

The Amateur Computerist

Summer 1992

Volume 4 No. 4

"The long memory is the most radical idea in America."

Clara Sparks; From album "Don't Mourn-Organize: Songs of Labor
songwriter Joe Hill."

The Impact of the Computer on Society: Two Views

Current Problems

I just finished reading the *Amateur Computerist* (vol. 4 no. 2-3) and I am going to be the devil's advocate with regard to your theory about forcing high wages to encourage automation and result in labor reaping the benefits of cost saving. It is an interesting theory but I see the need for much related discussed of how it could be implemented. I can foresee many problems in applying this theory. The major one being how can you force industry to pay high wages? Currently unions are on the wane due to the Internationalization of Industry and their ability to move plants and to transfer jobs any place in the world. The experiences of Greyhound and Caterpillar reflects the realities of our current situation. The introduction

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The Future

If I should discuss "the future", I would take, not a 10-20 year perspective, but a 200 year perspective. I would ask myself: What is the real LONG RANGE trend in the economy, and what sort of real LONG RANGE target is made possible by that? Having decided on a 200 year perspective, I would use that projection as a premise for the course I would want society to follow in the more near future (0-10 years).

What then is the fundamental trend in the economy, seen from the perspective of 200 years? The answer is of course trivial: An immense increase in productivity. And I will say: We have just seen the start of this, what with automated manufacturing, process control, expert systems, and in the not-so-near-future, Artificial Intelligence. I disagree with environmentalists saying that increased productivity is impossible because of environmental constraints. I agree with their mental alarm about the constraints, but I think that automation, robots, and so on will make us a better society for all, at the same time REDUCING the strain on the environment.

Now comes the next point, which is not trivial at all: What sort of society should we strive for in the light of the enormous technological potential that a

lot of us agree on?

Here is my scenario: A society where a small percentage of the population oversee automatic processes in administration, manufacturing and commerce. The industry will be running nearly without human work-hours. So what do the other 95% do? Before I answer that question, some thoughts about "the meaning of life". Why do we need industry? Is it an end in itself? (Listening to politicians and industrialists in the media, one is led to believe that.)

In my view, industry is only a means TO GIVE PEOPLE MORE TIME FOR WHAT THEY REALLY WOULD LIKE TO DO. The remaining 95% of the workforce in my future society would have the following jobs:

- Kindergarten teachers and nurses, 2 adults per 5 children
- Teachers, in classes with less than 10 children in each class
- Sailplane instructors, scuba-diving instructors, football trainers,
- Teaching kids mountain-climbing
- Rearing horses
- Drama instructors, singing instructors, actors, singers, musicians, painters, etc.
- Health personnel, one doctor per 50 persons. Free hospitalization for everybody.
- Researchers in anything from flowers to chess to astronomy to historical masks of the South American Indians. A very big part of the population in university-level education and research.
- ecologically sound agriculture and animal husbandry, which, by the way, may be MORE labor-intensive than today's industrialized attack on the environment.
- Ecological managing and rebuilding of the world. Reforestation is one important example.

OK, you can see where I'm going. And I would also stress: Mandatory work-hours in this society are in the range of 2 - 4 hours, if they are mandatory at all. But people will be on the

job a lot more, because they will LIKE what they are doing. No problem.

This far future scenario has the following consequences for shorter-term policies:

- Automation is a good thing
- Higher wages which lead to more automation is a good thing
- Shorter work hours accompanied by job-sharing is a good thing.
- Less people in industry and more people in education/health care/culture is a good thing.
- More people employed taking care of other people - and this cannot and should not be "automatized" - is a good thing. In countries with a publicly financed health care and education, like my own country, this means the public sector taking a BIGGER piece of the GNP. This, in my view, is a sign of an advanced society, and I therefore find the persistent wailing from industry, finance and the political right against growth in the public sector totally reactionary and lacking any long term perspective.

Trond Andresen

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Trondheim, Norway

(**Problems**, from front page)
of the computer has encouraged companies to eliminate mid management and has helped industries to cut cost of operation. How has this benefitted either labor or the consumer? It appears that all mid managers are being effected either through loss of jobs, insecurity and eventually those left working will probably get lower pay. I would guess that it will also effect the pay of all labor.

I would suggest that your newsletter might be more meaningful if you would encourage discussions on all aspects of our current problems. The history of the Sit-downers is interesting from a historical perspective,

but it's important to us only if we can learn from this experience. The situation today is much different from the days of the Sit-downers. I suspect that there is not much that can be applied.

The other point that you keep projecting is that workers should be computer literate to make automation practical. This is a real controversial proposal. The attitude of industry is to keep workers away from touching computer programs and/or repairing machinery. Most companies employ specialists to do programming or to repair machinery and they (try) to discourage all others from becoming involved. When I worked in Europe I saw the results of allowing GI's to mess with computer programs, as it was often a disaster. It is my belief that this too needs to be discussed in depth. I believe that workers should be encouraged to upgrade their skills for promotions. I believe that only a limited number of workers have the education or motivation to learn computer skills.

Further your comparison of the Computer Revolution with the Industrial Revolution needs much further analysis. At the time of the Industrial Revolution the standard of living was so low that it could not drop further. Our current standard of living based upon historical standards is probably the highest in history. The computer revolution could cause our standard of living to drop drastically. It is my belief that any theory regarding our future direction has to be explored in great depth. People tend to be very dogmatic in their approaches and often ignore reality. An excellent example of this approach is Socialism. It is theoretically a better system but from a practical standpoint it hasn't worked. It failed because no realistic analysis was made of human greed and no allowances were made to take care of this

problem.

It is my feeling that if you really want a newsletter that is different, encourage the in depth exploration of the effects of the Computer Revolution on man. We can already see some of its effects on man but many more are to come. An analysis of anticipated effects are certainly in order, and what is more important is that we speculate on how we could effectively have people apply pressure so that the computer is used beneficially. I don't know of any organized group who are actively looking into these problems, other than the people whom have a direct economic interest in exploiting the computer.

You can say that I am depressed about people, but a better word is cynical. From what I can see most people are not interested in anything but their immediate self. They only get excited when encouraged by the newspapers and/or TV. Look at all the noise about Congress bouncing checks. This is only the tip of the iceberg and is relatively unimportant when compared to some of the other things that our representatives have been doing. Traveling around the World at Taxpayers expense, the Saving Bank scandals, the unfair tax bills, etc. Almost nobody gets excited about these. I suspect that Bush may even be reelected, in spite of the miserable state of our economy.

I know that there are people interested in doing something about improving our current situation, but these are in the minority. What we lack along with more interested people is a clear analysis of our problems and leadership to direct solutions.

My analysis of the basic reason for the collapse of the Soviet Union is Corruption. The people that started the Soviet Union were idealists. They initially accomplished much in that they introduced education, medi-

cal support system and an initial improvement in the Standard of Living. But even from the beginning the opportunists took over. They became the factory manager, government official, party member, army officer, etc. Once in power, most made every effort to maintain their positions, bringing in friends, family and shunning people with ability and integrity. This caused the eventual collapse of the system. We have exactly the same problems in this country except for a minimal check and balance system. When a company starts to lose money they sometimes replace management and another check is the high level fights among the power giants. Oil companies want high oil prices whereas the airline, trucking and chemical industries want low oil prices.

With respect to Windows, I find it a mess to use. I have been playing with it but I find it difficult to learn. It is slow, erratic and the manuals and help menus are difficult to understand. The other reason I have been playing with Windows is I have been getting some of the latest software for Windows. I have MS Word, MS Works, Intermision and many others. Also I recently installed Stacker which doubled the capacity of my hard disk. I find this program great. I need Windows to use this new software.

If you care to publish any of my comments you may. I believe that you can easily extract them from this letter. Hopefully it might generate some discussion, although I don't feel too optimistic. The last letter of mine which you published regarding the effect of the computer on man apparently didn't generate any discussion.

Dave Pollack
Sun City, ARIZONA

Electronic Mail

From: lee@well.sf.ca.us
Subject: History

Yes, I'm always interested in articles referring to the history of PCs. I'd greatly appreciate it if you could send me some copies. Also, the history of the *Amateur Computerist* is of interest to me, as I often find myself countering ideas of technological determinism. The Russians I deal with seem to feel that IBM waved its magic wand and created the personal computer!

Someone is putting together a multimedia history of the PC, and I'll refer him to you.

I've certainly heard of Cleveland Freenet, in my position with the Community Memory Project. I believe that we've developed the next generation of public-access bulletin board, which has been in service at ten public locations in Berkeley since 1989. We haven't done much publicity, but that will soon change.

