nature walk through turning trees, while a voice over of a letter to his loved one is heard. His hands are in his pockets. Near the end, the last line of what he's writing can be seen typed in a close-up.

The single point is you can type and capture your thoughts anywhere.

Have the display confirm the function selected while keys held down; activate upon release. (Not unlike the way the HP41 used to do it.)

Throughout Infomercial, have hand and egg in lower left-hand corner typing comments throughout the program. Include random thoughts and sarcasm's. Text typed can scroll across the bottom, like a news bulletin throughout the entire show. This will be great for channel surfers and will take the place of the MTV logo at the scene's bottom.

The only logical way to market this thing is to either have an Infomercial or go multi-level marketing. This way, personal enthusiasm drives each sale.

George Carlin - Andy Rooney Type Thoughts

If I want to be politically correct, do I now have to refer to Indian Summer to Native American Summer?

And why, why, why do people complain that naming baseball teams "Indians" or "Braves" is demeaning? If they were to name a team "The Nazis", people would scream that Nazis were being glorified, not demeaned. (And nobody seems to be complaining about the Notre Dame "Fighting Irish" mascot, as if a short ill-tempered Irishman getting into a drunken brawl were politically correct.)

How in the world did chiwawas evolve?

Only in the valley: Sign on a bank proclaiming, "Totally Free Checking!"

How do they get those little "m's printed on the irregular-shaped m&m's?

We are indeed addicted to electricity. Want proof? Try doing without it completely for a couple of days. You'll experience withdrawal.

Does fluoridated water make it taste like it's from Florida?

The guy who designed the Toys "R" Us sign must have been a Russian immigrant.

Annoying things #4,307: nroff, TeX, and Microsoft Word for Windows have the same learning curve.

If conventional wisdom says the best of friends shouldn't become roommates, then shouldn't the same thing apply to married couples?

Sign of the times - People who work in computer stores don't know how to program. ("Hi. I'd like a book on LOGO." "What kind of logo do you want to make?")

The O in Minolta's logo should be filled with the yin-yang sign.

Minolta auto-everything design philosophy is converting the camera into a Macintosh: common shots and styles become incredibly simple; and difficult shots become impossible.

Books we'll never see: Who's Who Amongst Humble People.

A dispersed population stands a smaller chance of survival. I guess the Jews represent the oldest and most successful example of distributed processing.

The car wash has a sign that says "Polish wax" -- What's wrong with Czech wax? (And is it any relation to Polish Sausage?)

Disney's new residential city, being built in Florida, should have been named, "Mickeyapolis".

Computer scientists dream in binary. (Either you are dreaming, or you aren't.)

Full circle dept.: There's a program called KUI (keyboard user interface) which lets you set up a bunch of hot keys to launch applications, simulate a mouse, and do command-line control in a pop-up window. If Microsoft windows needs this tool to run efficiently, maybe the whole mouse windows idea is the wrong paradigm.

Today's Self-righteous thought: As I go on my nightly walk I am constantly in awe at all the homes whose primary interior light is awash with the animated illumination from the television screen. This is what Americans live for! Not to spend time with their families; but to relax, have a beer, and kill their evenings in front of the tube and become willing receptors to corporate America's propaganda campaigns.

A one-letter change could make the Chrysler LeBaron a best-seller in Lebanon.

Naming a space probe "Columbus" is a bad idea because 1) when it finally reaches the planet, it'll think it found India; and 2) it might bring a computer virus to the new world. [3) Queen Isabella would still want royalties.]

Giving your children outrageous first and middle names will help protect them from false arrests for the crime of having the same name as the actual offender, a computer-related risk common in this emerging era of loosely coordinated, distributed national databases. Not only will the unique names practically eliminate the possibility of false arrest due to negligent computer operators (sort of an error correcting code which eliminates a match with one or two bit errors) but if the name were confusing enough it wouldn't show up in any two databases quite the same way, reducing the chances of catching a crook with an unusual name. (A double-edged sword.) (As an example, People whose license plates consist solely of 1's, 0's, I's, and O's will rarely be read by humans correctly, decreasing chances of accurate identification.)

The elusive software metric is: does it still seem like magic? Most programs don't stand a chance of passing that test.

The one advantage of our increasingly mobile lifestyles is that it keeps shows like "Dialing or Dollars" off the air. [Nobody's home anymore! -Ed.]

My new PC has 140 megabytes. Imagine! 140 megabytes! That's more information than Socrates or Galileo had in their lifetimes. [Ed. Note: And I can fill it all up by installing two Microsoft products!]

How come the best telephoto lenses aren't made out of reflecting mirrors? [Ed. Note: reflecting mirrors bend all wavelengths of light by the same amount, unlike their glass optical counterparts. Also, first-surface mirrors don’t add any additional distortion. Building long lenses using mirrors should theoretically result in sharper images. Reality is different.]

And what is a pocket full of posy, anyway?

How do those Disney Imagineers keep rides like Pirates of the Caribbean and Splash Mountain from becoming rooms full of humidity and mildew?

Full Circle dept. - The TV show Cheers was modeled after a bar in Boston. Now, here in Detroit, I see a Cheers bar modeled after the TV show.

Why is there so much crude oil in the middle east? Were the dinosaurs prevalent there? If so, was the area more forested at the time?

If you can mix different rainbow colors together and get new colors, can you also mix them with invisible wavelengths (like infrared and ultraviolet) and get even newer results?

Madison Avenue has created a whole generation of kids who believe that wearing certain shoes can make you jump higher.

Intel says they're taking the 'work' out of network. Given Intel's reputation, does this mean the network will stop working?

"Oh, so lack of handwriting recognition is now a feature, huh?" - Me to the NCR guy showing off a Newton-type device that was rushed to market, InterOp '92

"NeXT's multimedia mail can only send mail to another NeXT computer. But IBM's multimedia mail can work with any other computer conforming with the MIME standard." - IBM rep at InterOp show, demonstrating that not being a pioneer is now a feature.

Why hasn't there been a public uproar about TRW selling your credit report back to you? What would the reaction be if the CIA tried to sell you the information they've been collecting on you? [Ongoing moral which every successful politician knows: public reaction is fickle, short-lived, and completely unpredictable. -Ed.]

I'm convinced Pedestrian pushbuttons at stoplights are placebos.

The Sturgeon General recommends eating more fish.

Why do cars have 2 headlights?

The driver training program we had in high school is funded by moving violation fines. Where's their incentive to do a good job? If these instructors ever do a really good job, they'll put themselves out of work.

Where do they get the steady supply of children to put on display at the Children's Museum?

Great! I order a low-fat meal on the plane, and it has cheese on the salad!

The popular wish of being a fly in the room wouldn't be all that great. Rather than observing the actions of the human participants and reveling in being able to witness a historic moment, I'd probably instead be busy flying in random directions, rubbing my front legs together, and looking for food.

Things I hate - Answering machines that erase messages by default if you do nothing. Thank Uniden for that thought. [Ed. Note: Well-designed products should only erase messages if you explicitly tell them to do so. Last week I was listening to messages on my cellular phone when the connection failed. The machine erased the messages before I had a chance to hear them all.]

Why doesn't the medical community get together and run a series of ads in Daily Variety showing a statistically average female model and the phrase "Don't promote Bulimia. Choose your images wisely." [Probably because it'll be a profound waste of money! -Ed.]

There is obviously room in the world for more opinions than there are people to hold them.

[My lawyer friend's] inability to see the potential of the trustworthy camera parallels other occurrences throughout history - the general who couldn't foresee a use for aircraft for military purposes, "soon there'll be a telephone in every city", inability to predict that someday there'll be a PC on every desk.

There's No Escaping Human Nature Example #7,211: More than one dialect of Esperanto has evolved.

Ways to improve the educational system: Make speech & debate mandatory. [Dumb idea; Algebra and Geometry didn't increase logical thinking. -Ed.]

It's well documented that 'sweeps week' causes television to become sleazier. What if they announced a week when no monitoring whatsoever would take place...Would producers use that time to risk airing some high-quality specials? [Probably not. -Ed.]

Great name for a 50's horror rock group: Freddie and the Krugers.

The Hindenburg uncertainty principle - Nobody's sure whether it will blow up or not.

Quantum mechanics, theater and art have something in common - all change their nature when someone looks at them.

Wolf Blitzer's bedroom closet was raided by Saudi secret police. Be on the lookout for a Sheik in Wolf's clothing.

If gravitational attraction depends on the mass of both objects, then how come heavier things don't fall faster in vacuum? [Ed. Note: They do, but they are imperceptibly faster.][Guess Galileo's famous rock-and-feather-falling-in-vacuum experiment drew the wrong conclusions, huh?]

Iron Man's wife - Mia Ferro

George Orwell:
WAR IS PEACE
FREEDOM IS SLAVERY
IGNORANCE IS STRENGTH
KETCHUP IS A VEGETABLE

Good AI test -have a translation program interpret informal Hebrew without the vowels.

The commercial markets don't really care about elegant solutions, unless they reduce cost. This is a concept they should have pushed in engineering school.

Math and alcohol don't mix. Don't drink and derive.

Why doesn't it bother anyone else that the EPA office has plastic plants in their lobby?

The problem of living healthily is that it takes all your time.

Beepers took 20 years before they hit the mainstream. FAX machines took over 100. People never used answering machines properly until the late '80's. (Before then it was "Hi. Returning your call. Call me back. Bye.") How long will it take for the Data Egg? [Don't know, but history suggests I'll have to die first. -Ed.]

The usual argument for validating the string of reported UFO abductions pivots on the impressive fact that most abductees tell similar stories. This week there were 50 "isolated", nationwide reports of syringes in Pepsi cans, none of which turned out to be true. Can you say, "Human nature tends to plagiarize"?

Why didn't career secretaries develop carpal tunnel syndrome?

When you've seen one shopping center, you've seen theMall.

Self-referential department: JPL has an electric sign which encourages people to conserve energy.

Isn't it ironic that the Crossing the Chasm book [about how to catapult new ideas into mass market acceptance] never made it to the bestseller list?

How come, if India is right next to China, the Indians look nothing like the Chinese?

CASE tools are to programmers what Karoke machines are to singers; they attempt to bring the mediocre ones up to the level of the talented.

Stupid things I said #3,019: "I'm too tired to go see the Berlin Wall tonight. I'll see it the next time I'm in Germany."

- Me, While in Darmschdadt, 1989
[Ed. Note: This experience drove me to see Wayne Newton and Don Ho when visiting their respective cities.]

"I'm working to save he world from major calamity and all I get from my kids is this stupid T-shirt."

- Would have been a great T-shirt for my Dad's retirement party.

I finally figured out why Hughes bills themselves as, "Family markets". It means that they put more candy at the checkout aisles than other markets. [Ed. Note - I thought he was going to say, "They lack banners that say, "Shit - check this out!" -GF]

Now that I've learned that Walt Disney was cremated, 'Disney on Ice' is no longer an ambiguous title.

Why is it that only men like the 3 Stooges? Good subject for a Ph.D. thesis. [You may as well ask the same thing about football, guns, monster trucks, and war. [Naaaaah! -Ed.]]

CalTech has a Hippo Campus. (It's so large...)

A good way to extend your life is to build up a tolerance to death.

When Orson Welles died, he received a 21-ton salute.

I think we should have a national "Let's Find a syringe in a Pepsi can" day.

Carl Sagan has been seen eating at McDonald's. When asked why, he replied, "Because they serve 'Billions and Billions'".

Christopher Plumber's son ought to be named Liquid.

Do you realize that we've been forced into this mouse-and-windows interface solely because it was easiest for 3-year-olds to figure out? [Ed Note - I shudder at what we'd be stuck with if it were designed so that suit-wearing MBA's can figure it out!]

I abhor arbor day.

David Carrodine's son ought to be named Beta.

Why don't we have two-sided CD's? [Be patient. They're coming. -Ed.]

If it wasn't for war, we couldn't have epic stories.

Fashion Prediction: In the future, people will want skin-roughening hand and face cream to make them look like they work hard all their lives.

"From the valley of the jolly" - Is that Green Giant commercial supposed to be a rhyme, or what?

There's a problem of keeping a place tidy and clean...You suddenly feel like there's nothing to be done when you have a spare moment.

"We have nothing to fear but funf itself." - little known German saying.

One of EFF's [Electronic Frontier Foundation's] first activities should be to start an Internet public key registry service, where each entry has behind it checked-out paperwork.

Someone should put Waldo onto a milk carton. [He's <u>always</u> missing! -Ed.]

We still don't know how gravitational attraction works, do we? (Or magnet attraction, for that matter.)

How come, when I'm dreaming, I can think up jokes that I have to think about for a minute or so before I finally "get" them?

The right to bear arms was designed to prevent a tyrannical government from taking over, like in Russia or China. Problem is, they can also be used for other things like mass murders. How can you creatively meet the intended goal without also having the side effect? [Vote them out of office! -Ed.]

"I was genuinely moved..." - Ideal caption for postcard announcing my new address. Illustration would show someone in an audience, crying.

"And they lived happy ever after" - How the phrase will degenerate in one hundred years.

Full circle department - Bank of America, which pioneered Visa, is now offering a Master Card.

The world needs extremists. How else can us middle-of-the-road people know how to place our values?

Television and air conditioning killed the front porch. Why not put data superhighway terminals on front porches and enhance both types of community? [Or, design neighborhoods so there are pedestrian destinations.]

Do you realize that in 30 years they'll be making a live-action movie of the Simpsons?

Why not offer a percentage of nuclear construction workers a job at the running the facility? Built-in quality control incentive.

"At Cal State Northridge, your learning will be InTents" - Slogan for CSUN after the Jan '94 earthquake.

The saddest thing about all the Microsoft Windows bashing is it's all true.

One of the drawbacks of national healthcare is it will discourage radical treatment advances, since risk from lawsuits will not be distributed.

Moving away from a typed computer language like C is the first step to reducing liability due to stupid programming errors that endanger lives.

A museum can be viewed as storage area that pays for itself.

40 years from now, will Dilbert [the comic strip about a "nerd" engineer] be seen in much the same way as Amos 'n Andy are seen now: Stereotyped, negative image, and politically incorrect?

Why do universities always lump together physics and astronomy when naming departments? [Apparently their histories are inseparably intertwined. -Ed.]

Why don't we gather information about the owners presidents of credit companies like TRW, and put it up for sale on the World Wide Web? Maybe it would balance the scales a little.

What we really need is a way to program cats to be incremental vacuum cleaners. This way, at least, they can be useful.

I have yet to see a one-hour photo place take only one hour.