Lee Felsenstein
California

From: cmf851@cscgpo.anu.edu.au
Subject: Re: Computers vs Factory Closures: 4 Years of the *Amateur Computerist*
Great Stuff!

Makes a refreshing change to read the classical POSITIVE stand demanding more high-tech and blaming the capitalists for preferring low wage speedup policies! It's SO sickening reading the usual garbage about how automation costs jobs and we should all work harder for longer hours to produce less just so that a system based on "jobs" can survive (and to preserve nature instead of conquering it of course...)

An old friend of mine who is "almost" on the net used to be an auto worker so I'm passing your stuff on.

Albert Langer
Australia

From: cmf851@cscgpo.anu.edu.au
Subject: Re: Computers vs Factory
Closures: 4 Years of the *Amateur
Computerist*

Thanks for the complete issue.
I just read it and really enjoyed
it. I like the mixture - and es-
pecially the re-capturing of the
"radical subversive" history of
personal computing. Looking for-
ward to future issues.

Albert Langer
Australia

From: Lee Hauser

Got the *Amateur Computerist*
loud and clear. I'm impressed!
Especially the history of the
newsletter. You may know that we
out here in Washington State are
a bit addled when it comes to
labor causes - we haven't been
called the "Soviet of Washington"
back in the '30s for nothing.
Though I'm not personally a union
type, the reasons for the found-
ing of your newsletter warmed my
heart.

Anyway, back to work, thanks
for the newsletter, and I'll type
at you soon!

Lee Hauser
Washington

From: "More Puzzled"

- 'Cause I'm Still Learning
Subject: Re: The Rest Of The Story
Now before I write anything
else I would like to say that I
was very sorry to hear about Mr.
Floyd Hoke-Miller. I personally
did not know the man but I have a
suspicion that I am for the les-
sor for not having met him. As
selfish as this may sound, who
knows what I might have learned
if I had met him. Anyone that was
a member of the "Wobblies" and
the "famous/infamous sit-down
strike - 1937", no matter what
their point of view, is worth
talking to. If I were a journal-
ist I would have paid to inter-
view him. If there weren't people
like him all the workers might be

in slave camps today.

Before I forget this I should
have mentioned this comment in my
last message. In reading how the
Amateur Computerist was founded
and all of you (the initiators)
should pat your self on the back.
It can be very tough to get some-
thing like this off the ground,
let alone sustain it for four
years. And I was not surprised
that Ford played games with the
educational future of the work-
ers. I'm not familiar with them
but hopefully they have taken a
different approach these days.

More Puzzled
Ohio

From: art@well.sf.ca.us

Subject: Ford/*Amateur Computerist*

I'm working on a book called
The Age of Heretics, a history of
efforts to change corporations
for the better over the past 20
years. I saw your note about the
effort by workers to make Ford
put in more computers, not less,
and I'm fascinated. I saw some-
thing similar in the early 1980s
regarding robots.

You offered to reply about
obtaining a copy. How can I ob-
tain one?

Many thanks for your consider-
ation.

Art Kleiner
Ohio

From: art@well.sf.ca.us

Subject: Ford/*Amateur Computerist*

Thank you. I haven't yet down-
loaded the E-mail - will do so
when I log on with a non-Telnet
access method. I look forward to
it. Book is probably a year or so
away from completion. Its scope
is big.

Re: robots, I noticed when
visiting a Ford plant in early
1980s that the shop floor people
felt much more benevolently about
the robots than a casual visitor
(or at least THIS casual visitor)
expected.

Art Kleiner
Ohio

From: mer@world.std.com
Subject: Re: Help with Placing
Amateur Computerist in FTP Site

Sorry for the delayed response, I was out of town for a few days. I am still interested in putting your newsletter in our collection. Please send me the ASCII and WordPerfect files for the issue that you currently have. Or if they are presently on an FTP server, please tell me where to get them from. We'll put them in our FTP server at world.std.com under the subdirectory OBI for Online Book Initiative.

As you get the back issues online, please send them too. We'd certainly like to have a complete set. Let me know if you need any further assistance.

Mary Riendeau
Software Tool & Die
- Purveyors to the Trade
The World-Public Access UNIX
(617)739-0202

Letters to the Editor

(Editor's Note: We want to thank Eric Lindsay, Editor of *μPeripheral*, for helping us to track down information about the *Educ-8*, the Australian general purpose stored-program computer for home construction which was announced and detailed in a series of articles in the magazine *Electronics Australia* from August 1974 to August 1975. Not only did Eric's request for information lead to this interesting letter from Peter Gargano, but also Eric sent us a copy of the original first edition 1975 handbook for constructing the *Educ-8* (by Jamieson Rowe). A special thanks to Eric and to Robert Bruce Kay-Sewall (who provided Eric with the manual) and to Peter Garano for sending us the following letter.)

Regarding the EDUC-8 (pro-

nounced "educate") reference by Eric Lindsay in the Feb 92 *μPeripheral*, I have a soft cover handbook called "EDUC-8 An educational microcomputer system for the home constructor and college student" by Jamieson Rowe. My copy is the second edition (1976) and the first edition was in 1975. Over 11,000 copies of the first edition handbook were sold.

The current address of the editor of *Electronics Australia* (Jim Rowe) is - Federal Publishing Company, PO Box 199, Alexandria NSW 2015, Australia.

The contents of the handbook (80 pages) were originally published in *Electronics Australia* during the period August 1974 to August 1975. The preface states: "...the project started out as a purely personal challenge to design a small general-purpose digital computer "from scratch". Cost consideration were thus quite important in the original design phase..."

Jim goes on to say he was able to take advantage of the rapidly falling price of memory chips "...by redesigning the memory section from 32-word capacity to a much more satisfying 256 words."

Page 7 has a **STOP PRESS** indicating they received a July (1974) copy of *Radio-Electronics*. They had the following to say: "...Our design is not the first, then, as it transpires - we were beaten by a few weeks!"

Regarding the specifications of the unit: "...Almost all processing is performed serially at approximately 500kHz and 2Hz (test mode). Instruction cycle times are constant at approximately 96 microseconds and 24 seconds respectively..." (that's about .01 MIP flat out)

The unit had a PC (Program Counter), AC (Accumulator), MA (Memory Address register), MB (Memory Buffer register) and IR (Instruction register). The front

panel provided access to these registers and memory. Power consumption of the basic unit was 15 watts. The PCBs were single sided with a considerable number of links on the component side.

After describing construction the later chapters introduce interfacing the EDUC-8 to punched paper tape, a Philips 60SR printer, a full ASCII-type input keyboard, teleprinters and even magnetic tape.

I have seen one of these units (briefly and a few years ago now) and if I ever see one again I'll negotiate with the owner. The first micro I ever made was also described in *Electronics Australia* some time between August 1976 and August 1977. This was the Mini Scamp, a 256 byte machine (2 x 2112) based on the National SC/MP.

Other Australian micros...

Some time later a self contained computer with integral video, keyboard, power supply and speaker was designed around the Z80 and described in another Australian magazine *Electronics Today International*. This computer, the MicroBee (not to be confused with a terminal of the same name made by BeeHive in the US) became a hit all over Australia and was even exported to Sweden where their education department made a large purchase. I even became involved with manufacturing a small expansion board for the MicroBee with 256KB RAM (a massive amount in the early 1980s), a disk controller and Z80 PIO and CTC.

Australia was one of the first manufacturers of a notebook computer with a flip top 8 or 12 line LCD screen based on the Intel 186 and running MS-DOS. This computer, originally called the DULMONT MAGNUM was later repackaged for export as the Kookaburra (also an Australian bird related to the Kingfisher family). I tried to buy one last weekend at a trash-and-treasure

market for \$20 but the seller (who obviously didn't know the units real value) wanted \$80!

Looking through another magazine I noticed another article by Jim Rowe that claims "...As far as we know this project is a world first-the first electronics construction project based on a dedicated microcomputer." The article describes an ASCII-Baudot translator using an SC/MP evaluation kit. It appears the original article was in *Electronics Australia* of October 1976 but it may have been earlier. Does this rate as a world first?

If you are interested I can dredge up more facts on Australian micros and if you really want I could get you a copy of the EDUC-8 handbook. It is a newsprint style, stapled publication with advertisements. on the back and inside covers. It is copyrighted and "may not be reproduced in whole or in part (..) without written permission from the editor-in-chief of the editor of *Electronics Australia*". I'm currently working with small company that is manufacturing a 386SX based PC that fits into the palm of your hand and is designed to be part of a multi purpose laser ranging system. I don't have an e-mail address but I'd like to hear whether this info has been of any use.

Peter Gargano.
Aranda, Australia

(Editor's Note: The 1975 manual - i.e. the first edition - contained reprints of the articles that had been published from August 1974-August 1975. The first article describing the Educ-8 appears to have been printed in the August 1974 issue of *Electronics Australia*. This issue contains the following note that Peter referred to above:

"STOP PRESS Just as this issue was going to press an advance copy of the July issue of the US magazine *Radio-Electronics* reach-

ed us. In it they give details of Mark-8, a minicomputer based around the Intel 8008 microprocessor IC and 11101 memory ICs. Our design is not the first, then, as it transpires - we were beaten by a few weeks! Ah well, such is life. Still, readers will now have a choice of two different computer designs, each with rather different emphasis."

(from Educ-8 by Jamieson Rowe, First Edition 1975)

(The μ Peripheral is available from Eric Lindsay, 6 Hillcrest Avenue, Faulconbridge, NSW, 2776, Australia. Electronic mail address: eric@zen.maths.ut.edu.au

If any reader has a copy of the July 1974 article printed in *Radio Electronics* describing the Mark-8 computer, we would appreciate seeing a copy.)

Suggestion on Desktop Publishing

Thanks for your letter of February 23rd. Sure, I'd be happy to help you out with some suggestions on desktop publishing the *Amateur Computerist*. Just keep in mind that I'm not an artist, so don't expect miracles. (You'll probably have better ideas than I will!)

As to software, I really like Ventura Publisher, but it is a bit steep in price. There are actually some much cheaper ways to get output that is almost as good.

If you are starting from scratch, you may find something like Publish It! (watch your pronunciation) a lot cheaper and almost as good. I originally started with a few other programs like Fontasy and First Publisher, but they were a disappointment. Publish It! would have worked out quite well, except that I needed the ability to handle equations and really long files; that's why I move to Ventura at \$800 (at that time) instead of Publish It!

at \$100.

These days, of course, there is a lot of other software that will do an almost-desktop-publishing job, like WordPerfect or Word for Windows.

As to a printer, again, if you are starting from scratch, a 4 page-per-minute printer like an HP IIIP or an Oki or equivalent is nice, but an even cheaper way may be a DeskJet from HP (I just don't remember offhand whether Publish It! supports it, but if not, then something else will). Its output is almost as good as a laser printer, though slower (about 1-2 pages per minute); but that's not really accurate. Laser printers slow down a lot on graphics or when the software or computer driving them is slow, so the final speed may be more or less the same. Ink Jet printers like the DeskJet also have the disadvantage that the ink is water soluble (though the newer DeskJet ink cartridges are better than the old ones in that respect). Which means you wouldn't want to print envelopes in it. But if you're going to make more copies on a copier anyway, that may not be a problem.

As to your other questions, I don't have ready access to Internet, so your e-mail address won't help much, though I guess I could reach you through CompuServe. I run a BBS here, but I doubt you want to call to New York.

And yes, I'm the same Peter Stark who wrote those 68000 articles for *Radio-Electronics*. I've been writing articles for years, including a series of articles way back in the days of *Kilobaud Magazine* (1977, I think), as well as a number of amateur radio magazines. If you still have a copy of the issue that mentioned my R-E article, I'd appreciate it.

PETER STARKS
Mt. Kisco, New York

Once Again On the Question of Censorship

(Editor's Note: See "Censorship."
Vol 4 no 1)

There they were, in all their black and white glory; those words that the Morality Censors had deemed unfit for public viewing. "B*****", "a*****", "m*****" and all the others blared across the page, swaggering in consonant-filled aggression. Just this once, freedom of speech had triumphed over the censors. Their ideas were there for me, the reader.

I flipped the page, leaving the entire article unread.

Was this freedom of information? Yes - but the free information censored the ideas more effectively than the editor's policy of using asterisks to suggest the words.

In spite of all the warnings to the contrary, we really DO tend to judge "a book by its cover". Poorly chosen words, racial epithets, obscenities, and outright illiteracy can be more devastating to an idea than the hand of an editor. Who wants to wade through an article full of misspellings? This leaves the impression that the writer is so illiterate that they could have nothing useful to say to us. Any message that includes the phrase "stupid male chauvinist pigs" is not going to reach any man. Words like "kike, nigger, wetback, honky, whore" will only appeal to those who have an axe to grind with these groups.

An editor's concern is to preserve and present ideas. A good choice of words can cause someone to look at an idea in a more favorable light. The right words can cause them to consider an idea that they might normally reject.

I feel that the editors made a call - that the messages there were more important than the language and that the ideas NEEDED

to be seen. They took a standard editorial policy of substituting letters in words that many still find offensive. The words themselves added nothing - they were the same old tired adjectives, the limp and mindless language of token aggression.

I think that editors have a responsibility to the freedom of information that they cherish. Correcting spelling, correcting grammar, and yes even putting symbols in offensive language are things that any good editor does to make the ideas more presentable to a wide audience.

Are the words more important than the ideas? In poems and songs, sense and content can be ignored for rhyme and meter. But if the goal is to communicate ideas, then a little judicious editorial meddling may not be as cruel as total freedom of language.

Mel White

HISTORY OF COMPUTERS

Computers for the People: A History Part IV

(Continued from last issue)

The Homebrew Club movement had a vision. Computer power had to be put into the hands of the people, otherwise, they cautioned, computers would only be used against the populace. A cooperative, critical milieu had to be created to oppose the secrecy and exclusivity of IBM and the rest of the computer establishment. Money wasn't the objective of these technological revolutionaries. Their objective was to contribute to the society they were part of. One Homebrew member's motto expressed the goal: "Let's stand on each other's shoulders, not on each others toes." (Paul Freiberger and Michael Swain, *Fire in the Valley*, Berkeley, 1984, p. 178)

The Homebrew Club first met in Gordon French's garage in Palo Alto. But soon the meetings grew too large and the club moved to the Stanford Linear Accelerator Center. Meetings would attract 500 to 750 people and Lee Felsenstein, who chaired the meetings, would encourage questions and especially the sharing of information.

The free sharing of information was a crucial component of these important and exciting days. The free exchange of information was a necessity for those early personal computer pioneers who were all working in uncharted territory.

The Homebrew club provided a place where a movement of people could gather and find the help they needed to solve the problems posed by this new technology. Also, Homebrewers shared their critiques of new products being offered to warn each other of false claims or bugs they encountered. Homebrew Club meetings were also a place where the participants could share their reports of good products. The culture developed by the Homebrewers supported the principle of open and free exchange of ideas and information so achievements could be built on and development could proceed in a cooperative rather than proprietary manner. "...In part due to Lee Felsenstein," the authors of *Fire in the Valley* write, "Homebrew encouraged the conviction that computers should be used for and not against people." (Ibid., p. 108)

The Club developed a set of principles that were argued out at meetings. One principle was that there should be free dissemination of software code and that information about the internal workings of a computer should be open to everyone. They stood for open architecture, and public knowledge of the physical design, as well as an open operating system.

Most established companies, though, had the opposite view. Companies like Intel wanted no standards set unless they were Intel's own standards, and MITS tried to hide the specifications of the architecture of the Altair. Homebrew set up a standards subcommittee to deal with the controversy. Freiburger and Swaine describe what happened when the subcommittee met:

"When the subcommittee decided to formulate standards whether Intel liked them or not, Intel acquiesced. This was outrageous cheek. A bunch of hobbyists... had simply ignored the biggest microcomputer company of that time and had faced the leading chip manufacturer and not been struck by lightning." (p. 122)

The authors go on to describe the process of the battle:

"The committee was attempting guerrilla design.... Tiny parameters and other features were dictated by the companies. IBM and DEC worked this way. In their way their method was certainly easier than communal design. But the S-100 committee members dug into the Roberts' [Altair 8800 architecture - ed] bus, figured out how it worked, and were scrapping it in favor of a new, independent bus open to all." (Ibid.)

Freiburger and Swaine explain, "This was a populist revolt against the tyranny of the big company, and MITS hoisted as a poor but adequate symbol of the big company. The revolution was succeeding." (p 123)

The Homebrewers had opened up the architecture of the machine, but something more was needed to get the computer to the masses of the people. People were hungry for computers but they wanted to be able to see what they could do with computers themselves. To do so, they needed to be able to write programs, they needed a version of the BASIC computer programming language that would make it possible for people to

use their computers for their own purposes. Kemeny and Kurtz at Dartmouth had developed the BASIC programming language for the Dartmouth Time Sharing System in the 1960's. BASIC was a language which was easy for beginners to use, yet it also made it possible for more advanced users to utilize the power of the computer. The version of BASIC created by Paul Allen and Bill Gates ran on the Altair, so with their early personal computer, users had access both to their own computer and to the power a programming language made possible.