I'm convinced that Halloween was started by a bunch of dentists who had a November lull.

I hope that software will one day progress to the state where it can emulate all hardware. [Including the platform it's running on! -Ed.]

How come when kids are little the rule is if you don't see it, it doesn't exist. Then when they're older, unseen monsters under the bed and stairs do exist?

Did hamburgers come from Hamburg, Germany? (And did frankfurters come from Frankfort?) [Hamburgers - YES! -Ed.]

And why are cue cards always written in caps? It's been proven that a mixture of upper and lower plus serifs make it much easier to recognize words from a distance. [Worse yet - why are they written by hand?? What a waste of human talent! This seems a ripe area for automation.]

Can geodesic domes sustain a quake better than other structures?

Why are marathons always held in the smoggiest cities? Are the organizers getting kickbacks from the Emphysema society?

Ever wonder how, whenever Kirk and Spock are watching some action shots on the main viewing screen of objects that are taking place on the planet's surface, that there are always well-directed scenes and multiple camera angles even though there are no cameras near the action? Turns out there's a way to do it! Like a 3-D CAT Scan, you can take an ultrasound reading of the plant surface from the ship and reconstruct it from any arbitrary POV. Those Star Trek folks were more visionary than they thought!

If absence makes the heart grow fonder, what does the closeness of marriage do?

Noise pollution should really be called Silence pollution.

Why is it called "real estate" anyway?

When will clock makers finally learn that luminous dials on hands don't work???

Colleges and Universities don't understand the learning process. Historically they've covered up for this gross deficiency by only letting in students with a proven track record of picking up concepts on their own with only a little bit of guidance from "instructors". A real university should be able to effectively teach anything to anybody. (Or at least they could make all their professors go through orientation courses that teaches them how to communicate their ideas. What they do now is just repeat the inefficient teaching methods that they had to endure, not knowing any better.)

Why must lyrics rhyme? I understand the appeal of the rhythm, but would it be as good? What if the words kept the rhythm and the rhymes were gone?

Brainstorms

Use a neural network to listen to heart patterns to audibly diagnose heart conditions.

How about a collapsible guitar for backpackers?

How about a removable toner process to help recycle office paper with multiple drafts?

The world needs an electronic golf ball finder.

Another great invention - a telephone which boosts the high frequencies on the sender's side. Great for talking to grandmothers who refuse to admit they have a hearing problem yet force you to repeat everything 3 times. [What?? -Ed.]

Somebody ought to come up with a way to recycle leaves into something useful. How about a type of paper?

There are anti-theft "disks" that can be hidden in various places in the car which act as homing devices when the car is reported stolen. Why not embed these in children's shoes/jewelry/ wristwatches to help cut down the incidence of missing children? [Both the CIA and the KGB would love this idea for tracking the rest of us involuntarily! -Ed.]

Make a heads-up helmet for firemen which superimposes where the walls and doorways are so they can see through smoke. May have to use sophisticated ultrasound techniques to "see" the information in real time.

Why not put a nursery or elementary school on the grounds of a retirement village? Kids will get some free attention, the Seniors will feel needed and therefore will enjoy themselves more. [But the kids might feel bad when their special friends die. -Ed.]

Why not sandwich film behind a holographic optical element and liquid crystal shutter? -- World's smallest camera! [With a charge coupled device, a shutter is unnecessary. -Ed.] With the hologram camera lens, you should be able to change the angle of the plate to change the focal length. Shifting the hologram left and right gives focusing; up and down gives zoom.

Use a hologram lens on the data egg\photojournalism tool; record reasonable quality b&w images without adding the bulk associated with conventional optics. The ideal journalistic companion would be a CCD camera with a holographic lens, and an Apple powerbook laptop with a packet radio interface built in. The photos can be viewed, sorted, touched up, and sent on the fly yielding shorter shooting sessions and happier photo editors, since they can approve shots on the spot and eliminate the need for expensive reshoots.

Disposable remote controls - great for hotel rooms; remotes won't have to be bolted to the cabinets.

Use high-end laptops instead of large UNIX workstations for JPL's flight string configuration. The following benefits can be had:

- No expensive Power Distribution Units or Uninterruptable Power Supplies are necessary - laptops run on little energy and are immune to dirty power, brownouts, and blackouts.
- Save floor space - laptops run closed and stacked atop one another. Computer operation can proceed as it does now -- from a remote terminal.
- Less heat generated - no need for super-cooled air conditioning.
- Cost reduction overall.

Why don't heating\air conditioning systems have an option of taking in air from the outside? This could provide some pretty hefty benefits:

- Turning on the vent at night would re-circulate cooler air from the outside at a time when it's really quite nice out.
- Taking in cool air at night would be great for people who keep the air conditioning on perpetually; fresh air would come in for a change.
- Lower energy bills.
- Perhaps some fuzzy logic function to decide when to switch intakes based on time of day, temperature gradient, recent history of outside weather, etc. Then it would be able to intelligently choose the best way to achieve the desired temperature.
- Indoor pollution levels (which are rumored to be higher than outdoor levels at times) would be reduced.

A fuzzy-logic-based environmental controller would pave the way for automatic outside ventilation thermostat. External humidity might be an argument against taking in outside air -- maybe a moisture trap (silica gel with a periodic heater) could fix this problem and provide "free" drinking water as a fringe benefit.

Expanding on the above idea: a system based on the BSR X-10 home control system could be tied into the fuzzy thermostat to control windows; i.e., air conditioning during the day, open the windows and run the fan automatically when it's cool outside. Use infrared sensors to insure someone's in the house when it decides to open windows.

Also, temperature readings should be read in different parts of the house depending upon time of day (or where the concentration of people are) -- upstairs in living quarters at night, downstairs for day.

Ideas for JPL's Virtual Reality project for law enforcement training

- Use a mist that only fluoresces when a threshold of infra-red laser light hits it. Have only two scanning lasers re-create the image; don't worry about interference patterns.

- How about two invisible lasers whose interference patterns form visible light? Pick two wavelengths equal to each other but below the visible spectrum. Their intersection should produce the original, sum, and difference. The difference will be invisible, the sum should push it into the visible spectrum.

- Could you get shadings by varying the intensities of the beams?

- Put each VR participant into his own VR shooting room, so live fire won't kill other team members. (Would have to be big rooms to accommodate large scenarios, though.)

Educational system incentive: Give schools an additional $1 for every point its students score on the SAT tests. (Coupled with the voucher program, this should provide enough capitalistic incentive without inducing the teach-for-the-test syndrome too much.) [Ha! - Ed.]

For CPU's that don't have enough I\O, the data egg's 7 buttons can all be hooked up to a resistor network and fed to an A\D converter. (Might use more current than the other way). Just take the highest reading...You won't be able to "roll" the characters in, though (Then again, maybe you could...You can infer that if an early reading was X, then y, z, and t keys must have been down. Continue inferring all keys until zero ohms are read again.)

Become a service provider for Kodak photo images and manipulated Macintosh versions. Photo images can be sent in via ftp, modems, (B)ISDN or SMDS or Frame Relay or ATM lines; photos are then printed on a $100,000 machine and shipped to the user. Mail is drop shipped 3 times a day; FedEx is optional. Can be run by college students and a good system administrator. [About a page's worth of details omitted for brevity.][Such services now exist as of 3/94. I hate being a pioneer! -Ed.]

When videoconferencing finally becomes the norm, a great gadget would be a blue screen background so the user can superimpose himself against a backdrop of cubicles, newsrooms, busy offices, a barn, manufacturing plant, etc. It'll be the equivalent to those sound effect machines they now sell for telephones.

How about motorized sun visors that slip into and out of the roof, kind of like the rear station wagon rear windows of the 70's?

3 improvements to making my car theft- and abuse-resistant:

- Put video camera in trunk; record the next time an airhead sorority girl runs a red light and claim it was my fault.
- Employ automatic fuel pump shutoff after one minute (unless secret switch is activated) Have the doors lock or sound an alarm after the fuel pump shuts off. (Will only work in 80's model Fords; they were the only cars where you could be trapped inside if the power door locks failed.)
- Have Lojack installed (and make sure the CIA isn't on your ass).

A great function of bit-mapped LCD screens in personal pagers is that they can tune into a traffic channel and download a map of current traffic status.

How about an airbag on the outside of the vehicle? It could sense when a pedestrian impact would occur, and then take preventative action by gently knocking him down instead of running him over. [Dumb idea. -Ed.]

Danger sign in America #3301: Libraries are being closed, and nobody is alarmed. Perhaps this is a good time to introduce the Library of the Future - one that lets you do literature searches in the comfort of your home, and can then download a binary or FAX of the article or book so you can then browse electronically. That's what to do with the expanding bandwidth of telcos and the reduced funding of libraries - catalyze a much-needed revolution! [This will wreak havoc with royalties and copyrights, since more than one person can check out a "book" at once. I'm sure the lawyers will work out an ominous solution for us. -Ed.]

Flock-of-birds military offense for enemy aircraft - have a bunch of remote-control birds flood the engine's intake.

Why not write a program that called my beeper every time some important e-mail arrived? [Would require perhaps six lines of code in a UNIX environment - now you can spend $200 on Macintosh software that does the same thing. God, I love the Mac (not)!]

Here's a new VR idea that brings together three different areas:

- Holograms and ultrasound are both based on interference patterns: both can interpret patterns and reconstructs them back into an image.

- There has also been successful research in being able to control a large water droplet using sound pressure and interference patterns.

- It is a well-known fact that interference patterns (vibrations through objects, interaction of light) will tend to shift free-floating particulate matter into the areas where the waves cancel each other out; making it possible to get sand to form into a specific pattern (for example) by making the underlying surface vibrate with the proper signal.

Why not use inverse ultrasound as a means of shaping the old idea of the steam projection screen? Complex (probably inverse-Fourier) ultrasonic waves can cause ambient vapor or other particulates to be suspended, grouped, and shaped in 3-D space. You can have an object appear anywhere; all the vapor will be suspended in the areas where all the audio interference patterns *aren't*. This surface can then be used as a medium onto which you project moving 3-D images.

A isolated telephone ring detector will light up when the phone has rung enough times to be switched over to voice mail. This way, when you come back into your office, you can visually tell when you (probably) have voice mail waiting rather than constantly pick up he phone and check for a pulsating dial tone.

Employ pressure-sensitive keys in the next-generation data egg; use fuzzy logic to figure out what letter was probably meant.

Can my cellular phone be used as a LoJack? [And will the CIA use it to track my whereabouts? -Ed.]

I need a beeper server; one phone call to the server will activate my watch beeper, a larger one by my difficult-to-reach desk, and will send e-mail. Perhaps that can be integrated with my desktop Unix machine!

Why not a dual microphone system for car speakerphones which uses CMRR [Common Mode Rejection Ratio] for noise canceling, just like the NASA's Deep Space Network? [Will have to have two unidirectional shotgun-type mics on either side of the driver pointing at the face. This configuration will almost guarantee that the background noise picked up by the mics will be different, but the voice will be the same. -Ed.] [It's already being done by Motorola and Ericcson - Add it to my other list. -Ed.]

Artificial gravity solved: Impregnate the floor of the Space Station with a single scoop of black hole. [Ed. Note for non-physics majors: The additional concentrated mass should provide enough gravitational pull to attract other mass, such as humans.]

A Gun Control Program that Will Pass

Why not pass a law that requires certified training before a gun can be purchased? Then put the NRA in charge of said training; they'll make money on it and will ultimately be held accountable for the nature of gun misuse over the long-term. No more crying, "Hey, these deaths aren't *our* fault! NRA members are the responsible minority!". Now we can take their proclaimed responsibility and shame them into undertaking the burden of instilling responsibility.

This will perhaps make them shut up the next time they try to oppose such a measure; now they can really prove that they're promoting responsible usage. They should also be responsible for weeding out poor shooters or those emotionally unstable (if these traits are witnessed during training.)

Usually such legislation is immediately opposed by the NRA, claiming it'll infringe on their members' constitutional rights, and will only infringe upon those who are law-abiding already... They will profit from this burden...

How about an industrial-strength airbag for the front of a car, which can be dispatched when sensors determine a crash is imminent? A controlled release can absorb the impact.

- System would consist of a predictive, force-sensitive pneumatic bumpers for impact absorption
- The required force and timing can be calculated based on closing distance and knowledge of the car's own mass.
- How about using a material which changes its plasticity according to the current applied?
- Would such a bumper require a long throw? Should it extend just before impact?
- The amount of resistance it applies during a collision would look like a bell curve to minimize transmission of the shock to the vehicle.
- If the car being hit also had intelligent bumpers, the effectiveness could be doubled if the cars could communicate with each other a split second before impact.

- Drawbacks: -
    - The bumpers will not necessarily save the car being hit; it is most useful when hitting a concrete wall head on.
    - Idea is only useful if the metal behind the bumper is stronger than the maximum force resistance the bumper can absorb.
    - The coefficient of static friction would not be able to be overcome.

[Dumb idea. -Ed.]

We need to attach a gyro stabilizer to laser pointers; this will alleviate the annoying shaking plaguing today's presentations.

System requirements for simple products can be replaced by writing the instructions first, and working off of those. Not only will this shorten product development cycle, but you will also end up with higher-quality documentation.

Great product for the home theater crowd: Tiny, motorized curtains to cover the TV screen.

---------- Monday, 5/10/93 -- 8:05:30 A.M.

[Ed. Note: About 30 ideas for "Bill Nye: The Science Guy" appeared here while driving to Seth's on Saturday. The Data Egg is cool! -GF][Ed. Note: This was after Bill consulted with me about ideas for his new show. He promptly forgot our 45-minute conversation.]

An expensive way to boost productivity in the workplace is to increase the amount of oxygen circulation in a building just after lunch, to offset the typically larger levels of carbon dioxide responsible for reducing alertness among the building's occupants.

Other uses for the trustworthy digital camera - take photos of kidnapped victims; obviate the need for the old-fashioned holding a newspaper. (Which criminals don't always understand, anyway.)

Someone needs to design a computer language that isn't derived from the keyboard. Would C have evolved if there had only been voice input?

Have the Newton act as a VCR+ - Just point to the screen which is showing a typical TV Guide page. (Or those new graphical TV schedules.)

Combine pen interface with data egg or Infogrip bat - a tolerable way to use a mouse for drawing and graphics-intensive applications.

Why doesn't the military arm its soldiers with bullet-proof vests?

How about a vaginal implant that would retain a trace substance to prove rape cases. [Better yet, do a DNA test.]

Why not use VR glasses for the display of sheet music for musicians? [Because then every musician would look like Stevie Wonder! -Ed.]

The next Polaroids should take the form of the Sharp brand camcorders with the large LCD screen. Instant proofs and editing.

I predict that with the proliferation of mobile communications, full-digit-dialing will evolve, such that you must dial the entire area code plus number to dial, regardless of whether you're within the local area code or not. This will actually serve to simplify the user interface; you no longer have to be aware of where you are to figure out how to format the number, a boon to mobile PDA'S and other mobile autodialers that aren't necessarily aware of their geographic location.

For the electronic music\page turner thing, have the page change like a vertical-traversing shutter, but slowly if need be so the last notes on the page are the last to change, giving the musician more time to read them.

Ideas on the topic of a National Electronic Classified Ad System

- Prices for used equipment won't drop so much if a mechanism for matching buyer and seller were to be established. A national classified ad service would be instrumental for keeping prices and reducing surplus waste.
- Start a debit-card service using digital money where all transactions can be completely anonymous. This would even please Ralph Nader. [Of limited use since the buyer or seller must somehow reveal other things about them like mailing address. -Ed.]
- Actually, what we need is an intelligent agent service that can search through a network of regional databases. Searches can be done by description, geographic location, price, condition.
- Make it so you can't buy anonymously? Use dual-hidden-disclosure as described in crypt book.
- The IRS would want to monitor transactions and treat this former underground economy as taxable income.
- Full-page ad: "Yes, cable companies, now in addition to distributing garbage, you can help keep more of it from ending up in our landfills."
- Bids should be anonymous, but transactions recorded? How could you do that? Classifieds allow buyer and seller to meet; the transactions actually occur off-line.
- Higher resale values means more money can be spent on the legitimate, traceable economy.
- I could publish this as an article in a cable industry magazine and get laughed at by the non-visionary managers (i.e., all of them).

I predict high-end calculators will go away and be replaced with Newtons running MathCad.

We currently admit to universities only the students that are able to figure things out for themselves. We could dramatically increase the quality and number of our college graduates if we taught our university professors how to effectively communicate their ideas.

Why not put a larger battery in the base of a cordless phone as well? That way it can be used in emergencies and during power failures.

Can sophisticated image processing separate double-exposed negatives? [Will probably require lots of AI as well! -Ed.]

How about a state diagram compiler? Aren't most safety-critical systems, airplanes, subways, elevators, and ABS brakes mostly sequential rather than process oriented?

Shall I incorporate a solid-state compass into the trustworthy digital camera to indicate which direction is being looked at? [Yes!!! -Ed.]

Build an ink-jet printer into the hinge of a briefcase; put paper supply sitting vertically in top half. When open, sheets feed one at a time through hinge and onto bottom horizontal half.

Why don't architects put the washer and dryer near the bedrooms where it is most convenient? [Makes too much noise when you sleep! -Ed.]

Improve on the automatic room ventilation shutoff product - add a heat sensor to shut off the air if nobody's in the room.

New ice cream truck music boxes - should also offer a "music-box-held-up-to-microphone" sound for backward compatibility to the ice cream trucks used in the '60's.

Watch modules I should combine onto a belt: pager, Casio tone dialer, calculator. Put onto belt like rhinestone studs. Punch keyhole-shaped holes in belt so thickness overall won't be too great. Mount on inside of belt but still make handy.

Internet Coffee House Ideas

[Ed. Note - A friend and I were discussing opening up a coffee house where good friends could meet and talk in person as well as over the 'net. The following were afterthoughts after a few days.]

- Since each table has a terminal built in, people can order via touch-screen. A hot key brings up an iconified menu in an instant.
- A mosaic home page allows take-out orders to be filed electronically.
- If we get a high school clientele...Free fries if history questions answered correctly on on-screen menu. Greater prize if essay answer is opted for. [This should be a hang-out where it's cool to be smart.(]
- Develop automatic messaging system for order taking; sell to other restaurants. (Newton-based, Egg based, or touch-screen based.)
- People who might want to participate...
- Two friends of mine have already volunteered to be cooks!
- Mike Civeta always had a whim to be a chef...he can system administrate as well!
- Edwin Ryu used to be a really good programmer for JPL; he quit to go run the Sports Deli in Century City.
- My participation: my goal would be to get the place running itself so I can go out on photographic ventures or help Randy Parlier set up a communications center in Papua New Guinea.
- Sell paraphernalia at a counter: Data Eggs, Xaphoons, Friedman Archives greeting cards and photographs, books, etc. Wall artwork can be industrial shots of Data Eggs and/or NASA propaganda. [Scratch that last one. -Ed.]

- Free Internet access to all customers. (Gotta pay for coffee, though...)
- [Call the restaurant the Xaphoon club. or the Egg and I.]

What if you deploy some hardware downstream that corrupted the LEAF field? [Clipper chip defeat - Ed.]

How bout a Xaphoon Mosaic home page with photos and sound? [Should be done by January. - Ed.]

The same sensors that control the lights in offices should also control air vents in most household rooms. If not occupied, make it three or four degrees off.

We need a way to shield the programmer from the tedium of worrying about word sizes and signed integers, etc. without slowing down execution. More intelligent compilers or pre-processors might not work since they won't know when it's OK and the context in which the operation is being done. [Besides, programmers will be the last ones to adopt this new programming paradigm. -Ed.]

A Newton News Reader - for reading on the morning train. Paper icon appears; with layout & table of contents. Point to an article and the relevant text fills the screen.

Hold small business seminars on electronic commerce. Charge $100 per head for credibility, then tell them we'll handle everything if we get the business.

Everyone's talking about the expanding Internet, but as of today nobody's really made any money off of it. Here's a killer idea: Make a Mosaic Home Page for a brothel or call girl service - users could select via pictures on their screen, or even MPEG video clips, then e-mailing a form. Kind of like ordering a pizza, but more engaging.

The world needs real windscreens for telephone operator's headsets for people whose exhaling is heard as extreme distortion on the other end of the line.

Have lights shut off automatically at bedtime for houses with infants. Bedtime to the children then won't seem quite so arbitrary.

Get into the software business - offer small, bug-free programs modularity designed so new features are add-ons instead of re-writes. Charge a reasonable amount and advertise that they’re bug-free. [The market has clearly demonstrated that nobody cares about bug-free programs. -Ed.]

Keep the private key inside a PCMCIA card. Users must type in a password in order to generate the private key; wrong passwords will only generate the wrong key. Stolen cards are therefore not as vulnerable.

Why not a liquid crystal shutter filter for camera enthusiasts who need the vibration-less benefit of mirror lock-up for the cameras that don't have it?

The world needs an automatic ring cutoff switch for telephones - If the room is dark, don't ring. If it's light, ring. (Great for my Grandmother.) The light-sensitive ring cutoff can also sense a 600

ohm short on the phone end, and re-connect. (Or, just block out anything over 24 volts when it's dark.)

Use pressure found in urban water and gas mains to generate electricity. (Admittantly not much will come of it...)

Build a front windshield shade into the roof of a car, much like the station wagon rear windows used to retract in the '70's. Automatically keep the car cooler on hot days.

In a mail-order catalog there's a small alarm you can wear that goes off if your laptop gets out-of-range (which is user-definable). Why not attach the beeping part to your kid, and the other half to you? It serves the purpose, and gives negative reinforcement to the kid.

To help enforce a balanced TV diet for kids: how about a pen-based graphical menu of all shows, kids could choose from 2 dessert shows, 2 educational shows, etc. Computer would then either block viewing times or record shows for asynchronous viewing.

Teflon skid pads on shoes - pseudo Ice skates that won't mar the floor!

Why not us a wide-screen TV with a flat screen and lay it on its side for the interactive drafting board idea?

Why not a children's book on asteroid deflection and the absurdity of having the technology to use it but not doing so? (Plant the seeds early!)

How about an X-10 controller to change the angle of vertical blinds all day to let in light but block out the sun at all times of the day?

Integrate a GPS into unit and tell it which direction the window faces so it can calculate when to move the vertical blinds and in which direction. Better yet, include a simple array of 2 holes along a semicircle to gage the sun's direction and to automatically move to compensate.

Paint a camera with bright colors for taking great baby pictures.

There should be a bookshelf securing mechanism that works like temperature-sensitive fire doors work. Minimize damage from books and entrapment after earthquakes.

Use Media-Lab technology to average several adjacent video frames together to make high-resolution clip art for presentations. Also great for reconstruction of a crime scene from video footage.

Insert a blocking mechanism so only areas of low resolution get filled in? This way blending too many frames won't result in people becoming blurry or averaged out. Here's a case where an unsteady hand-held video technique actually contributes to a sharper picture!

Why not apply digital signatures to the photographic image? [Patent Pending. For a full expansion of this idea, see one of the following publications:

- “A Camera That Can’t Lie”, Photonics Spectra, November, 1993, pg. 47

- "Cryptography Would Reveal Alterations in Photographs", Laser Tech Briefs, Feb. 1995, pg. 36
- "Technology for Turning Seeing into Believing", Science, Jan 21, 1994 pg. 318
- "Seeing isn't Believing Anymore", Dr. Dobb's Journal, October 1994, pg. 6
- "A Camera Sworn to Tell the Truth", PHOTO>Electronic Imaging, Vol. 37 No. 10, 1994, pg. 48
- "The Trustworthy Digital Camera", IEEE Transactions on Consumer Electronics, November, 1993, pg. 905

-Ed.]

New ideas to add to the Trustworthy Digital Camera patent:

- fluxgate compass
- f/stop and shutter speed.
- acoustic ranging sensor. (Dad's idea)
- encryption for external GPS receiver.

Have the Trustworthy Digital Camera's GPS Receiver communicate with the camera encriptedly. [Is that a word?] Just put a private key inside he receiver. That way information can't be fed into it.

Electronic Sheet Music

Product Description
September 8, 1994

[NOTE: The concept has evolved steadily since its original conception in July, 1994. In those cases where the features changed after initial user feedback, it will be stated via these square-bracket comments. This way the original flavor is preserved somewhat, and the reader can understand why certain design decisions were made later on -Ed.]

PROBLEM: Musicians have never adequately overcome the problems of working with written music: page turning usually requires unnatural breaks in performance or a dedicated page-turning detailee; using written music outdoors is subject to the wind; marching band members employ unturnable music of inadequate size; and the non-professional accompanist must endure with the key signature (pitch) the music is written in rather than a key tailored to her particular playing situation. Musicians performing outdoors have been seen using clothespins to secure their music to protect against the wind, considerably compounding the page turning problem.

SOLUTION: A proposed device, hereby given the working name ESM (Electronic Sheet Music), is a device slightly larger than an 8 1/2" by 11" pad of paper, and resembling a 1990's era "pen-top" computer, a computing device possessing only a screen without a keyboard. The ESM will appear to the user as written music, standing vertically and displaying the notes on its screen graphically. The ESM, using a variety of mechanisms, will be able to follow the player and know when to "turn the pages" (display a new screen containing the next page's notes) when the player approaches the bottom of the display, leaving the user free of annoying distractions and able to concentrate on making music.

More Detail

The ESM will appear to the user as dedicated hardware which can hold hundreds of pages of sheet music, all instantly recallable and instantly transposable. Internally it will contain a full-fledged computer, with CPU, RAM, solid-state disk, serial port, and large high-contrast liquid crystal display. In use, the ESM can graphically reconstruct the note events stored internally, and display them at a moment's notice. Because the music is stored as note events rather than a giant bit-mapped graphics file, it saves considerable memory and is "self-aware"; that is, it knows that nature of the graphic symbols being

presented to the user, and therefore knows whether to advance to the next page or return to a previous Coda. Storing the music as note events also has the advantage of making transposition an easy task; this function alone is a much-sought-after tool amongst professional and amateur accompanists.

The ESM will also possess electronic hardware and software that enables it to "know" when to display a new page. This can be accomplished in one of two ways:

1) Special directional microphones embedded within the unit's frame can listen to the player's music, recognize the pitch, and be able to track where on the displayed page the musician is currently playing. This will be the preferred mode which will appear in the majority of advertisements.

2) For instruments which produce many notes at once or are not directly in front of the ESM, (such as a piano or guitar), a tethered three-position foot pedal can be detached from the ESM's frame and placed on the floor for foot-based actuation. Because this solution does not have the same high-tech appeal as the audio tracking ability outlined in 1) above, this feature should be advertised but not loudly heralded.

[NOTE: Conversations with several musicians revealed an almost universal distrust for the automatic tracking method, preferring instead the total control of the foot pedal. This is just as well, since a manual-only method lowers the cost and the R&D, and decreases battery consumption. Although the automatic tracking method is no longer being seriously considered, the details of its workings remain in this document because I believe someday it will become feasible.]

Other talks with musicians have revealed that the elimination of repeat symbols is considered a Good Thing. The ESM product can give the user the option of displaying repeat signs the way to which they're accustomed, or to expand the music so the music is easier to follow. (Having the repeat signs there can make it easy to glance at the music and quickly understand the structure before playing.)]

More technical details about the page-turning mechanisms appear later in this document.

A three-tiered product line is envisioned, aimed at a wide variety of professional and amateur musicians. The ESM can become an indispensable necessity for the musician, much as the music stand and the modern chromatic tuner are necessities today.

Product Requirements and Technical Approaches

- The ESM must be as reliable as sheet music - readable in all ambient light levels, and no risk of surprisingly going "dead" in the middle of a concert.

A high-contrast, reflective, vertically-oriented LCD display will be employed. These can make the most of ambient light without resorting to producing their own backlight at the expense of battery life.

The unit will employ the latest in low-power 3.3v computer technology originally designed for the laptop market. A design goal is to have the ESM last hundreds of hours on a pair of ordinary batteries. A "Fuel Gage" function will graphically and reliably depict how much battery life, measured in hours, remains.

- The unit will know when to display a new page.

Audio Tracking Method: [NOTE: This method is no longer being considered.] Two highly-directional microphones will be placed in the frame of the ESM, pointing so that their listening paths converge a few feet in front of the unit, roughly where the user will likely appear. The two signals will be fed into an electronic comparator, which will accept only the in-phase signals common to both microphones, and reject all other sounds. This is an effective way to eliminate unwanted background noise, such as other players in the symphony. The signal is then fed to a circuit (firmware) similar to that which appears in a chromatic autotuner, which can identify the pitch of the incoming sound (what note is being played).