And along with the development of open architecture and operating system and a language, another component was needed in the technological guerrilla war. Critiques that honestly evaluated the products being offered were crucial in the effort to develop useful and functioning items. Freiburger and Swaine report of how this critical attitude was nourished. In the Spring of 1975, Lee Felsenstein wrote articles on the Altair for the Bay Area computer magazine *PC*. Relying on information he received from telephone conversation with Ed Roberts, he wrote about the Altair. Readers of the magazine, however, who bought Altairs found bugs when trying to use the computer. Their letters complaining about the problems they encountered flooded the editors of the magazine. Freiburger and Swain describe Lee Felsenstein's response, "In a *PCC* article he titled 'Criticism and Self-Criticism,' Felsenstein then apologized: 'I lied folks; this thing has problems.' He detailed the computer's flaws and how to correct them. He also began fixing Altairs for friends and *PCC* readers, working on them in his half of the garage. Loyal to other hobbyists and feeling guilty about misinforming people, Felsenstein did the work cheaply. In the process, he learned a

great deal about those early Altairs." (p 109 *Fire*)

Also, Ted Nelson's *Computer Lib* contained concrete criticism of IBM's management practices that were antithetical to the free flow of ideas needed for technological development. (See "*The Behemoth IBM*", "*The Good News and the Bad News About IBM*", "*Quickie History of IBM*", and "*The Big Questions*" "*IBM's Control: The Virtual Mechanics*", etc., pg 52-55 of *Computer Lib*)

Soon critiques began appearing evaluating the new products and criticizing those practices and products that were dishonest and harmful to the movement. Adam Osborne's columns appearing in *Interface Age* to begin with and later in *Infoworld* indicted companies that misled their customers. He exposed dishonest practices such as companies who used the money from a prematurely announced product to finance the production and distribution of their products. "Silicon Valley, write the authors of *Fire in the Valley*," was the source of his information and he called his column 'From the Fountainhead'." (Ibid., p. 260)

(To be continued next issue)

TRY THIS

Faces
(for IBM)

```
5 REM Just the Beginning!
7 GOSUB 160
10 PRINT "My name is happy face -
see? :-)"
17 GOSUB 160
20 PRINT "My name is sad face -
see? :-("
27 GOSUB 160
30 PRINT "My name is mad face -
see? :-O"
37 GOSUB 160
40 PRINT "My name is winky face -
see? ;-)"
```

```

47 GOSUB 160
50 PRINT "My name is small happy
- see? :)"
57 GOSUB 160
60 PRINT "My name is bracket -
see? :-]"
67 GOSUB 160
70 PRINT "My name is cry baby -
see? :~-"
77 GOSUB 160
80 PRINT "My name is weird eye -
see? ==)"
87 GOSUB 160
90 PRINT "My name is small weird
eye =)"
97 GOSUB 160
100 PRINT " happy face
:-)"
107 GOSUB 160
110 PRINT "happy face
:-)"
117 GOSUB 160
150 END
160 FOR X = 1 TO 2500: NEXT X
165 CLS
166 FOR T=1 TO 900: NEXT T
167 LOCATE 15,25
170 RETURN

```

Magic Square

```

* The following four lines are the 'obfuscated'
* version of the program below. Both versions
* print a magic square of odd size. The size
* must be an odd number, given as the first
* argument on the command line. If no argument
* is given, the size will default to 1. No
* argument checking is further done however.
*/

#if 0 /* Don't let the compiler touch this one ...
*/

main(o,00)char**00;{int 00,0;0=--o?atoi(00[!0]):!
0;for(o=((00=0*0)-0+!0+!0)>>!0;00;o+=((--00%0)?-!
0:(((o-!0)%0)?0:0)+!0))-((o-!0)%0)?0:0){printf
("\n%d "+!!(00%0),!0<<!0<<!0,o+=(o<!0)?0*0:0);}

#endif

#include <stdio.h> /* Needed for the printf() func
*/

/*
* Below is the non-obfuscated version
* of the same algorithm.
*/

main(argc, argv)
int argc;
char *argv[];
{
int n = 1; /* Default square size */
int row; /* Loops over square */
int col;
int num; /* Current cell value */

if (argc > 1) /* Argument given? */

```

```

n = atoi(argv[1]); /* Grab argument */
num = (n*n-n+2)/2; /* Top left square */
for (row = 1; row <= n; row++) /* For all rows ...
*/
for (col = 1; col <= n; col++) { /* For all
columns */

printf("%d ", num); /* Print current square */

if (col != n) { /* Not on last column? */

if (num%n == 1) /* Subtract one allowed? */
num--;
else /* Next diagonal */
num = (n+1);

if (num < 1) /* Adjust for wrap around */
num = n*n;

}
else { /* Last column reached */
num++; /* Adjust for new row */
printf("\n");
}
}

return 0; /* Just to be conformant */
} /* main */

```

If you notice carefully, this little thingy reads the command line. It wants an odd number as its single argument; if not present, this number will default to one (1). It prints a magic square of the size given.

In your case, since you didn't supply it with an argument, it always printed a single '1', which is an odd sized magic square by default.

Unless other implementations, this thingy doesn't need any storage proportional to the size of the magic square, i.e. no two dimensional array to store the magic square.

The algorithm works as follows:

- the number 1 to n^2 are stored in a square such that the sum of the all rows, columns and the two diagonals are equal. Simple calculations show that this sum equals $(n^3+n)/2$

- The number in the middle position of the square equals $(n^2+1)/2$

- Therefore the number in the top left position equals $(n^2+1)/2+(n-1)/2$

- Observation of the magic square shows that the next number in a row is one less than the previous, unless the previous number was 0 mod n. In this case the next number in the row is n-1 less than the previous number mod n.

- the first number in the next row is 1 more than the last number in the previous row.

The classical way of constructing an odd sized magic

square is:

- put a one in the last column of the middle row.
- repeat the following steps:
- move one position to the right and one down. If you `fall off' the square: wrap around, i.e. consider the square as an unfolded torus.
- if the cell is free, put the next number there, otherwise move one position to the left and put the number there
- until all positions are occupied.

My implementation is a variation of the last method described above, it simply eliminates the need for an array, no more no less. Enjoy!

kind regards,

Jos Horsmeier
Rotterdam, Netherlands

NEWS & VIEWS From the Shop Floor

I'd Hate to Be a Foreman by Floyd Hoke-Miller

A foreman I would hate to be
And have the men look down on me
As something short of dignity
Without a conscience, heart or
soul.

When every time I turned my back
There'd always be some dirty
crack
About the scruples that I lack
And never a word to extol.

I don't like words unfit for use,
Nor tongues of scorn that hates
induce
But still there is a sane excuse
When used against some mad
Legree.

Who drives his men at fearful
pace
As if it were a chariot race
And by all odds he'd save his
face
And win the victory.

To aspire, I never can,
To exploit my fellow man
For Mammon's parasitic clan;
That ever lies in Luxury's lap.

That's why I wait to see the day
When none can rise and boastful
say
"I gained my lot the easy way
By shearing the working sap."

COMMENTS FROM A CATERPILLAR WORKER ON UAW-CAT STRIKE

(Editor's Note: The following posts were part of an Open Forum Discussion about the 5 month strike of UAW members against Caterpillar Corporation which was ended when the International Union ordered workers back to work. There is a Freenet Computer Bulletin in Peoria, Illinois where workers, managers and other interested people discussed and debated issues of the strike both during and after the 5 month walkout. We are reproducing some of the comments of a Caterpillar worker which were part of the Freenet CAT-UAW Open Forum. The worker's viewpoint is rarely heard in the U.S. Lines marked with ">" are being quoted from another person's post in the forum.)

From:

mjlegel@heartland.bradley.edu

Subject: RESPECT

It has been some time since I last visited Heartland... I grew weary of the argument I guess. I was also disheartened that there were so few Cat workers available to comment on our perspective of this issue.

This August I will have spent 19 years in the factories. I think the sorriest part of this entire situation is the distrust and lack of respect that has grown over the last decade. Distrust and disrespect do not build cooperation. I am afraid Cat's latest antics have buried that hope for good. I know they have for me. I could care less if Cat died tomorrow.

There is no way I can explain the feelings I had on the picket line, watching hired security "people" videotape my moves. I did NOT feel protected. Receiving

propaganda at my home only made me curious where the money was coming from for all the postage. The same with the radio, TV, and newspaper nonsense. I was not convinced Cat valued me.