The note is then sent to the note display program, which is assigned the task of tracking the user's place on the page. With a knowledge of the notes being presented and a log of the notes being played and timestamps of when they were played, the software can continually estimate where the user is. Newly played notes automatically invoke a re-calculation and re-positioning as described above. The tracking software need not be completely accurate; dead-reckoning will compensate for missing individual notes. As long as the page turn occurs within +/- one measure, many missed notes can safely be tolerated. (This would be a good application of fuzzy logic and neural networks - tracking human music is a very non-rigid and fuzzy activity.) There will be a user-definable parameter telling the unit to turn the page a pre-defined number of measures early or late, suiting the tastes of the user.

Foot Pedal Method: Another page-turning method is the foot pedal, which is placed on the floor and operated by the user: in "Manual" mode, applying pressure to the left side of the pedal turns the page back, applying pressure to the right side turns the page forward. In Automatic mode pressing either side of the pedal automatically turns the page forward or back depending on the music presented and where you are in the song; the ESM is aware of the music's structure (such as repeat signs) and can branch intelligently.

Metronome Method is a third, blind way of page turning which

is ideal for the beginning music student. Pressing the 'Start' button automatically starts a clicking sound and a vertical scrolling bar to help the student keep pace. In this scenario, the ESM dictates the pace and position of the player, not the other way around. When the scroll bar gets to the bottom of the page, the next correct page is displayed.

- Music can be purchased as a pre-loaded PCMCIA card from conventional music stores, and plugged into the unit. One card should be able to contain a good sized fake book.

Since this will be the primary revenue stream, the format of the music (which contains both MIDI events plus display formatting information) will be in a proprietary, possibly even encrypted, form. The idea here is to license the format to music publishing houses, and make sure it cannot easily be reverse-engineered by digital sheet music pirates (or publishing houses).

[NOTE: Originally, the concept was to bundle a cheap scanner plus musical OCR software so any existing sheet music could be captured. The majority of musicians spoken to, however, liked the "buy-it-over-the-counter" scheme a lot better. (Which is a good thing, because it solves several cost problems with the hardware, and shifts the focus of the company from being a hardware manufacturer (for which profit margins are slim) to a licensing firm (which creates a revenue stream).]

Alternatively, the Professional Version (described later) supports two additional ways of capturing note events: playing them on an external MIDI keyboard, or "writing" them on the display's surface using a stylus.

- No booting up; turn it on and it's there.

Even though there's a complex computer inside, this should be completely hidden from the user. All that should ever be seen is the ESM's user interface display. Because little computing horsepower is required for this application, an inexpensive $5 CPU, ROMable firmware, a static CPU implementation and a small amount of on-board EEPROM is all that is needed. No operating system or other general-purpose complexities need be present.

- A minimal function set insures that the device is easy to learn and use.

All interaction with the unit will occur with membrane pushbuttons embedded in the vertical sides of the display's frame. The buttons and their legends are listed below, followed by their definitions:

- Left Arrow (used for backward page turning or to go to last repeat sign; also used for making selections in different modes)

- Right Arrow (used for forward page turning; also for making selections in different modes)

- "Top of Song" goes back to the beginning.

- "Follow My Playing", where the unit starts listening to the notes and tracks the user's progress through the song and displays new pages automatically. [NOTE: Deleted from feature list.]

- "Show Me Titles" brings up an alphabetized title list, which the arrows can scroll through and select.

- "Codas On\Off" selects between on-demand page turning or page turning in accordance to the process of the sheet music.

- "Lead sheet only" suppresses all but the melody, lyrics and chords of the selected song; handy for guitar players and accompanists.

- "Change Key": this button pops up a menu of potential key signatures; the arrows are used to scroll through the list and select the desired key. The last item on the list, "Original", restores the display to the native key.

- Repeat Signs On/Off - Toggles the expansion of repeat signs for more effortless reading.

- END/Enter - Stop listening, or stop metronome mode (saves considerable battery power) / Accept current screen menu choices.

- "On/Off" - Self explanatory. There will be NO automatic timeout mechanism.

- The display could also show magnified notes for visually impaired musicians.

Envisioned Product Line

Standard

The standard unit (described above) has an inexpensive, 3-position footswitch stored in its frame, which is detachable during use and is connected via a wire.

Marching Band

A smaller device resembling the horizontal 5" x 7" form factor currently in use by marching bands. Players will have to manually actuate tiny yet conveniently-placed RF transmitters to command a page turn. [Perhaps a Newton could perform this function.]

Professional

This is a highly advanced version, to be released after a few years, allowing for the markets and expectations to develop and for the extra R&D to be performed. The Professional version boasts of an additional pen-based interface, where music composition, notation, and event manipulation can occur using an electronic stylus. It also has a built-in MIDI interface, so that it can capture notes played on an external keyboard (or other MIDI device), and/or play back notes entered or manipulated via the stylus.

While the initial appeal to the professional composer will be as a blank sheet music pad on which note scribbling can occur (a pen-based word processor for music), the pro version could also have an autotuner screen/ function; while in this mode the whole screen turns into an analog scale and when a note is played it graphically depicts what note was heard and how close it was to the proper pitch. [NOTE: This feature was included because it was "free" when the auto-tracking feature existed. This may no longer be cost-effective to implement nor useful to the user.]

The Professional version is geared for those who compose or arrange for a living, and who need a tool that closely emulates the natural interface of a pen and pad while retaining the power of today's computerized sequencing and notation software packages that run on PCs.

Another feature is for people in orchestras, who require only the features appearing in the 'standard' configuration above plus the ability to scribble notes in the margins. This small feature requires an expensive touch-sensitive pad, and therefore must be relegated to the more expensive version.

Pie-in-Sky

The super-duper advanced version will probably take a decade to develop. It can be rolled up like sheet music and carried to the next gig. It will be an accompanist; tracking the user's playing and controlling other MIDI devices to the pace of the soloist (a much more difficult task than simply figuring out where the user is on the current page). It will also have a Sound Blaster (tm) or equivalent sound board built-in as an alternative to controlling external MIDI devices; making for more portable accompaniment operation. It will also be able to listen to ambient music and turn them into note events (a digital signal processing challenge!!!).

Envisioned Markets

- Accompanists that need to transpose a lot
- College students
- Professional composers
- Elementary School students who ride to school in a BMW

[NOTE: Conventional high-tech marketing wisdom says new products will not be embraced by the major markets unless there is a "compelling" reason to buy. I no longer believe page turning is compelling enough for most people; although it's an eternal nuisance, people have learned to live with it and don't give it a second thought.

Transposing, on the other hand, is a problem people rarely solve correctly. (I've been musical director of my share of amateur theater to know people tend to adapt to the music rather than the other way around, simply because most musicians (other than the pros) find transposing too inconvenient or difficult.)]

Technical Challenges

- A new kind of LCD display will be necessary. No backlighting; very high contrast vertically-oriented display with no gray scale and slow response time. (A new spin-off from the Kent State Liquid Crystal Institute may have just what we're looking for!)

- Must be low-cost, light-weight, low-power. Must run hundreds of hours on AA batteries.

- Overall, the product must be as reliable as sheet music.

- Ideally should cost under $200, but current research places it closer to the $600 range (assuming favorable licensing agreements with other companies - see "Corporate Strategy" below).

Corporate Strategy

A one-year research phase began on July 12, 1994. During this time many categories will be investigated to assemble a strong case for embarking on this journey:

- Marketing focus groups and user surveys will be consulted,

- a business plan will be written up and scrutinized (the Caltech Management Association scrutinizes entrepreneurial business plans in public on a regular basis -- let's take advantage of that!),

- A technical design and a PCMCIA storage/encryption format will be finalized,

- Patent and literature searches will be conducted, and a patent applied for if the specific problem of page turning for written music is not uncovered,

- A software partnership will be sought (see below),

- Case studies of other high-tech start-up firms will be gathered so realistic corporate performance goals can be set and other hard-earned lessons can be learned. (Logitech comes to mind as an example company, but they might be so thinly spread that their profits may not look appealing enough. We'll have to see.)

If the projected market and the technological approaches still appear sound after this one year incubation period, venture capitalists will be approached for initial funding. We will be seeking financiers who understand the utility of the invention and can commit their resources and energy over the long run (a 5-year period typically) rather than some investment group which expects a unrealistically high return in an unrealistically short time frame.

[NOTE: Only one patent resulting from the patent search clearly identified the problem of turning pages; the others were uninspired generic music display devices taken out by Japanese companies. The music display devices are so broad that anything we build will infringe. An American would solve the problem by working out a licensing agreement and keeping within the spirit of the patent; a Japanese company would instead think of eight dozen trivial permutations and flood the patent office with new claims that their new devices are "completely different", subverting the spirit of the patent. Since all of the Japanese patents fail to correctly identify the problem (one insists that you remove your hand from the instrument and press a "next page" button), the advice of a patent lawyer should be sought as to best strategy.]

Continuing with technical development: Several of the software pieces we need to integrate into the ESM already exist in Windows form; re-creating all of this capability from scratch is extremely difficult and wasteful. (Music software is especially difficult software to write because of the many valid ways to represent the same piece of music.) We need to make arrangements with companies that make sequencing/music notation packages to enable us to either:

- Have access to their source code so we can modify it;
- Work with them to tailor their code to our specific needs in exchange for the promise of increased sales
- Buy them out (insert evil laugh here).

It is estimated that two years will be required for R&D, corporate negotiations, system integration, hardware design, and fabrication arrangements. [NOTE: Less time will be needed if no auto-tracking feature, and if hardware design is contracted out.]

Manufacturing, packaging and board layout will probably all be subcontracted to firms that specialize in it to insure product remains state-of-the-art, to reduce lead times, and to keep our initial staff small.

The business will have an Internet feed, and have a Mosaic home page. We can also charge other businesses for the service of creating and maintaining their home pages on the world wide web. (A side business in case the music one fails. Plus, I can sell my photographs and Xaphoons (people can download a sound sample!)

[NOTE: Originally there was concern about how to fend off high-power competition should the product prove popular. Being the first with an aggressive licensing program can assure market share early on, which is the best protection against competition.]

Advertising Ideas

Full page ads in music magazines would be ideal. Need pictures of outdoor musicians with sheet music flying away.

The professional market will probably be the last to flock to these (just as pro photographers were the last to embrace autofocus; therefore this market should be pursued last (2-3 years after the initial offering; besides it'll take that long just to implement all the high-end features).

It's like air conditioning or voice mail or microwave ovens: once you use them you'll never go back to life without them.

Other Last-minute Ideas

- The ESM can be placed on a music stand or employ it's own built-in stand, similar to that of a picture frame.

- Contrary to what I believed, published music for orchestras usually aren't designed so the page turns come at convenient times. This helps our cause.

- Compile a couple of fake book PCMCIA flash EPROM cards as standard issue; instant gratification for the first-time user.

- When it hears the first few notes from the top, it should have a flag to go to the beginning directly. Alternatively, uttering the word "Home" ideally should do the same thing. [NOTE: Save for the day when auto-tracking is implemented.]

- Take out and expand the repeat signs.

- Have the users select where the page breaks fall.

- Essential software for the ESM idea - a quick lead sheet generator. Attached to a keyboard and generating a metronome, the user simply plunks out the melody and plays the basic chord with the left hand. (No arbitrary borders are needed - the topmost note is the melody, the bottom most note is the root, and all other notes simultaneous to the root are part of the chord. Once the key is set the program just has to look at the third, fifth, plus any extraneous sevenths.) Lyrics can be added as in the

Creator/Notator program -- the user places each syllable manually under each note.

Optimize!™

Product Concept and Description
February 11, 1994

Sell Line: If you own a Pentium PC, you're not getting all the performance you paid for. Nearly all PC software sold today is made to run on the 386 or 286 processor to insure broad appeal. As a result, they do not take advantage of the Pentium's multiple pipelines and new instructions; features which, when exploited, could make your processor run your applications 4 to 5 times more efficiently.

Optimize!(r) is an ingenious program which wakes up the power in your Pentium-based PC. It runs overnight on your hard disk, examining your executable files and improving them for optimized speed on the Pentium. Once this one-shot software treatment is complete, all your favorite programs will run faster, even if the Optimize!(r) software is erased!

Technical Description of Problem

In an attempt to be compatible with the largest possible number of PCs, most software publishers compile their code to run on 386-class processors. Publishing, inventorying, and distributing separate packages targeted for the 386, 486, Pentium, and soon P6 architectures is generally seen as too expensive considering it will not result in a significant sales increase.

As it stands, the Pentium chip has tremendous architectural features that are rarely exploited. The chip has multiple pipelines that can process multiple instructions in a single clock cycle, and new RISC instructions that are never invoked by the older software. The next-generation P6 microprocessor will likely have even more new features that only P6-aware compilers can take advantage of.

Technical Description of Solution

It is a well-known fact that source code compiled using a Pentium-specific optimizing compiler can make that program run significantly faster. Such compilers know about and can exploit the new features of the microprocessor, and often are very clever at identifying dependencies and arranging code sequences so that new instructions can be processed while other instructions are being completed. An optimizing compiler can also keep the synchronous instruction pipeline flowing, thereby boosting performance by insuring no clock cycle is wasted.

Although the task of rearranging the program and feeding the CPU instructions in a more efficient order may sound like a daunting task for an automated program, optimizing compilers have been doing this successfully for years. We can build on this accomplishment by developing a binary

code examiner which scrutinizes the type and order of the operations, identifies inefficiencies, and re-arranges or shortens the instruction order matching it to the Pentium.

It would take a talented programmer with optimizing compiler experience approximately 8 months to develop working code. (This is the kind of software project whose timeline doesn't decrease if you throw more people at it.)

Marketing

If the program were prices under $100, it could be sold to every Pentium owner. (Remember, most Pentium owners are the ones who "Have to have the best!", and $100 is nothing compared to the price of their system.) Pentium owners are also most likely to be Internet-literate, which means we could save money by publishing on-line. Put up a World Wide Web home page describing the software, take credit card orders via encrypted Forms and deliver the program electronically after the credit card has cleared[1].

Another possibility to prevent unauthorized propagation of the software is the Challenge - Response system: each time the program is started up, it displays a serial number which is the challenge. You have to call or e-mail in order to activate it. (Before this, it copies itself into RAM and erases itself from the hard disk.) Ideal for software that only has to be used once.

Window of Opportunity (no pun intended)

New operating systems like Windows NT, OS/2, and Windows 95 will require brand new applications that can't run under DOS or Windows, and therefore are more likely to be compiled for the higher-end CPU's. This means that if these new O/S's catch on, the demand for Optimize!(r) will be reduced.

It is estimated that an 18-month window of opportunity exists for such a program that optimizes for the Pentium. The good news is, we can make a new version optimized for the P6 when it catches on (chips are slated for delivery 95Q4).

A more difficult product with a shorter opportunity window and smaller demand would be the recompilation of old Macintosh software to run on the PowerPC. (Currently, Apple only supplies an emulator which is slow and doesn't emulate the floating point instructions, meaning not all Mac software will run on the new PowerPC platforms.) Although a TurboCharged PowerPC!(tm) program could never match the speed of programs compiled properly from source code, it would provide a badly needed stopgap measure for current Mac owners who want to upgrade now.

[1]Credit card numbers are dangerous to send over the Net unless public key encryption is used. Web browser packages that use encryption aren't plentiful yet; maybe we can set up a phone line that will accept the order number and credit card number in the meantime.

Lists

[Ed. Note: Many of these lists are marked, “Part II”. Refer to the previous publication, The Egg & I, for the Part I list. -GF]

"Every Lie I've Been Told Was Indoctrinated In Kindergarten"

- Cheaters never prosper
- Anyone can make it in America.
- Honesty is the best policy.
- Life is fair.
- Our Leaders are held accountable by the voting mechanism.
- Sound words out if you want to know how they're spelled.
- Christopher Columbus discovered America.
- Our legal system is fair and just.
- The best-qualified people get the job.
- Going to college will assure your future.
- Good things come to those who wait. (Might be true from a statistical probabilistic point of view...)
- The policeman is your friend.
- In America, everyone is equal.
- They can't say it if it weren't true.
- In capitalism, the company with the best product gets the business.
- Where there's smoke, there's fire.
- All Americans have freedom of speech (unless you're a pinko-commie-radical subversive or are the recipient of an NEA grant).
- You can trust the government to uphold your rights.
- Our system employs checks and balances to prevent power-hungry individuals from doing naughty things like covert operations.
- Journalists and the media check their facts and verify rumors to insure an unbiased report.
- All elected officials have dignity and an honest work ethic, instead of being human beings.
- The Gulf war was fought to battle "Naked Aggression".
- Criminals have to live with a guilty conscience.
- Everyone in America is an individual (but watch out if you want to exercise your individualism!)
- Two can live as cheaply as one.
- "Truth" and "Justice" are synonymous with "The American Way".
- Discrimination is bad (but if you're an Equal Opportunity Employer then it's OK).
- Little girls are made of sugar & spice & everything nice (unless they're talking about Amy Fisher).
- Ketchup is a vegetable.
- Diligence and hard work pay off.

Things I've thought of years before someone else made them commercially available (Part II)

- My VR technique of squeezing a complete 360 degree field of view onto a distorted 2-D surface, and have users "roam" by selectively showing them a part of the 2-D image with appropriate anti-distortion parameters for that location. (Now it's called Apple QuickTime VR.)
- Integrate digital signatures with Mosaic forms. So no mater what, apps will need to confer with a trusted, firewalled public key server.
- Removable faceplate for radios to prevent theft.
- Composite sketch computers which simply piece together facial tokens. Documented in the Pasadena Star news, July 28, 1992 pg. C6
- New services from AT&T plus digital modems ("the EDGE modem") designed for remote game playing, where players can talk to each other and exchange digital tokens simultaneously. [This was my design for The Beckman Group's GameModem.]
- New Nintendo [something X] peripheral which seems to be the exact incarnation of my Nintendo GameModem (allows 2-player games to be played remotely - with live audio).
- The underground music archive - distribute homebrew music recordings via Internet.
- Link Internet and cable TV services to solve bandwidth problem made worse by Mosaic.
- Stay tuned - sitcom movie starring John Ritter about a guy stuck in TV land who finds himself a character in several shows; the same story as a short story I wrote when I was in Jr. High school.
- AT&T and Ericcson are working on car speakerphones with multiple microphones to erase background noise

Oxymorons (Part II)

- Fresh frozen
- Macdraw II 1.1
- Hadassa Men's club
- Nonfat German chocolate
- "Fresh warm cookies" - (If they were really fresh, they'd be hot.)
- Common Decency
- limited lifetime warranty
- Microsoft Institute of Advanced Software Technology
- Carpool Tunnel Syndrome.
- Common Sense
- Open VMS
- Motorcycle safety
- Black Light
- half full
- Civil war
- oil free Oil of Olay

- instant classic

Lies throughout History

- "Read my lips: No New Taxes"
- "Income Taxes will only be a temporary item to finance the Civil War."
- "We will develop your film in one hour!"
- "If you build a better mousetrap, the world will beat a path to your door."
- Minute rice always takes 10 minutes.
- Windows 95 is crash proof and will run all your old programs.

Further Evidence that People naturally resist change

- Engineers snuffed calculators.
- Stick shift guys snubbed the automatic transmission.
- Writers (scribes) snubbed the typewriter.
- The telephone was laughed at as being "too impractical". (Messenger boys were much cheaper!)
- Programmers snubbed the Macintosh.
- Photographers snubbed autofocus cameras.
- Printers snubbed the typewriter

You don't have to be great to become a legend; you can become a default legend by just doing the same thing for a very long time.

- Burl Ives
- Wayne Newton
- The Beach Boys
- Leave it to Beaver
- The Rolling Stones
- Dean Jones
- MisteRogers' Neighborhood
- Grateful Dead
- Don Ho

It's not a bug; it's a feature!

- John Kooy Trucking, inc. "Staying small to serve you better." - Lack of economic prosperity or mismanagement is now a feature.

- Microsoft's putting in features in pull-down menus that don't work yet. "Its so our customers will know to expect it in the future!" (Then why not present it in gray rather than in black which infers an active feature?)

Times people have come up to me and said, "Gary, you and I are going to make a million dollars!" (Part II)

- Vickie and Dick Sharp: "Let's make a computerized educational game!"
- Skip Matthew's: "Let's sell the Data Egg by word of mouth!"
- E2 Solutions: "Let's start a sales and consulting firm. You take all the risk!"
- Joseph Lee: "I know a guy who has connections with Sony! Let's approach him about the Data Egg!"

Redundant Phrases (Part II)

- Tuna Fish
- Rotary Dial
- Odd Prime (mostly redundant)[No it's not; 2 is prime.]
- 'Sinbad'

Competing User Interfaces on UNIX Workstations

- Motif
- X Desktop
- X/Open
- Open Windows
- Open View
- Open Desktop
- Open Look
- Looking Glass

[If I ever author an X-based GUI, I think I'll call it "Fred". -Ed.]

Winning Lyrics

> Nine of Diamonds, Nine of Diamonds
> Lord, that's a lucky card
> Celebrate it when we've made it
> I'll jump all over your lawn
> -Phoebe Snow

> Someone left the cake out in the rain
> I don't think that I can take it
> 'Cause it took so long to make it
> And I'll never have the recipe again.
> - ???

> Bitchin' Camero, Bitchin' Camero

Donuts on your lawn
Bitchin' Camero, Bitchin' Camero
Tony Orlando and Dawn
- Black Flag? Dead Kennedys?
[Hey, I don't listen to this stuff!]

Unquestioned assumptions

- Learning must be a painful and difficult process
- There is a tradeoff between power and ease-of-use.
- In this heavily ecology-minded era, nobody would ever buy a disposable camera.

Commercial Successes that no reasonable person in his/her right mind would have predicted would have been successful

- PBS advertising that you can BUY a tape of the show you JUST SAW (and could have taped for free) for $20.
- Electronic tire pressure gauges
- Electronic levels.
- Computer Screen savers ('screenblank' does a better job for free.)
- Disposable cameras
- Panoramic cameras that simply mask off the top and bottom 1/3 of the image.
- 976-WAKE
- Switching from stone to paper, which has awful archival qualities.
- Internet Relay Chat - not at all better than talking in real time over the phone.

Things I predict will happen within ten years

- Cameras will go digital [Boy, he sure went out on a limb on <u>that</u> one! -Ed.]
- Phone companies and cable companies will merge
- Murder She Wrote will be canceled.
- FAX, printers, copiers, scanners will be sold as one unit
- CRTs will give way to flat display screens
- Keyboards will still be primary input mode for programmers
- IBM and GM will both be worth patronizing. [Happened in '94 - Ed.]
- Electronic commerce will become accepted
- My idea of nationwide, criteria-searchable classified ads will still be ignored.

Things Skip Matthews wanted to do that really pissed me off.

[Ed. Note: Skip is the guy in Sacramento who is already ~~four~~ five years late in coming up with a marketable version of the Data Egg.]

- When the unit ran out of RAM, the unit would quietly forget the first things you wrote. (Worse, he saw nothing wrong with it!)
- No search or recall mode - you had to download it first.
- An extra button for the numbers mode that had to be hit by some other part of the body.
- No memory manager.
- Wanted to write the firmware in C (the worst language for embedded applications where small executables are needed).
- He wanted to have all modes saved upon resume - you had to remember whether you were in caps or num lock mode when you turned it on when typing blindly.
- He wanted to put in a speech synthesizer (with amplifier and earphone) for learning mode - to accommodate learners who practice while they drive. (This after not wanting to make a 'low memory' alarm in software for fear it will drive up the price.)
- Every little feature - like search or phone book - had to be add-on software that must be purchased. "The PC works like this, and look at how successful that product was!" (This after explaining that this product is too different from anything else -- no other product analogies apply.)
- Wouldn't consult a lawyer or marketing group. (Then he did so quietly.)
- Promised he would include my name on his Patent, but then changed his mind citing "too many other people would have been upset".
- Wanted to keep the Tethered Keyboard mode out of the ROM and sell a separate, single-use egg with this mode only. Then, after endless yelling by me, innocently explains "Remote serial keyboard is already done and has been planned from the beginning". Grrrr...
- Adding a repeat function to the Grenade (oh yeah...he wanted to call it the 'Grenade'! One more for the list) would have been "too expensive". Hmmmph!
- Since the cheap way of alternative keyboards doesn't work absolutely one hundred percent of the time, we shouldn't do it at all.
- Skip didn't want the review capability to be embedded.
- "Let's sell the Data Egg by word of mouth! I read a book which explains how to do this!"

More Names for a Photo Store that sells photographic artwork

- Shutter at the Thought
- Like A Leica - Madonna's Photo Shop
- The photo album
- Album and the Chipmunks
- Camera Obscura
- The Look Of Life - The words LOOK and LIFE are both logos of the picture magazines of the same name. (Expensive...)
- Kodachrome Dome
- BlowUp
- Flashanova
- Dreamscapes
- Spherical Apparitions (Only for ghostly distortions)

Topics of interest for NPR editorials

[Ed. Note: On occasion I'm in my car and I hear these 5-minute slice-of-life "editorials" on NPR, and I think to myself, "Geez, I can do that!". So in my car on the way home one night I generated a long list of topics on my Data Egg that I could write about that fit NPR's formula: they expose the user to a different world (a profession or way of life that they wouldn't ordinarily get to experience), they present a unique point of view, and (if it is good) they force the listener to either re-think forgone conclusions or change their perspective of the world. -GF]

- Why do we slave over computers that don't work? "These things sure aren't toasters!"
- Listening to the various claims about the chances of encountering [the Pentium bug] was amusing -Intel claimed one number, IBM claimed another. I claim 100%, since I can reproduce it consistently at will. Intel's numbers told you more about their random number generator than anything else. Intel was right - most people wouldn't notice it - unfortunately, they didn't realize that those who would be affected are doing seismic safety analysis on buildings, FDA computers, economic and other scientific calculations where wrong answers can endanger human lives.
- Asteroid deflection debates
- Complexity of the world - engineers are under-appreciated. How about a TV show?
- Try not watching TV for 6 months and see how your life improves.
- It seems the fight for liberty has been lost, being replaced by the fight for privacy from a computerized big brother. Liberty once meant the freedom to choose your destiny; the freedom to make mistakes, the freedom to raise your kids as you see fit or beat up a black motorist pulled over for a drunk driving incident.
- Why hasn't the ACLU fought against the erosion of liberty the same way the NRA fought against erosion of second amendment rights?
- More on privacy - Ripping apart the article where an engineer enthusiastically proposed "Let's barcode license plates!" to solve a social problem of disinterested bureaucrats.
- Tell the Brian Wittman story. Tell about Brian's biggest Xaphoon distributor.
- Wingover story- never second-guess a user.
- You can apply system engineering principles to anything - from human bureaucratic systems to cruise control.
- Awaiting the year 2000. Computers which track 2-digit years will stop social security checks to those over 100, will mis-calculate all retirement benefits, will despense medicine in wrong proportions based on mis-calculated age, all accounting packages will make mistakes. Our smooth-running society will “hiccup” for a few years.
- Experinces of being a big brother (parts I, II, and III).
- Working in Hollywood - Kevin’s stories and contrasted to Larry Sanders show or the movie 'Swimming with Sharks'.
- Seth's telephone kit story: 1 resistor, 1 capacitor, one transistor, and one diode. No soldering - just twist wires and tape together. Outsiders observe, "Isn't that pathetic?!"

Other Future ideas

- Still cameras will not need flashes [will use same CCD technology as video cameras].
- Technologists will continue to expend energy in all the wrong areas, i.e. screensavers, writing and battling viruses, HDTV, and ignore social problems.
- Info highway will isolate individuals from neighborhoods more than television and air conditioning did. (Although new electronic communities independent of geography may spring up.)
- Fashion will dictate that rough hands and features - those that indicate you've worked hard - be in vogue. Hand-roughening lotions will appear on the market.

Top 10 reasons why OJ Simpson should have hired Perry Mason for his defense:

10) The trial would have been over in an hour.
9) The issues would have been reduced to a black and white case
8) Detective work done by his partner, Chief Ironside
7) Robert Shapiro wouldn't keep correcting "He's Gentile!" whenever fans cheered for "The Juice"
6) Kato would have received a more prominent co-starring role
5) Alibi wouldn't keep changing
4) Judge Ito replaced with a wise-looking white guy
3) Raymond Burr would learn how to run through airport terminals
2) More chromatic theme song
1) Murderer would succumb to pressure and blurt out a confession at last minute for a more dramatic ending.

Other People's Quotes

"The problem with television is that the people must sit and keep their eyes glued on a screen. The average American family hasn't time for it."

- a New York Times reporter, after viewing experimental television at the 1939 World's Fair.

"If logic prevailed, women would straddle the horse and men would ride side-saddle."

- Langly VP

"I'm the most humble person in the whole world!"

- My Dad, self-referentially

"Experience is the comb you get after you've gone bald."

- Anonymous

"I just found out that he brain is like a computer. If that's true, then here really aren't any stupid people. Just people running DOS."

- a comedian on VH1.