It is my perspective that most of this conflict has been caused by Cat's callous treatment of its employees. There must be more to any working relationship than money and benefits. Over the years I have tried to give the company full measure for my employment. I have come forth with my ideas and seen things improved because of them. Never again. If I am but a physical body to be replaced indiscriminately, than so be it. I will be the machine they wish to employ. I have no ideas of value. I realize the following analogy is somewhat crude...but it closely parallels the feeling of many of Cat's hourly workers.

A person, man or woman, desires companionship. This person has a variety of choices, but let us say basically there are only two. One can buy companionship or mutually share it... each benefiting from the other. One can chose to find a mate, and build a life around that decision. To share the good and bad, to trust and benefit from that trust. Or one can buy limited companionship to fulfill immediate needs and walk away with no ties or responsibility. It is my view that Caterpillar has decided to forgo the benefit of trust and long term relationship.

Caterpillar has used myself and fellow workers as prostitutes to be discarded. So be it.

Michael Legel

Subject: Install?

>This is a time of change. MUCH
>is happening, hopefully for the
>ultimate good. Much does not
>SEEM good now, however, and this
>perception is widespread. Rest
>assured that upper management is

>aware of this feeling; they
>simply do not know how to
>ameliorate it and yet install
>the changes that they feel must
>be made if we, as a company, are
>to be positioned to compete in
>the future.

I doubt if you are aware of what this paragraph tells me. Even in an attempt of perhaps honest sympathy... you insult the point I try to make. "upper management is aware of this feeling... and yet INSTALL THE CHANGES that THEY feel must be made"? I guess they are not then aware of our feelings are they? Or they are and simply don't think it important enough to cooperate. I am NOT livestock, furniture, or machinery and have no wish to have my changes INSTALLED. I was once PART OF the company. Now, I have been reduced to a number. A cost. A squiggle on a graph.

Michael Legel

Subject: Wait?...Hope?

>Nothing happens overnight.
>Change creates pain, yes, but it
>also can create lasting value
>for all of us. This is the time
>of change, and the pain - at
>least some of it - is inevitable
>and is felt by all.
>I can only ask that you remain
>open to perceive the hoped-for
>benefits as they arrive, and
>that you at least retain the
>hope that they will arrive.
>Perhaps we will see ourselves
>wedded as a company again. No
>one wants the "prostitute"
>attitude that you imply is your
>only choice left. I *could* say
>the same, but retain the hope.

Fool me once... shame on you... Fool me twice?

Not a decade ago Cat instigated a 7 month strike that wiped me out financially, provided the

catalyst to end my first marriage and ripped my career from me as callously as the wings from a fly. After that strike, I was bumped from pillar to post, from one shift to another, from one plant to another. It took nearly 5 years to let bygones be bygones... to get on with my life and hope for a better day.

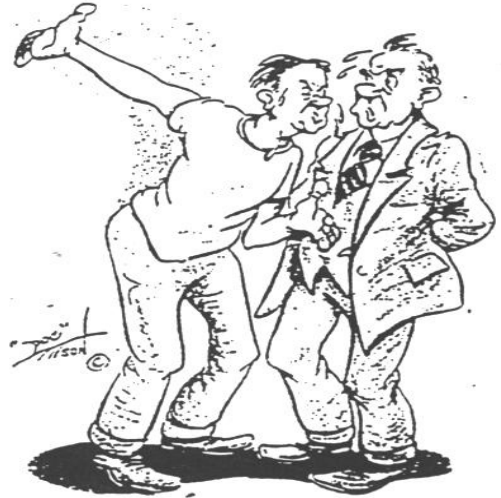
During the ensuing years I gave up wages and benefits while top management continued to increase their percentage of wage and benefit compared to mine. I gave up a part of my COLA so that Cat could retrain all of us poor souls they uprooted and we got little or no training. I watched the working class numbers dwindle while the white collar work force remained the same or increased. I participated in ESP and other "volunteer" functions for the betterment of Cat with no further recompense to myself. I and my fellow workers endured the cutbacks and watched some of our friends leave for good. We made the sacrifices. We waited. We hoped. Still, we had no strikes... the contracts were settled with little conflict and that gave us some small hope.

February, 1991, Cat started the ad campaign humiliating its hourly employees among their communities, family and friends. They mailed letters, sometimes 3 a week, each one worded to make me feel guilty for wanting to share in Cat's success. Vance Security showed up with their riot gear and swaggered about the facilities in their bloused pants and combat bats to "protect" us. Just like they "protected" the workers of Pittston Coal? Right.

Before I ever hit the picket line, the small coal of resentment from years past had blazed into pure hatred for the company I had once been proud to work at. The final indignity was the permanent replacement issue. Caterpillar knowingly used us as pawns in this ridiculous battle to re-

move the union. By what stretch of the imagination could they ever believe I and my fellow workers would not remember these indignities for the rest of our lives. I meant what I said. I have no regard for Caterpillar.

Michael Legel



BELIEVE ME ... I have a grievance!!

Subject: Re: Wait?...Hope?

>You say "Or they are [aware of
>your feelings] and simply don't
>think it important enough to
>cooperate." It is only a
>confusion of thought that could
>cause you, in this country, to
>suggest that the owners
>represented by upper management
>have a duty "to cooperate" with
>you or with me. It is WE who
>have the duty to cooperate with
>THEM if we value our positions.

Interesting concept of the word "cooperate". Your view mandates that management is always correct by virtue of simply stating "Make it so." My view is one where the flow of information and responsibility move in all directions... each one advising in those areas at which they are most competent and decisions made

based upon the collective knowledge of all involved. Your attitude seems to reflect that of the greater Caterpillar mind-set. Your employees are simply employees who have no stake in what decisions are made. Yet you rankle at our deserved displeasure in this arrangement. I don't think it is a "duty" for managers to cooperate, but it would seem to be common sense to me. I certainly don't see what Caterpillar has gained by the current way of going about it.

>I am sorry you feel the way you
>do. I can only say that *I* feel
>that you have been sold a bill
>of goods by the union leadership
>which *claims* to represent you
>while, in reality, only
>representing itself and their
>own continuance.
>You certainly have no
>understanding at all of what
>management has suffered during
>these years; a lack of
>understanding that I *know* has
>been fostered by union
>misrepresentations. Based on
>this, I strongly suggest you
>reexamine your thinking as to
>what factors *caused* these two
>long strikes.

An another common thread of PR sound bites. The Detroit Union this and the Detroit Union that. I was not quoting the union, but my own personal observations over the course of nearly 2 decades. I do have a mind and am fully capable of independent thought process. My identity is no more determined by the union I belong to than the company I work for. I get rather tired of being told who is leading me where. I make my own decisions based upon what I want in life and what price I am willing to pay to attain those wants. I will admit you brought something to my attention I was not aware of: The suffering of management? How many thousand in the exempt payroll have been in-

definitely laid off?

>You also say that the ad and
>mail campaign made you feel
>guilty for wanting to share in
>Cat's success. How sad. You felt
>guilty for wanting to share what
>was not in being. You easily
>forget: we have been losing
>money. Hardly success.
>Potential, yes; success, no.

My statement was worded exactly as follows:

"They mailed letters, sometimes 3 a week, each one worded to make me feel guilty for wanting to share in Cat's success." Do not construe that the cleverly worded psycho babble sent to my home made me feel guilty. I simply recognized the wording was designed to induce guilt, to convince me I should be utterly grateful for any tidbit Cat might deign to throw my way. I notice you and Caterpillar use the word WE in an inclusive sense only when it suits you. If WE aren't making profits, why don't WE sacrifice equally and which side of the WE made the unprofitable decisions?

Michael Legel

Subject: Training

>For example, you gave up part of
>your COLA. Management gave it
>all up. YOU received little or
>no retraining. Perhaps not, or
>perhaps you did not recognize it
>all. I am in possession of
>sufficient data to know a whole
>lot of it went on. Question: Did
>you remain on the same job all
>of those years, running the same
>machine? You inferred you did
>not. If there was change, SOME
>retraining must have gone on for
>you to become proficient at the
>new one. Each time. Each time,
>SOMEONE took valuable time to
>show you the ropes.

I'm sure you have data that shows time was charged against

accounts for training purposes. What is not obvious by that data is the quality and usefulness of the training. By and large, Caterpillar shop training falls into one of 3 categories: Hourly employees training other hourly employees in the jobs they are about to leave. Training sessions purchased along with new equipment from the equipment maker or retailer. Classroom type instruction from Caterpillar staff personnel.