Gems of Wisdom from 18-year-old "Little" Michael Cole

"I know everything. Believe me."
"Tokyo. Pffft! Who'd want to go there?"
"A street near the airport named 'Airport'. How dumb!"
"All great guitar players listen to heavy metal."
"If you haven't heard of Oakley, you must be a hermit."

"'Someday, the computer will be as easy to use as a telephone'. It's happened! The millennium is here! With voice mail, the Mac is just as easy to use as the telephone!"

-Scott Burleigh

"I'm a peripheral visionary. I can see into the future, but just way off to the side."

- Steven Wright.

"He must be foreign Bjorn" - Dad, referring to Bjorn Borg

"When people are free to do as they please, they usually imitate each other."

- Unknown, but true!

"Electric lights will ruin ladies' complexions, will cause color-blindness and even loss of eyesight...It will magnify objects, cause optical illusions. It will keep chickens awake all night, attract bugs and lightning. Electric lights are dangerous to the public's well being."

- Gas Company officials, trying to fend off the new electric light for fear of losing their monopoly on interior lighting, 1881.

"America can't stand Pat."

- Pat Buchanon's ambiguous campaign slogan; The Capital Steps, April 1992

"The Apollo astronauts brought a car with them. Why in the world do you want a car on the moon? Where are you going to go? You're on the moon!"

- Jerry Seinfeld

"Support search & rescue - Get lost!" - bumper sticker seen.

Classic dialog department: "May you live to be 120!" "Same to you!" "120?? Are you crazy? No way!!"

- My Grandmother in Rochester

"Once your goals have been attained, they no longer seem as desirable." - Me.

America - Love it or give it back. (Seen on an Indian turquoise store.)

(As the speed of technical developments continues)..."The goal is to design, by the turn of the century, a computer so powerful that it will be proud of us" - Hermann Hauser, 1991

"It should be illegal for politicians to run for office " - Me, said after watching the Vice presidential debates between Dan Quayle, Al Gore, and Admiral ??? (Perot's running mate who gave new meaning to the word, "inarticulate") (10/92).

"I can't believe he had sex with all those women!"

- Seth, age 10, after hanging up his poster of Magic Johnson.

"Facts are stupid things".

- Ronald Reagan, 1988. [No doubt mis-quoting "Facts are stubborn things" said by Thomas Jefferson]

"[T]he help files are from that peculiar school that teaches how to write text that is clear and informative only to people who already knew the information in the first place"

- Jerry Pournelle, BYTE

"What's the number for 911?" - overheard at the LAPD Police academy.

"In theory, there is no difference between theory and practice. But in practice, there is."

- Overheard at the 1992 Assn. of Symbolic Logic conference in Europe.

"How do the fish all know to make themselves more expensive right before Pesach?"

- Judy Friedman, the same person who wondered how rocks thrown over cliffs know to descend at a rate of 32.2 ft/sec^2.

"Visiting the dead makes me feel better; they've all had their higher education, and look where it's gotten them."

- Andrei Codrescu, Russian Louisiana guy on NPR.

"It's only prejudice until you know the truth." - Michael Cole, thinking he's being deep.

"There are guys at Caltech that are as smart as Carl Sagan thinks he is." - My Dad

Usenet is the closest thing this planet has to a collective consciousness." - Ray Lampman

The only difference between genius and stupidity is that genius has its limits." - Unknown

"Software engineers take longer and don't do as thorough or as good a job as hardware engineers, but they make up for it by charging more money." - John Dvorak

"God is a concept by which we measure our pain" - John Lennon.

"If you're not part of the solution, you're just a suspended particle." - Caltech graffiti

"I think not" - Descarte's last words.

"It is harder to keep a business great than it is to build it." - Thomas J. Watson, Sr.

"You will be able to appreciate the influence of such an Engine on the future progress of science. I live in a country which is incapable of estimating it.

- Charles Babbage, referring to the difference engine, one of the earliest computing machines.

The world is a tragedy to those who feel, but a comedy to those who think. - Horace Walpole
"You see? If you were married, you wouldn't have to clean the house."

- My grandmother, showing off just how out-of-touch she really is.

"The closer you look, the worse it gets." - Brower's law of systems analysis.

"I told you told you we should have put locks on the jeep doors!"
- Winner of a line in Jurassic Park.

"I'm standing here shaking like a son-of-a-bitch."
- George Burns, "Magic in the Magic Kingdom" Disney TV special

"Why not get high, hire a clown, and then laugh at him?" - Michael Cole's idea of a good time.

"I'd rather be lucky than smart." - Skip Matthews, getting his wish.

"My worst problems are other people's greatest dreams." - USENET .sig.

In every fat book there is a thin book trying to get out. - Russ Byrne's quote .sig

"Are we male bonding now?" - Seth, while we were rock climbing.

"You can't get ahead while you're getting even." - Army's Law - Heard on NPR, some republican vowing to not get revenge on Clinton.

"The two most over-rated things in life are raising children and being your own boss."
- Unknown

"From Hard Copy, Hell is a local call." - Kevin Gershan

"You can't lose weight without going hungry"
- Gem of mine that Kevin thought I should write down but I thought too obvious and was too humble to do so, so I promptly forgot it for 7 days.

"If Satan ever loses his hair, they'll be hell toupee." - Usenet .sig

"The only god you can count on is irony." - Jesse Wright

Gary's Guide to Quality TV Viewing

[Ed. Note: As in the last edition, these jokes were originally part of my holiday card collection, where each friend or relative would get a different set of entries. If it were not for the Data Egg, each of these plays on words would have evaporated forever seconds after I thought of them. [Whether these jokes were worthy of capture in the first place will be left as an exercise to the reader. -Ed.]

Sunday

7:30 (2) - Movie (Drama) **Batman Returns Returns** - the sequel comes back.

8:00 (7) - **Everything's Coming Up Moses** - Ethyl Merman turns Jewish.

8:00 (2) - **Like a Leica** - Madonna gets into photography.

8:00 (4) - Movie (Drama) - **DOS Boot** - German U-Boat commanders start up their PCs.

8:30 (11) - **White Christmas** (Special) - Former police chief Daryl Gates gets his wish.

9:00 (4) **Eddie and the Currents** - New rock group that sings about current events in fluid dynamics.

9:00 (7) - **Marco Pollo** - Marco explores the possibility of selling chickens.

9:30 (11) - **Beaumont and the Beast** - The Beaver's father gets angry.

9:30 (31) - **Non de Plume** - plum outta plums.

10:00 (7) - **Operation Petticoat** - The pink submarine is given the new name "Pepto Bismark".

10:01 (13) - **Hot To Molly** - Molly burns her hands while making Hot Tamales.

10:30 (9) - **Robbin' Hood** - A Ku Klux Klan member goes on a crime spree dressed as Errol Flynn.

10:45 (28) - **The Velveeta Turtle** - Kraft sponsors cheese in a slow-moving shape.

11:00 (19) - **Hugh Manatee** - Hugh gets put onto the sea life endangered species list by the collective will of humans.

11:15 (37) - **Husky and Starch**

Monday

7:30 (5) - **Of Pride And Pestilence** - The AIDS story

8:00 (2) - **A boy named Sioux** - Johnny Cash turns Native American.

8:01 (DISCOVERY) - **EndOrphan** - a biological study of the closing credits of 'Annie'.

8:02 (PBS) - **End or Fin?** - The English and Italians argue over the way their joint documentary on endorphins should end.

8:03 (TNT) - **End Dolphin** - Flipper gets canceled.

8:30 (4) - **The Farmer Infidel** - Hi ho, the Merry-O

9:00 (7) - **A River Runs Through It** - Documentary of the jogging trails preferred by child actor River Phoenix.

9:00 (13) - **Missed Ache** - It was an error to believe the pain would not be missed.

9:30 (13) - **Kung Fu-Bar** - Not the original "Kung Fu", but a computerized simulation. (Alternatively, "Cane (David "Beta" Carridine) takes up computer programming.")

9:30 (9) - **Chicken Pot Pie** - And I don't care.

10:00 (7) - **My Career is in Jeopardy**! - Documentary on Alex Trebek's life since the game show's decline in popularity. (1 hr.)

10:15 (37) **Wok of Aegis** - Aegis cooks timeless meals Japanese-style.

10:30 (40) - **I'd rather be enamored than be Hale** - Yes I would; if I could, I surely would. [Ed. Note: Apparently, Alan Hale, Jr. was never enamored of anything.] (1 hr.)

10:30 (LIFE) - **Old Man's Liver**
10:30 (37) - **Great Dane In The Morning.**

11:00 (7) **Joanie loves Chatchkis** - Joanie's house becomes cluttered with small, useless decorative items. (30 min.)

Tuesday

8:00 (2) - **Grapes of Wrath of Kahn** - Ricardo Montalban organizes a farmworker's revolt on Medinos VII. (2 hr.)

8:00 (ISR) - **Thanks Eilot** - Folks express appreciation to the Israeli city. (1 hr.)

8:30 (13) - **I scream of Jeannie** - Jeannie shouts out her order for frozen dessert. (Pralines & Cream)

9:00 (28) - **Way To Gho!** - Documentary about the road to Ghorepani, Nepal (17,000 ft.)

9:00 (DISC) - **Legerdemain** - Documentary on when accountants ruled the country. (1.7 hr)

9:30 (13) - **El Condor Pasta** - Song about a bird that's high in carbohydrates. [Or, Eagle brand spaghetti. -Ed.]

9:45 (CSPAN) - **Bitten By A Mitten** - Badminton gets literal. (2 hr.)

10:00 (4) - **Picket Fents** - The obscure rock group gets boycotted by Fyvish Finkle.

10:00 (2) - **The Lyin' King** - Documentary on the life of Richard Nixon. (20 min.)

10:30 (7) - **Foreign Twenty Blackbirds** - The pie shop will not take non-US currency.

11:00 (9) - **Stressed for success** - Gary goes to Zachary All to start a risky new business. (2 yr.)

11:00 (13) - **WonTon for Punishment** - Documentary about the new correctional uses for this classic food. [Gives the phrase, "40 lashes with a wet noodle, plus some pork and curry" a new meaning! -Ed.]

Wednesday

8:00 (11) - **Model Zinc** - Fox' new show about fashionable metalurgy samples. (1 hr.)

8:00 (7) - **Clothes your eyes** - The fashion industry introduces blindingly flashy apparel.

8:30 (TNT) - **We're Arf To See The Wizard** - Toto stars in this dogmatic sequel.

9:00 (40) - **He Left Me A Loan Alone** - to the tune of $250,000, all by himself.

9:00 (11) - **Elephant's Gerald** - The famous jazz singer travels with her trunk, but never forgets the lyrics.

9:30 (13) - **Lactose** - New comedy about a cow with 2 feet but no digits. (8 hr.)

9:45 (PBS) - **John Ra** - John goes for a different genre in his writing. (30 chapters)

10:00 (7) - **Evesdropping** - Adam buys a wonder bra for Eve. (30 min.)

10:00 (2) - **Wide Christmas** - Holiday special starring Orson Welles. (300 lbs.)

10:30 (4) - **Bernadette!** - (Comedy) Bernadette holds a mortgage-burning party, where she proceeds to burn a debt.

10:30 (PBS) - **Yacht Va Shem** - World's first Floating Holocaust Museum.

11:00 (13) - **Tooth Loos La Trek** - Young Wesley Crusher starts losing his baby teeth in this artistic French adaptation of Star Trek. (1 hr.)

11:30 (9) - **He's all Gun-Ho** - New name for Japanese reruns of The Rifleman. (1 hr.)

12:30 (LIFE) - **Epicenter** - the middle of your skin. (Or, middle of your tombstone.)

Thursday

7:30 (2) - **E2, Brute?** - The IT Consulting firm gets a Caesar-esque bent. (30 min.)

8:00 (7) - **20,000 Leagues of Their Own** - Capt. Nemo starts a women's baseball team beneath the Atlantic. (2 1/2 hr.)

8:00 (4) - **Der Fuhrer's Furor** - Hitler gets mad.

8:30 (13) - **Skip to my Loo** - A London resident really, really has to use the toilet.

8:30 (PBS) - **Life and Times** - The high-brow PBS show reviews the book, "How To Deal With Brain Hemorrhaging" by Ann U. Risim (1 hr.)

9:00 (56) - **Willie Nelson Mandella**
9:30 (9) - Movie (Drama) **The Irate Pirate**

10:00 (11) - **A Bout Like That** - George Foreman gives you the general idea of the show's topic. (10 min.)

10:00 (A&E) - **The Young And The Large** - The adventures of young David Friedman and his friends.

10:30 (11) - **Power Arrangers** - Sitcom about Consolidated Edison workers who must balance the load on New York's power grid. (30 KWh)

12:30 (9) - **Forever Endeavor** - [And ever! -Ed.]

Friday

7:30 (2) - **Wonderful World of Disney Family Movie** - In this look into the future, we preview Chad Disney's latest attraction, "Nazis of Heidleberg" where fun-Loving Nazis sing merry songs while they goose-step their way into our hearts. Songs include "Zeig-heil! Zeig-Heil! The Master Race for Me" and "Springtime for Hitler"

8:00 (4) - **Joe Cocker Show** - Joe, who's getting on in years, earns the Yiddish nickname, "Alta". (45 min.)

8:00 (11) - **The Bowling Stones** - Mick Jagger guest-stars on the Flintstones

8:30 (4) - **Law and Odor** - Some of those new lawyer shows really stink. (1 hr.)

8:30 (13) **Deforestation** - The railway companies clear some trees to build a depot; name it after DeForest Kelley.

9:00 (7) - **Saturday Evening Post-Mortem** - Northrop Grumman Corp. shortens its name to NORMAN, then merges with Rockwell International. The new aerospace conglomerate, NORMAN ROCKWELL, paints the very picture of benevolence.

9:00 (PBS) - **Diffie Cultie** - The co-inventor of public key encryption, Diffie Hellman, has trouble becoming a follower of Rev. Sun Yung Moon.

9:30 (7) - **Oz Shvitz** - The sweaty Australian moves to Germany. (90 min.)

9:30 (2) - **Free Will(y)-** The killer whale is fated to contemplate determinism.

9:30 (11) - **Fallen from Grace Under Fire**

10:00 (5) - **No Smolting** - Sir Galahad kicks the habit and stops killing dragons. [Thanks to Alan Sherman for that one. -Ed.]

10:00 (4) - **The Trial of Billy Budd-Weiser** - A major brewery helps Ted Turner colorize this naval classic. (2 hr.)