Over the years I have usually been "trained" by the man I was replacing. I was allowed at most two weeks to absorb whatever information the person was willing to share with me. If the man was being promoted, I got a fair "break in". If he had just been laid off, I was on my own. He was not too interested in training the person taking his job from him. At best, this type of training is limited to the skills of the replaced person and if moves are made within months of each other, there are only a few months skills developed to pass on. No continuity. No training. Factory training can be helpful if the purchased machinery has not been altered beyond the instructors experience. Often times Caterpillar has need of specialized machinery for which there is no solid experience to train from. There are even times the instructor is dubious about what it is that we are trying to do with the machine. So, we all learn together if we learn anything at all. Again, a learning process; but no "training". Classroom instruction, by and large, is useless. The majority are taught by highly educated people with lots of book knowledge and little or no actual shop experience. There is no "hands on" training and most of us consider it a waste of time. The other type is the coolant or tooling "salesman" and these "training sessions" usually

amount to hour long commercials rather than actual useful knowledge.

The most important factor to keep in mind about all of this is that it is not the trainer who is responsible for results. It is the trainee. He is expected to quickly adapt and start producing or he risks downgrade. He therefore must train himself by experimentation or find a mentor who will take time from his own duties to help. Unfortunately, management personnel often don't even know how to turn the machine on and are of no help at all. They just want results. Rightfully so, as they are not instructors either and have been charged with producing finished parts. They may sympathize, but they won't put their neck in a noose if you have problems. Caterpillar is in desperate need of an organized, effective training system with competent personnel who can provide the continuity necessary in training new personnel or developing new processes. The present "pass it on down" system is antiquated and ineffectual with the fast pace of current changes. It should not be the responsibility of the lowest rung on the ladder to insure adequate training. Especially when he is contributing monetarily to the training he expected to get... and didn't. It was our belief that Cat intended to improve the system. It has not improved.

Michael Legel

Subject: RE: Training

>NO ONE TRAINED ME! When I did
>get a job, I had to learn
>another new skill set. I
>LEARNED. NO ONE TRAINED ME! Why
>do you people with a high school
>degree and/or a few courses at
>ICC, or an associate's degree,
>think it is your GOD given right
>to be trained at someone else's
>expense? I PAID FOR MY TRAINING

>IN \$ and IN TIME. You are not
>special because you CHOSE not to
>continue YOUR OWN TRAINING. Stop
>winning, take charge of your own
>life.

The context of the training issue was in regard to the worker's agreement to forgo an amount of hourly wage. This money was placed in a training fund for our benefit. We do not expect something for nothing. Every hour we work, an amount of money is put into this fund rather than into our paycheck. I did not deny that a certain amount of training is ongoing, but that it was not as applicable as it could be. I was then informed I was not intelligent enough to realize when I was being trained, so I tried to explain what Caterpillar training entails. I don't have to recognize it because I am told on these occasions so I will charge my time to the proper timekeeping account. Again, the workers are paying a significant amount for training which they are not satisfied with.

>No one has to train you. If you
>are being paid, it is your
>responsibility to earn your
>wages. Just do it. Act grown up
>and take responsibility for your
>own life.

The theme of your message assumes that anyone can walk up and run a complex machining center without training. This is no more true than if I were to state I could do your job without training. If a person chose to attain this experience independently, I don't know where it would be done. Caterpillar is the only place I know where one can learn to machine the large and complex parts of construction

The workers of Caterpillar are not as ignorant as people think they are. This stereotype is an injustice to them. Most are good, hardworking people who have no

wish to be placed in this spotlight.

Michael Legel

Subject: Options

I had an incident recently at work that might highlight my difference with Caterpillar's view of "cooperation".

Another worker and I were told we were to "hand cut clearances" on some noise abatement panels. These panels were about the size of the average card table top and were made of a plastic and foam material. We were taken to an open area in the middle of the shop where the night shift had already been cutting on these panels. There were two fans aimed at the work table. There was a fine layer of dust all around the area. My first question was, "What is this material". My foreman replied he did not know. I asked him if it was appropriate that the dust be allowed to contaminate the air and was it a hazard. To his credit he did agree that we should do the work under an exhaust fan and directed us to move to such an area. He told us to get to work and he would get answers from the Safety Dept. I again told him I would not feel comfortable working with the material until I knew what it was I was working with. He became angry and said, "You know your options!" I asked him what those options were and he stated I could go to work as ordered or go home. Fortunately, others in the area convinced him that it was not right to force us to work with possibly hazardous material without the proper precautions. Without their support I was liable for disciplinary action for "insubordination". A short while later, my foreman brought the building manager with him as well as the safety personnel to inform us of the material's composition and what precautions were required to work with it. He continued to be confrontational and

accused me of not being "cooperative". I reminded him that it was not I that had made any ultimatums or rash statements. It was not I that had lost my temper and allowed it to rule. He immediately tried to apologize for losing his temper and was visibly concerned that I had brought this up in front of his boss. His boss felt that the apology was sufficient. Had I lost my temper and treated him with such disrespect, I could have apologized all the way out the door for what good it would have done me. The double standard is alive and well at Caterpillar. If disciplinary action is warranted for one, it is warranted for another for the same offense. This foreman now knows that he can lose his temper, make ultimatums etc. and fear no reprisal for these negative traits.

Michael Legel

OPEN ACCESS

(Editor's Note: We welcome views from the shop floor on all subjects facing workers and we invite opposing views.)

America And The Dollar

By: Tim Hendrickson

The Symbol of Freedom we display in our Country is sometimes not so easy to understand for the individual who can't find a job. We are tied to the downfall of an anchor sinking slowly, then faster as the weight defeats the buoyancy of the water trying to hold it up. We the people of the United States of America have found ourselves without that buoyancy to defeat the weight of the High Tax Dollar spending of Congress, the increase in weight of higher insurance rates, Doctors who see only a Dollar walk through their office doors, and

not the patient. The past sixty years of Cancer study has produced very little in the cure for it. But you only have to stop and think, ...if they find the cures for the Cancer? What happens then to the millions of dollars for the treatment of cancer patients? We see the Industries increasing the price of the product, without an increase to the workers. The weight is heavier everyday. How much longer can we stay afloat? Water (The people of this Country) the stream is drying up after five hundred years. We the people cannot support the weight of the anchor much longer. The average wage earner pays more in taxes, than most of the rich. This country was not founded on the backs of the rich, but the working people. Once the water has lost its buoyancy, nothing will float. Not even a check!.... The greed for the dollar is when men go beyond the limits of reason. When they fail to realize that dollars are made for the rich by the sweat of the working man's back. Nothing is gained without effort. And who puts forth the effort?

The **Dollar**... it means more than friendship, or a helping hand. More than the correct diagnosis from a doctor, or the truth about the mechanics of your car. More than honest government, city, state, or federal... especially when they use our tax dollars to build factories, and businesses in foreign countries for the super rich.

Just for the **Dollar** we charge 200% and higher for health care, and medicine for the elderly and poor. Just for the **Dollar**, we suck the oil out of the ground, and pollute the water and air. Just for the **Dollar**, we build nuclear plants that cost 10 to 20 times more than hydro-electric dams, that won't produce nuclear waste. Just for the **Dollar**, we flood our country with foreign

goods produced by slave child labor to make the rich richer. Just for the **Dollar**, we drown our society in drugs, that has only one end. Just for the **Dollar**, we sell our talents, and technology to other countries, to ensure that our children and grandchildren will not enjoy the same life style we have. Just for the **Dollar**, we sold our amber waves of grain, and tore down our purple mountains of majesty, just for the ore, and minerals beneath them. Just for the **Dollar**, we covered our fruited plains with highways, concrete, and rusted steel. Just for the **Dollar**, we see our seas of shining oil slicks to oil slicks... Just for a **Dollar**, we'll sell America... Just for a **Dollar**... Just for a **Dollar**....

Problem Corner

(Editor's Note: See vol.4 no. 2-3, "Puzzled")

From: More Puzzled
Subject: Please Send This To Puzzled

Here is the best answer I have seen to the problem that "Puzzled" is having with high density drives and their ability to read DD and HD type of floppy disks. As a matter of fact when I posted this question the first time I was sure that the person who provides this answer was going to do so but as you read further you will see why he chose not to. I have seen answers to other questions posted by him before and I believe him to be one of the best. (Just my opinion)

By the way you were right, the other answers did not quite cover the problem "Puzzled" was having. Hope this is of some help:

To: Frederick O. Jacobson

Subject: Sorry To Trouble You But
I hope you don't mind my asking you for just a little bit of help. If you are busy and unable to answer this, no offense taken.