10:05 (7) - **Billy Bathwater** - His mafia parents threw the baby out with him.

10:30 (2) - **Olive, The Other Reindeer** - Used to laugh and call him names.

10:37 (43) - **Peter Pan's Fright** - Tokyo Disneyland's scary ride.

10:38 (23) - **Uncle Histamine**
10:39 (24) - **Uncle Fada of Palestine**

11:00 (13) - **K-9** - This assin-9 (but otherwise B-9) movie stars Ernest Borg-9. (Immediately following 90210).

11:00 (4) - **The Balkans** - New sitcom about an argumentative family in Eastern Europe.

11:30 (13) - **My life as a God** - Adventures of a dyslexic retriever.

Saturday

7:30 (4) - **Ohm on La Grange** - A domicile resists transformation.

8:00 (2) - **Pre-Madonna** - Documentary of Madonna back in the days when she was a self-centered Prima Dona.

8:00 (PBS) - **'Ol Blue Ice** - Frank Sinatra endorses a reusable cooling agent. (1 hr.)

8:30 (11) - **Wake me after the ball game...** - A common wife's plea. (all season)

9:00 (2) - **Terminator 2-2** - Arnold Schwartzeneggar takes up ballet.

9:30 (11) - **Wide Men Can't Hump**- Orson Wells tries to have sex.

10:00 (9) - **Brew Slee** - Bruce Li gets a replacement.

10:30 (7) - **My Love Does It Well** - Paul McCartney gets lessons in grammar.

11:00 (40) - **This Spud's for Hugh** - Hugh adopts a stupid Madison Avenue dog who drinks beer.

11:30 (A&E) - **George Bernard Shawl** - George invents a way to warm his brandy-carrying dog. (1/2 hr.)

12:00 (9) - **The Equalizer** - This week the equalizer gets into Treble in an Air Force Bass.

12:30 (11) - **Iraqnaphobia** - America is afraid to go to war again.

Sunday

7:00 (13) - **Make it Sew** - Captain Picard commands his seamstress.

7:30 (28) - **Astronomy Today** - Michael Jackson is the main sequins star.

7:30 (56) - **Melon-Chali Baby**

8:00 (2) - **Hi Ho!** - Buckwheat rents a tall prostitute.

8:30 (DEC) - **I'm Hexausted** - tired programmers would rather work in octal.

9:00 (CLC) - **I Be Profin'** - Headache-ridden inner-city youths start profing. (Sponsored by Advil.)

9:30 (18) - **Tora! Tora! Tora!** - Dr. Doctor treats the Yeshiva-bound patient patient.

10:00 (11) - **Shiver Me Timbers** - Long John Silver survives an earthquake.

10:15 (43) - **Moon over My Hammy**
10:17 (47) - **Assault and Battery** - Sodium Chloride, Zinc Carbon.

11:00 (7) - **Hammond Eggs** - Organ players get cholesterol.

11:00 (9) - **Que Sera Sera** - Whatever it means, it means.

11:15 (4) - **Little black-and-blue riding hood** - The wolf catches up.

11:30 (28) - **Where in the World is Carman Ghia?** - Carman drives to San Diego in a Volkswagen to sing opera.

12:00 (13) - **Hang 'em High Noon** - Squint Eastwood stars. (3 1/2 hr.)

12:30 (DIS) - **S&M Today** - Whip-Me Houston sings "Beat It!"

1:00 (11) - **Hans-on Experience** - Hans talks about experience.

1:45 (17) - **@aboy** - The Internet address to where the kudos are sent.

2:00 (4) - **I'll Fry Away** - Colonel Saunders commits to 'round-the-clock preparation of Japanese chickens.

Sunday

7:00 (A&E) - **Marilyn Monroe Doctrine** - Don't screw with the President, otherwise you will die.

7:30 (47) - **Wok** - Don't Wok

8:00 (9) - **Flipper** - Flipper discusses the porpoise of life. (Repeat)

8:30 (11) - **Allison Wonderland** - Ms. Wonderland co-stars with Warren Peace.

9:00 (2) - **Horton Hears a Watt** - James Watt pleads with Horton to replace the Beach Boys with Wayne Newton at the White House Independence Day Celebration.

9:30 (28) Documentary: **Brookline and Sinker** - Boston Buys It.

10:00 (5) - **Line Country Safari** - Crowds cause the Orange County tourist attraction to modify its name.

10:30 (18) - **Eiliot NessCafe** - Robert Stack endorses coffee.

10:30 (PBS) **Pirates of the Carob Bean** - Chocolate legumes get filched. (1 hr.)

11:00 (THC) - **Poi-fect!** - Curly Howard, while vacationing in Hawaii, creates the perfect purple provender.

Ideas for Two Engineering Shows for Television

Engineering Enlightenment Show for PBS

I've always wanted to do for the engineering field what Dr. Carl Sagan did for Astronomy - raise public awareness, appreciation, and fascination of a field which is all too often undervalued by society. In my mind I imagine a 37-part 1-hour series on PBS that completely enthralls the audience. [I also have a strange imagination! -Ed.] The following are fragments of ideas each of which requires a great deal of expansion, but it's late and I'm tired:

- Timeline - how technology has changed our lifestyle, values, how we behave, how we make use of leisure time. Knowledge went from high-priests to masses (via public education); is on it way to high priests again.
- How technology has been abused and exploited: TV, music, movies - mass media which does little to benefit society, but does make a handful of people awfully rich. (Lead into networks; narrowcasting, interactivity.)
- Computer networks and the decentralization of democracy. (Failed Soviet overthrow = good modern example.) Pure democracy, like pure capitalism, doesn't work very well. Internet and CB radios - popularity made both less useful.
- Technology has not made us happier. Start with tutorial of how the neuron works, and how it blocks out consistent signals. (This is why you get used to the small of a bakery once inside.), and continue to 18th century observation by Rousseau. Look at what people are doing with their lives now that they no longer have to hunt and harvest and build their own homes or go outside to use the outhouse.
- Paradigm shift - each revolution started when old ways of looking at things were questioned and replaced by radical theories. Bacteria, theory of evolution, healthy lifestyles (back in the '60's, living healthily meant being branded a 'health nut'), etc.
- Engineers use two tools: imagination, and mathematics. Illustrations where extreme creativity was applied to solve problems. Examples: mouse, dishonest journalists, electronic sheet music, tethered di-pole satellites for "free" power generation.
- Building a better mousetrap won't lead to anything. Cite examples where the pioneers died poor while others got rich off the ideas - inventor of television, the personal computer, mouse, spreadsheet, chroma-key, etc. (I'm sure lots more examples than the recent ones listed.)
- Absolutely everything we do everyday, everywhere, is touched by an engineer. Look at your surroundings. Shelter, clothes, cars, food delivery system, water, sewage, space food sticks, lucky charms, etc.
- How Engineers are viewed: Examine media stereotypes; Dilbert, compare to Amos & Andy and check for political correctness. Like Doctors, Lawyers, need to get a TV show...[See next section! -Ed.]
- Cities - usually high densities of people cause disease & disorder. Engineers worked on sanitation, biologists on clean water supply, politicians worked on rules of mind-numbing complexity.
- Programming is more analogous to law than it is to designing a building.
- The usefulness of math (this should be an eye-opener for most people.) Principle should be sprinkled throughout each episode. Explain the huge number of variables needed to keep an airplane up. "Without math techniques, you'd never get the answer. Without computers, you'd never get it within your lifetime."

- Systems - La Place, Poles, Zeros, and how they relate to social systems as well as mechanical ones. Flight, space shuttle, modeling roller-coasters, 2-body mass systems, public policy, educational process, dog training, Dilbert's boss, etc.
- RISKS! Technology that fails can kill people. Tradeoffs: intelligent, computerized cars may save more lives that they'll take by failure, but lawsuits resulting from deaths centralize the risk and retard life-saving introductions. (Currently risk is dispersed -- i.e., Ford doesn't get sued for every car crash.)
- People are inconsistent when making tradeoff decisions regarding risk; they vote for foreign substances in water to be in the parts-per-billion dilution, while still driving cars and smoking cigarettes. End with perceived threats and near-earth asteroid threats.
- Diversion of values: Engineering: "Anything well designed, reliable, and solves a real problem is good." Business: "Anything that makes money is good." (Another example: "Intel architectures suck." "Intel is a highly profitable company.")

Engineering Show for Commercial Network TV

[Ed. Note: Okay, so the following was *not* captured using the Data Egg, but the theme matches and I still think the idea is worth dispersing. The attached was originally written in 1990 as a response to a rather unimaginative congressional report I was asked to review, dealing with how women and under-represented minorities can be better utilized to help offset the declining number of science and technical people in America's workforce. (Never mind the fact that the problem of education and the sciences requires solutions addressing much broader segments of society than just minorities and women.) One of their suggestions was to improve the image of scientists and engineers by using the power of the media to stimulate interest in these areas at an early age.

As it so happens, I've always felt that engineers have had a bum rap both in public image and exposure (the only time engineers make the news is when systems fail catastrophically or when Sam Goetz shoots somebody on the New York subway), so when the chance came to offer input on a way to change that I sat down and whipped out the following, which was included as an attachment to my response.

Please keep in that these episode synopses (plural for synopsis) would comprise only 10% of the show; network fluff such as soap opera involvements and gratuitous sex and violence would also have to be written in to keep people from changing channels. -GF]

Attachment B - Proposed Television Series
by Gary Friedman

Television networks can do for engineers what they've already done for the medical and legal professions: raise awareness of their importance to society and heighten esteem in the public eye. (If they can make a positive and entertaining show about lawyers, they can certainly do it with engineers!) I have derived a formula for a successful series loosely modeled after the TV show Lou Grant, which also helped push journalists into the public eye.

The series would document the assignments of an engineering consulting firm, which each week becomes involved in a wide variety of engineering and design problems. The firm uses its core of heterogeneous in-house experts comprised of mechanical, chemical, electrical, civil, software, manufacturing, environmental, and human factors engineers to examine the relevant technical and social issues and evaluate a best solution to the given problem. Each attempted challenge can reveal to the audience how complex deceivingly simple systems really are, and also show the interdependence of diverse technologies required to successfully implement solutions.

Each episode in the series would perform 3 major functions:

1) demonstrate to the public the function of engineers, people who not only use their imaginations to solve given problems, but know how to use math to be certain the design will work before it's even built. Many episodes will demonstrate the entire design process, and the diversity of assignments sends home the message that engineering can be exciting and that engineers, although for the most part invisible, touch our lives in countless ways.

2) Illustrate that engineers are by and large not 'nerds'. (In fact, they're regular guys just like you and me!) A full spectrum of characters can be assembled to illustrate this fact, and several character outlines appear at the end of this attachment.

3) Teach that every hi-tech solution comes with its own technological risks, which must be evaluated carefully if socially responsible solutions are to be carried out.

Here are some story ideas. Each episode will bring in a new client with a new engineering challenge, allowing the series to explore various areas of engineering responsibility.

Life of a computer virus, starting with the person who writes it and then focusing on the software detective work needed to isolate it and develop a vaccine. This will give the viewers a concrete idea of something that up to this point has been abstract, scary, and reported in a sensationalist fashion. It will also be a good opportunity to work the press' role in here; how they spread misconceptions by reporting on sensational aspects of things they just barely understand. (But it will not be attacking the press.)

A defense attorney represents a whistle-blower, and hires some consultants to help prepare a case. This episode can examine many of the ethical values which all engineers are supposed to voluntarily adopt to protect the public, and how they may contrast with job security and lifelong blacklisting.

One of the engineers takes a semester off and teaches at a college. At issue is the way math and science are taught; full emphases on the mechanics of solving problems and nary a thought as to consequences of implementing designs. Ethics class(es) are often only 1 unit, and given as an afterthought to the curriculum. But they teach us to be responsible, and cover case histories such as microprocessor-based designs which fail catastrophically, un-checked growth of computer databases which can lead to 'big brother' or police states, human factors issues where induced fatigue can lead to deaths, nuclear reactors, SDI, etc.

- A rather large city somewhere in southern California (?) is planning a brand new transportation system, and they need a complete independent review and environmental impact report. Development problems, such as an ignored 'piston effect' factor in an underground tunnel, are

found, fixed, and the consequences of letting the error go unnoticed calculated. In the process of evaluating the design and the trade-offs of trying to meet all the requirements, we learn that there are often no cut-and-dry engineering solutions, rather only solutions that will likely run into the least number of objections. Inevitably, despite the most sincere efforts, the public objects anyway.

- The firm is hired by a European aerospace agency that is designing a passenger plane completely controlled by computer. Lawyers for outside concerns (Stewardesses for Social Responsibility?) object strongly, citing the fact that the current software art cannot guarantee that the controlling program is bug-free, and potential liability issues in case the microprocessor- based systems go bad. One such objecting lawyer suffers a heart attack and is hospitalized, and ends up relying on microprocessor-based medical instruments to keep him alive. Here we can examine whether software-based solutions can ever be proven to be more reliable than their less-sophisticated predecessors, and show that, once again, trade-offs between features, reliability, and safety remains an eternal issue. (We can also bring up the fact that if lawyers were as powerful 100 years ago as they were today, medicine would never have advanced since the threat of malpractice suits would have scared off any new approaches to treatment. As far as engineers go, however, their presence serves as a check for poor or thoughtless designs which may endanger the public.)

- Some members of the consulting group agree to participate on some IEEE standards committee. (Maybe the ISDN committee, it would reveal what's ahead in telecommunications in non-threatening ways.) The frustration of design-by-committee is interleaved with murmurings of a large engineering push to unionize, and that's where the real plot comes up. Should the IEEE become like the AMA and make engineers expensive? What would that do to America's edge (?) in foreign competition? (This probably isn't a good topic for an episode. The public reaction to these questions would probably be, "Let them stay cheap and invisible and classless. If I don't acknowledge their contributions then I won't have to feel guilty about it.")

- "The Soul of a New Machine" episode, where an assignment takes us into the world of high-tech Silicon Valley firms. Here we can showcase a culture with life-styles, work ethics, and environment very far removed from the average viewer's experience. If done correctly, it will break as many stereotypes as it will reinforce.

Cast of Characters

- The mechanical engineer is a good-'ol-boy from Arkansas, complete with southern drawl and racist attitudes. His personality is such that you'd never expect him to sit down at a table with a bunch of professionals and suddenly talk tech with a high degree of competence, yet that's what he does when he gets down to business. Southern characters in other TV shows often get picked on for purposes of relief humor; I see no reason to deviate from tradition here.