Here's what happened. I posted the following on the Q & A section of the " IBM-PC SIG:

"I was reading *The Amateur Computerist* and I saw this question and would like to know the answer if you have some time to answer it."

First, here's the question:

"A reader had upgraded their XT computer by installing high density floppy drives in both bays. When he/she puts 360KB or 720KB diskettes into the drives the computer will not read them unless it is rebooted. And if he/she does reboot and gets their computer to successfully read the 360KB or the 720KB diskette, they then have to reboot the computer before it will read a high density disk." (I did a lot of paraphrasing here.)

Now, I ask whether one could set the parameters for their floppy drives to read both high density and double density disks? I'm sure I saw an answer contained in articles 1896-1898, and 1903 that indicated a user could set one of the drives to format HD and DD disks . Presuming this is possible, then that drive should also be able to read both types of disks or have I overlooked something here?

Thanks, More Puzzled

Now what would be the correct syntax that would instruct the user's computer drives (both of them , I think this possible) to read both type of disks?

Any help would be greatly appreciated.

Thanks Again, More Puzzled

From: Frederick O. Jacobson
Subject: RE: Sorry To Trouble You But

I saw that post when it appeared in the IBM SIG and declined to answer it because I

wasn't certain my answer would be correct. What follows is my best opinion, but that doesn't mean it is necessarily correct.

While I do installations like the one mentioned, I have never run into the problem described.

In the case of the troublesome computer, I believe the installation must have been defective.

A HD drive, whether 1.2 or 1.44 meg, should read DD disks without any fuss. A 1.2 Meg drive should format a 360KB disk by using the syntax "Format A: /4" (without the quotation marks of course). I'm not positive of the syntax to format a 720KB disk in a 1.44 Meg drive (never had the occasion to do it), but I presume "Format A: /2" or something like that should do it.

A HD drive is not intended to modify DD disks which already have data on them. If one has a DD disk which already has data on it, he should treat that disk in a "read only" manner. If you write to a DD disk that has existing data on it, a 360KB or 720KB drive will never again be able to read it. Think about it. The width of the track produced by a HD drive is more narrow than that produced by a DD drive. Thus, if you overwrite data already on such a disk, you do not overwrite the entire width of the track. When a DD drive attempts to read it, the drive sees part of the old data and part of the new data. Similarly, because of even very slight difference in alignment between HD drives, a second HD drive probably will also receive part old data and part new data.

The only reasons to read or write to a DD disk with a HD drive are (1) To put a program on a hard disk which was furnished on DD disks, and (2) To take data off a hard drive with a HD drive so it can be read by a DD drive, such as frequently happens when one has a 386 computer at the office and an XT at home.

Now then:

* A HD drive should *never* be used to *modify* data on a DD disk. If you do, chances are pretty good that *no* drive will be able to read the DD disk - perhaps not even the drive that was used to modify it.

* If you must use a HD drive to write to a DD disk, you must *never* use a DD disk that has *ever* been written to before. In other words, you must use a *new* disk, *never* a previously used disk. If you attempt to format a previously used disk, the HD disk is incapable of performing the task. Sections of tracks that were written with a DD disk will not be overwritten by the format, and spurious data will remain on the disk. This spurious data will prevent the disk from being reliable - perhaps even in the HD drive you used to format it.

I have heard of *many* HD drives that will not format 360KB disks correctly. I don't know the reason for that, because I have never been asked to correct a problem like that. When I install a HD disk, I *always* check it to be sure it will read a DD disk. Perhaps my installations succeed because I know how to set the jumpers on the cards and drives. Not all service people know that, by any means.

Probably jumpers were positioned incorrectly on the controller card, floppy drives, or both. Or it may be a quirk in the specific ROMs in the computer. Keep in mind that the XT class machine wasn't designed to use HD drives; those are aftermarket devices.

Please remember that the information in this answer is partially from knowledge and partially from speculation. It may not be 100% accurate.

Fred Jacobson

(Editor's Note: As a rule of thumb - high density drives should not be used to write data

to double density disks to be read by double density drives. Remember, what works in one situation does not work in every situation. So if it does work, good, but remember it is not necessarily guaranteed to work. Generally there are fewer problems with newer equipment.)

**Interview with Staff Member
on the Occasion of the 10th
Anniversary of the Personal
Computer**

Part II

(Editor's Note: This concludes the interview begun in vol 4 no. 2. What started primarily as an interview, which was printed as Part I, developed into more of a free form discussion about the present and future of computers.)

Ronda: Do you think there are any lessons from what is going on?

Michael: Well, the Timex/Sinclair Commodore agreement was proof that the best choice is not always for the best. The best product does not always end up being marketed or sold. That seems true of many things in this capitalist world. Sony's Beta video system was technologically more superior to the current VHS standard. I don't know if there is a lesson to draw or not. A similar problem is occurring with computer magazines. In particular I am thinking of: *Popular Computing*, *Family Computing*, *PC Computing*, *Creative Computing*, and *Compute*. Most of the magazines have changed their priorities from an emphasis on hobbyist or home users to business. *Popular Computing* disappeared shortly after changing its name to *Business Computing*. The same thing happened with *Family Computing* after it changed its name and emphasis to *Home and Office Computing*.

Unfortunately *PC Computing* is following the same path. *PC Computing* started out as an alternative to other magazines such as *PC Magazine* and *PC for the home* or hobbyist crowd in the PC community. It had reviews of games and broader articles, while being a smidgen less technical and completely unconnected to a business point of view. The subtitle is now "The magazine for Business Computing Experts." Readers have recognized the change and written letters to the editor to comment and complain. As for other examples, *Creative Computing* vanished and *Compute* compressed down to one magazine from what was four. However, Commodore 64s still sell, and that is a viable community. I guess PCs are coming home from the office, but that doesn't mean they are only used for business at home. A whole community seems to be left unserved by this trend in computer magazines. True, computer gaming magazines exist, but home computers are used for much more than just playing games. One problem is that PCs are not particularly getting cheaper. Any decrease in price has more or less been incidental to the increase in power. The 386s cost today what the 286 cost yesterday. But there are still no really affordable computers in the \$100 to \$200 range. This is sad, because the computer is not as affordable as it should be. Thus, personal computers are still not a normal part of most households which was the real goal of the personal computer revolution. While most homes have been affected by the arrival of microprocessors in many home appliances, the Personal Computer itself is not yet a home appliance. The general recent trend of computer development is aimed at business, as opposed to the people. Not for the majority, but for the minority. It's like what IBM did for the mainframe and other mainframe manufacturers in

the '50s, '60s and '70s. The mainframe then was only affordable by the biggest of the big companies or the large educational institution. The difference today is that small business can afford computers, but still only businesses. Computers are marketed as for businesses and entrepreneurs, and not for the average person at home, or for the majority of the people. The radical push of the personal computer movement in the mid to late '70s was to make the computer available to everyone, and not just accessible to Fortune 500 companies. True, these days computers are much more affordable than 20 years ago, but the general movement in the personal computer world seems opposed to its roots.

Ronda: How so?

Michael: IBM exemplifies this movement with the release of their PS/2 line. These computers have a proprietary bus. IBM changed the name away from personal computer to personal system 2 which is more like the mainframe names. It made it less friendly in that sense.

Ronda: Are you optimistic? Pessimistic? What do you think will be the future with computers? With you and computers?

Michael: Well by going away to school I'll gain more access to what's called the Internet, the big net that exists, the connection of computers across this country and across the world. You gain more access when you go into an educational community. I'm optimistic because of that. I'll have to manage that as part of my time. Businesses and education are involved in that. It's harder if you live at home to have access to it. *(Editor's Note: Home access is more available now, than it was a year ago when this interview was done.)* Somehow you need something powerful enough to hook into. It's not quite fully open. If you live near an educa-

tional community you can gain access to it. I have and you can. Our connection is MichNet. So that will be broadening. That will be a connection with the rest of the world computerwise, but it's not quite just the computer. So that's encouraging.

Somehow they are working on building things smaller and more minuscule but not quite price-wise. The computers aren't quite like the microwave and the VCR. Home appliances started out expensive but there are now so many different companies making them that they have come down in price so they are affordable. As I said before computer performance increased but it doesn't come down in price. Actually, its going to be a stretch to buy a computer for myself, but I wouldn't have been able to buy one last year. What used to be \$2000 is now \$1000 or coming closer to \$1000.

Ronda: Do you think there has been some kind of revolution with the computers? Do you think there has been a computer revolution?

Michael: Well, there is the personal computer. If it was up to the big companies, there wouldn't have been one. As I said the corporate trend is reactionary.

Ronda: Do you think there's been a computer revolution, Bill?

Bill: What do you mean by a computer revolution?

Ronda: That something fundamental has changed because of the computer.

Bill: Fundamental?

Ronda: Or something substantial that you see at work?

Bill: We're using computers more. We've got IBM 486 computers on the shop floor.

Michael: But what do you use them for?

Bill: For altering and transferring programs to our CNC machining center. We got rid of the Westinghouse computer in the computer room and you can download more files into the 486 computer.

It has all our files already. It won't hold us up when we are running the machine.

Ronda: But the computer isn't being used to run a machine?

Bill: No it's not to run a machine directly. You have other computers for that.

Michael: So the computers are like terminals?

Bill: It's like a database. But you can edit and change the data if you need to.

Ronda: Are most people comfortable with them. Or is it that if people don't have home computers its harder to use them?

Bill: Well they have menus instead of working with DOS. It just takes a F[unction] key and that is it. We finally got a manual for it. The editor is difficult to work with. They're still working on a new editor....

Ronda: Remember they were talking about the workerless factory in the last 7 or 8 years. My sense is that hasn't come to pass.

Bill: Well, there are a lot less people working in my shop. They're standardizing everything so there's less skill involved in putting dies together.

Ronda: But the computer hasn't cut the people out or caused problems?

Bill: No.

Ronda: So do you think there's been some kind of computer revolution in the last 10 or 15 years? That something substantial has happened to change.

Bill: Society?

Michael: Well a lot of things have computer chips in them now. All your household appliances have them from the TV set on.

Bill: Cars have them.

Michael: Cars have them now so society has been changed by the introduction of them. The mainframe computer didn't use processing chips. It took buildings with floors to house those computers. But now, the personal computer is the achievement of

the trend of miniaturization that came in the 1950s.

Bill: More like evolution, right. You got chips in TV's now. You got picture-in-picture, not revolution, not a substantial change.

Michael: Well, there was the miniaturization after WWII but it didn't hit computers then. Computers were still the great big mainframes that used the vacuum tubes. Then came the transistor, the microprocessor, and the integrated circuit. But they weren't really utilized with the mainframes. Or if they were, instead of a whole floor, it was a room. But it wasn't down to a single chip which now exists and which is constantly getting smaller. They think they're reaching the bounds actually. Now people are speculating that the silicon chip has reached its physical speed and size limits and a new material needs to be used, like chemical or biological materials instead of electronic. But I feel if it had not been for the personal computer revolution, there wouldn't be such use of processing chips and use of computing technology involved in so many things in our daily lives.

Ronda: But I feel the substantial question is are they being used to produce more with less labor? I think they are being used more as consumer goods. But it doesn't sound like they've made a change, a fundamental change in the way things are produced. For example, at the beginning of the Industrial Revolution people worked in their homes. Then people were brought into the factories to work together. There was an increasing division of labor, and then machines were introduced and people operated the machines. Then machines were used to operate other machines.

It doesn't seem as if the computer led to a similar kind of change in industrial production. It doesn't seem that computers

are widely used to produce things. It seems the computer has been used for paperwork but not for producing goods.

Bill: It takes longer to get a computer to do something than it does a machine. They are probably working on that stuff too.

Michael: But actually there's something called CAD/CAM or Computer Aided Design and Manufacturing. But then there's something called CIM which I did a study on and it seemed like it was trying to steal the computer and give it to management which was a top down design and not a bottom up design. When I read about it two years ago it seemed a flop. It was trying to steal the computers from the people rather than using the computers to help the manufacturing process. But I don't know what your experience has been with CIM.

Ronda: But there was also a big push to lower wages and have people work a lot of overtime. And I thought that got in the way of using the computer to make things more efficient.

Bill: You also had international competition too. Third world countries have cheaper labor. So we had to compete with them. So that's one reason why the lower wages.

Ronda: But you can never compete with the cheapest country, and in fact the story of production is that the more advanced the technology the less labor that goes into producing something, the cheaper it can be sold for. Somehow the whole stress trying to compete with cheaper countries was a backwards trend. The price of things is very high because hand labor is very expensive. So in this country we had the ability to make production more efficient, that's the story of how cars have gotten cheaper, how microwaves have gotten cheaper, how air conditioners have gotten cheaper because there were more advanced technologies, not

because you found someone abroad to work for cheaper wages. With cheaper wages the price of goods stays high. There is a need for more public discussion over how computers can be used to change industrial production. There was a fight with the corporate world over what would happen with computers and people had to challenge the corporate barrage of wage cuts and longer hours which impede automation. There are examples of countries where advanced technology that was available was never used in production because workers' wages were so low or their hours so long that it was not cost efficient to put in the new machine. So that country remained technologically backward. The story of the development of technology is that the more advanced technology somewhere replaces the lower wage backward technology somewhere else, not that goods made by low wage workers replace goods made with less labor and more efficiently by machines. But workers have to organize to prevent the wage cuts and increased hours that impede the introduction of new technology. Somehow the corporate attack on workers and unions has led to people looking backward, not keeping our eye on how to go forward.

Ronda: Any final words?

Michael: Even though I have decided to go to Columbia University in NYC instead of the University of Michigan, I am optimistic. Columbia is less computer-oriented than the University of Michigan, but Columbia seems better connected to the educational and academic computer networks. But Michigan for me would have been a better computer school. Columbia has more of its computer roots in the past while Michigan has more in the future. There are a couple of centers opening up and there is, at Columbia, the State Center for Computing Research. But it's not as

obvious as Michigan how involved it is with computers. I am sort of pessimistic, because with the age of the computer industry, it seems to have receded. But it's probably just a cycle.

Ronda: No, it's a fight. You have to figure out how to take it up. The personal computer caught people by surprise when it spread so quickly and so substantially. People now have to evaluate what has happened. I feel the lesson is you can't trust the business world of large corporations to develop computers and computer technology. Big corporations can't be coddled by government, the press, etc. and encouraged to freeze the development of technology or to go backwards to hand labor as they have done in many instances. The machine is a machine for society. It was a mistake to have trusted the corporate world to develop it. Instead the corporate world must be regulated and limited in its efforts to impede the development of technology. That's what anti-trust legislation originally accomplished. The personal computer was created while there was a U.S. govt. anti-trust suit on against IBM which kept it from interfering with the development of the personal computer. Once again there is a need for something independent of the corporate world, and there is a need for regulations and limitations on the corporate world so that their narrow self interest is prevented from interfering with social and technological development.

Michael: You need a new Henry Ford for the Computer world.

Ronda: No, you need another "Computers for the People" movement.

Michael: No, again.

Bill: My niece is going to go to Michigan State and she's not going to get a computer. She's going to get a word processor. You have a screen, keyboard, and

a printer all in one unit. That suits her.

Michael: But its not compatible with anything other than another wordprocessor of the same type.

Bill: There are some that have a floppy disk.

Ronda: But it's sad the computers aren't cheap with a cheaper printer too.

Bill: Well it's a letter-quality printer, she's not going to be doing graphics.

Ronda: I thought John Kemeny once predicted that there would be computers used in the schools for wondrous things. But now he is disappointed that that has not happened.

Bill: One of the problems is software. There aren't enough software developers to write programs people need. To get them involved.

Michael: Its not just software developers, its ideas. People are not creating new ideas but merely copying old ideas.

Ronda: But I thought that there was the discouragement, when people were told "People don't need to learn to program." Michael learned to program and it was a good thing he learned to program. Instead of saying it's a good thing to learn a little programming it was said you don't need programming. So it seems that there has been a lot of pressure to keep people away from utilizing computers and discouraging them instead.

Michael: I left out that I know a little MS-DOS batch language, a little C, and a little Forth. I did very little in Assembler.

Bill: Are you going to take computer classes in collage.

Michael: I don't know if I'll have time.

Ronda: To sum up, it seems it is as if this period is like the period in France before the French Revolution. Then there was the basis to have capitalism, but

you had the feudal lords and the King holding society back. You had a Monarchy. There was a need for the French Revolution to get rid of the Monarchy and the Aristocracy and the feudal social forms and laws that they kept in place. They prevented the reforms that were needed to develop large scale production in France. The problem we have today seems similar. Big companies are discouraging investment in new technology like computers because such investment will lower their rate of profit. There is a need to get rid of this fetter so that technology can be encouraged and developed.

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The *Amateur Computerist* will publish a Supplement on Usenet News in Fall, 1992. It will contain articles about telecommunications and the development and importance of Usenet News. The Supplement will be available in both electronic and print format.

The Editors

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