- The software engineer is a 'nerd'. One such character is essential if the public is to think we're not trying to whitewash the stereotyped engineer/programmer. However, as the series progresses we see that the common perceptions of being anti-social and on another planet are incorrect. Although he is quiet, he writes poetry, volunteers for humanitarian causes, and has deep relationships with his girlfriend. (Yes, he has one.) After enough episodes he becomes a likable character that simply takes a little more time to get to know.

- The civil engineer is an old grumpy guy with a slide rule. (Am I reinforcing another stereotype?) In contrast with some of the younger staff, he is the only one who scrutinizes numerical results for plausibility rather than blindly believing the computer output. He spent his life in public works, and got so bored after retirement that he chose to consult full-time rather than let his knowledge base erode.

- The chemical engineer is one of a host of minorities within the company. This one is Iranian, and will probably be the first instance of this nationality to be portrayed in a positive light as a regular character on a television series. Like every engineering professor students are likely to encounter today, this character proves that a language barrier doesn't imply lack of competence or professionalism.

- The environmental engineer is an ex-EPA employee, so frustrated with the limited political power of her former employee that she decided to come to this firm and have her suggestions heeded during the design stage instead of as a bothersome afterthought to a non-caring corporate giant. (Was that sentence long enough?) She is also a wife and a mother of two, paving the way for an episode about subsidized corporate daycare and maternity leave.

- The manager, who's modeled after Cliff Robertson's managerial role in movie Brainstorm, does such a good job and has things running so smoothly that often we're not sure why he commands such a high salary. He's a classic, sincere motivator, and is the catalyst required to get the high-level of teamwork going. (Personal note: during my 6 years in the real world, my concept of managers has quickly gone from 'overpaid, useless paper-pushers' (a la Douglas Adams) to a very necessary and valuable function which orchestrates corporate resources and makes sure the team has everything they need to get their jobs done. (This positive revelation has nothing to do with the fact that I was just recently appointed as Technical Group Leader.) I would like this new image to be conveyed in the portrayal.)

- The electronic (hardware) engineer is a recent MIT graduate who wants to (and can) do everything himself, drives a Porsche, is impatient, and blindly believes results of calculations without considering if the numbers are even meaningful. (He also made the Guinness book of world records, wrote a book on handheld computers, works in the Big Brothers program, has toured the world as a photographer, and has a personal-life schedule that makes 'See All of Europe in 3 Days' tours seem like a picnic.) He is one of the rare breed that are good at both hardware and software, and his teaming up with the software engineer at times will reflect mutual respect, a rare occurrence in the real world.

- The industrial manufacturing engineer suffers from the Rodney Dangerfield syndrome, namely he doesn't get any respect. All too often his end of the business, taking a laboratory prototype and successfully devising a low-cost method of mass assembly is ignored by the guys in development, who collectively could have prevented production problems had they thought about the manufacturing end when the product was still in the design phase. In keeping with the goal of a racially mixed cast, this character can either be Hispanic or Black.

Sample Dump

[Ed. Note: the following was captured over a period of three weeks. Usually I download the contents every couple of days, but in this instance I was a little too busy. -GF]

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---------- Saturday, 2/27/93 -- 8:53:19 P.M.

Get p3200 film
Try to get b&w enlargements
e-mail to jimg that I am indeed moving in downstairs

Letter to Amir - I could type faster than it appeared on the screen. That's why the voice and the screen didn't sync.

Ps - Did you see Carmen in San Diego?

Hsimon@jplpost

Call fred and becky.

Curloo - "I'm a dog playing cards". - heard on NPR this morning

Bring enlargement of Julia for Bubby on Wed.

Buy 2-3 rattleback stones for Richard.

Data Egg Nest recharger
WHERE GREAT IDEAS ARE HATCHED.

Make the CCD a custom hybrid ASIC so you can't siphon off the image from the ccd and feed it back to the secure microprocessor.
Send pres kit to Dave marsh.

watch battry died on 2\19.

Oddly, Mom's beeper battery died the same day as my watch battery. (Not that odd, the batteries were installed the same day!)

Bring at least 3 space pets next time.

If the address space is 3

David - I just got your package yesterday. Little over-eager, aren't we?

I will - the Beatles; good song for Xaphoon

The scrapbook will be titled "Six weeks". Chapters:

AFAT: The next generation
Ulysses and the European Space Agency
Return of the Latvians
Voyager II Neptne encounter
Move In

Jpl 1st annual Boycott

For cover of 6 weeks, have entire timeline with a circle around the 6 weeks in question.

Brian Beckman - I just inhereted your outback mac. 2 comments:
1) Nice Error sound effect. ("We are the knights who say...")
2) Nice software registration. (Patrick McGoohan as an information operator...)
Bring basic program for Seth.

Things I hate about the new Minolta:
- The focus cycles completly each time you turn it on or off.

Bring photos for Fred.

Sunglasses or gloves might impair its operation.

Focus lock is conditional, and the camera takes a half second before it decides to give it to you.

It often tried to focus when it wasn't even close to my eye.

Shutter release cover is tacky.

No built-in eyepiece shutter.

Forced fill-flash must be accomplished by pressing another button during exposure. (Program mode only.)

Nothing in the manual about leaving the film leader out
Doesn't seem to be able to disable expert tracking mode.

This means I cannot lock focus and shoot 3 frames without it hunting around again.

Special function button too high (I'll need thumb extensions.)

Call Nadia - Tuesday.
I need a way to focus lock without the camra deciding weather it'll grant me that service.

Call Cindy Stout - I'm still looking for schematics.

Famous Amos supports the boycott.

It pays to listen to Kaos
But not to work here.

I will (E-F)

Send AT&T paper to Irene.

Write to Denise hurst.

A telephone ring detector will light up when the phone has rung enough times to be switched over to voice mail. This way, when you come back into your office, you can visually tell when you have voice mail waiting rather than having to constantly pick up the phone and check for a pulsating dial tone.

Must I buy all new lenses to get focus lock all the time? Or can I use the aux. button?

Skip - Just a photograph will be good enough.

Why not put a nursery or elementary school on the grounds of a retirement village? Kids will get some free attention, the Seniors will feel needed and will enjoy themselves more.

It's well-documented that sweeps week causes television to become sleazier. What if they announced a week when no monitoring whatsoever would take place...Would producers use that time to risk airing some high-quality specials?

"It's hard to work in groups when you're omnipitant." - Q

Husy and Starch -

NetText online - Network World ad Computerworld's on-line reseerch database. Info: (800) 643-4668

Call Kevin 5:00 Wednesday.

Call Don Sweetnam & Babs Holder.

Ursula - A reminder about Thursday.

Greenpeace BBS (415) 512-0108

Status - Intervision demo.

E-mail to Ursula tonight - I'l be gone Thursday for Jack.

$139 each way to Hawaii - United?

"Shutup baby, I'm trying to sing!" - Guitarzan

Brian Ramage - Proof sheets?

"You may not believe this, but my name is Granny Goose."

Wadcutter ammo may bounce off the tires.

Make Noise and LED modes stick in the next version of the Data Egg software.

Status - Came up with 2 more vr methods for Jack's task.

Electrically-operated stuff is not reliable enough. Air is better.

Call Aj - thank him for the referral.

Bring home the article and factoring paper for Dad.

Call Bubby - Don't throw out negatives!!!

Make Backups.
Call Fred for directions.

Send out Newsweek bill.

Button for Mike : "They lied to me in Kindergarden"
Make a seperate list of Kevin's exploits.

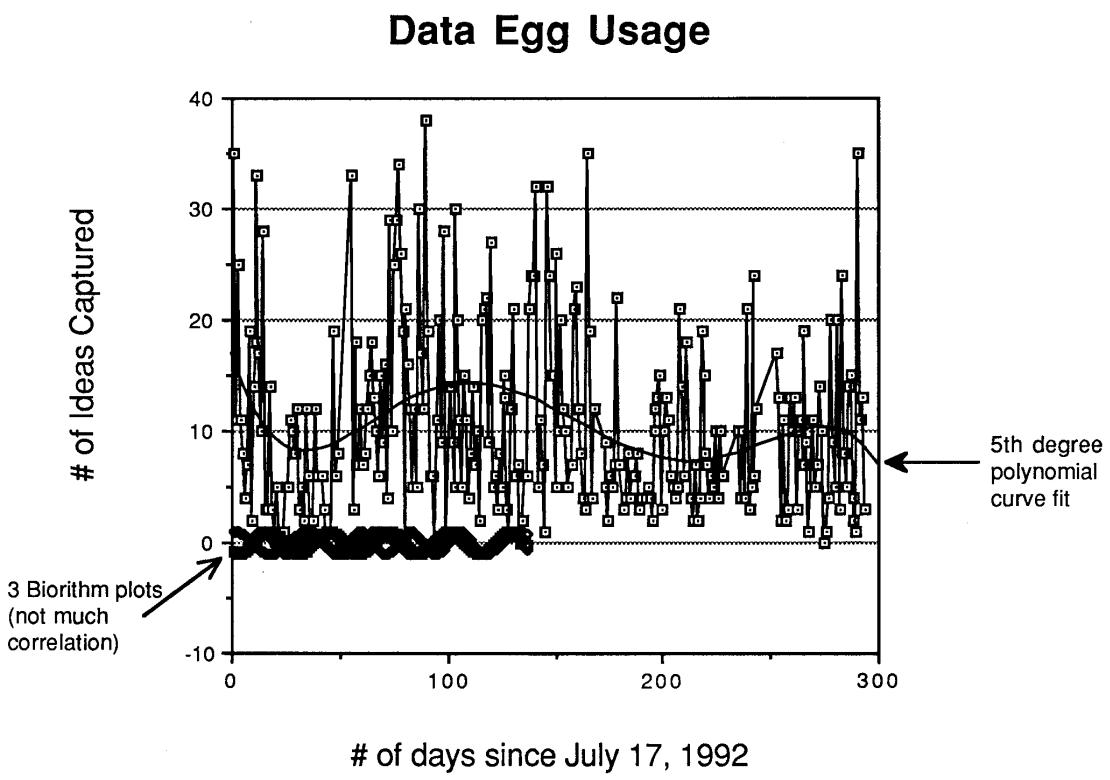
Bring RCA connectors for speech synthesizer.

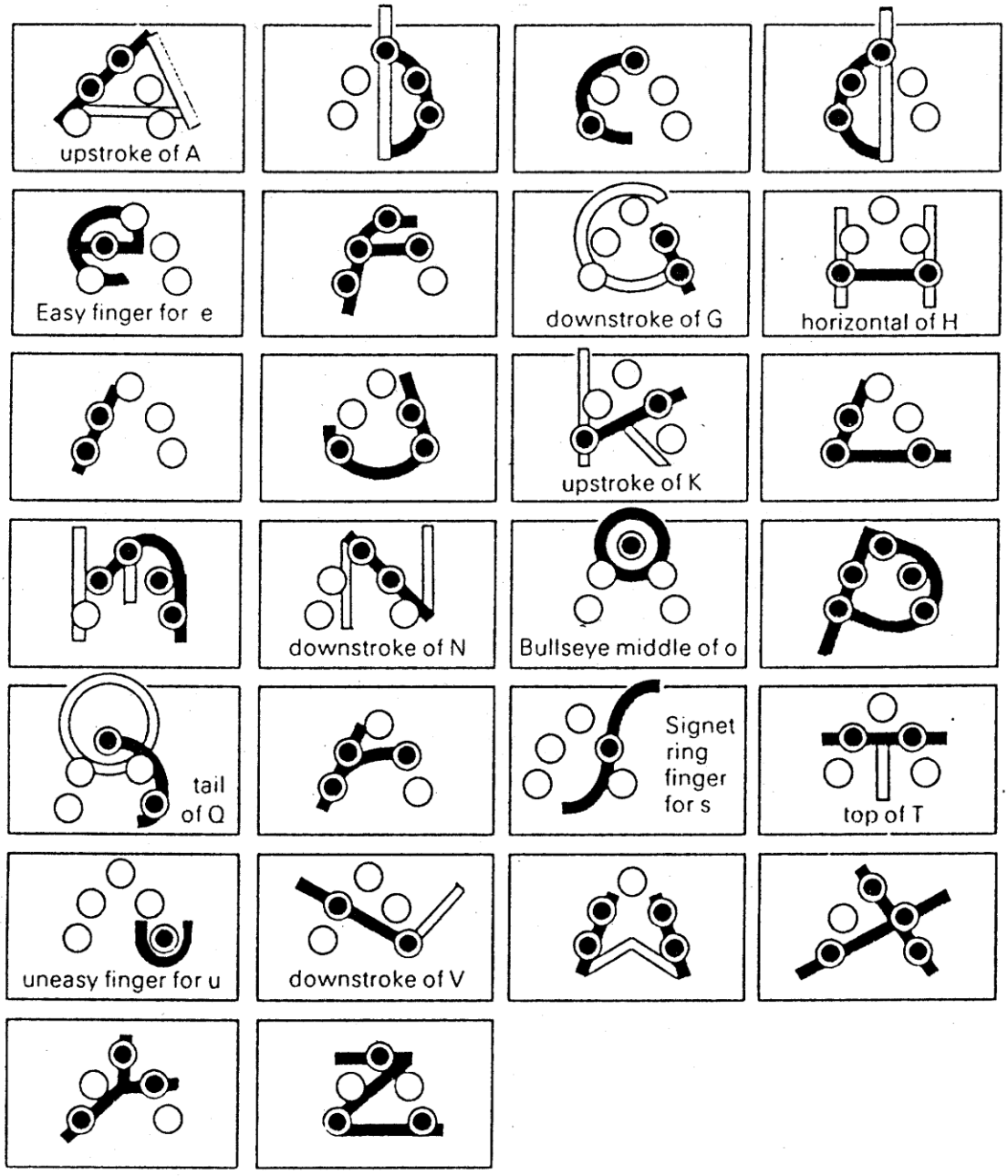
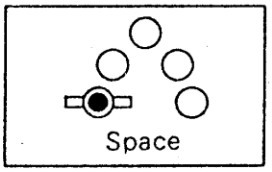
lk tues. akkive akriv 2 days later.
Leave Tuesday. Arive 2 days later on the 5th.

Shall I send Mrs. Robinson photos of the Micro440 board at various stages?

Work in Darkroom on Sunday!

Look up X-magnify program.
2nd Friday in March - jpl tour for Fred.


Data Egg Usage
# of Ideas Captured
40
30
20
10
0
-10
0
100
200
300
# of days since July 17, 1992
5th degree polynomial curve fit
3 Biorithm plots (not much correlation)



and the thumb key on its own is . . .