The Amateur Computerist

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"The Nutrition of a Commonwealth consisteth, in the Plenty, and the Distribution of Materials, Condusive to Life."—Thomas Hobbes, **The Leviathan**

From ARPAnet to Usenet News:
On the Nourishment of the Net Commonwealth

by Ronda Hauben

"The method I take...is not yet very usual; for instead of using only comparative and superlative words, and intellectual arguments, I have taken the course (as a Specimen of the Political Arithmetic I have long aimed at) to express myself in terms of Number, Weight, or Measure; to use only arguments of Sense, and to consider only such Causes, as have visible Foundations in Nature; leaving those that depend upon the mutable Minds, Opinions, Appetites, and Passions of particular Men, to the Conservation of others."

— Sir William Petty,
Political Arithmetic

Preface

In the 1600s Sir William Petty, who has been called the father of Scientific Economics, pioneered the development of what he called "Political Arithmetic."

Political Arithmetic was the application of the scientific method elaborated by Sir Francis Bacon and others of the 16th and 17th centuries to the problems of the economy of a nation. Political Arithmetic involved the gathering of data distinguished by Number, Weight, or Measure to determine the factors which contribute to the material well being of the people of a society and those which were the impediments to the production of social wealth. Petty only considered those causes which "have a visible

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The Battle For Computer Programming Classes Continues

[Editors Note: From 1983-1987, there were computer programming classes for hourly workers at a "Schoolhouse in a Factory" at the Ford Motor Company Rouge complex. While the classes still continued, complaints were made to the National Labor Relations Board (NLRB) and to the Michigan Employee Relations Commission (MERC) concerning violations of workers' rights represented by the forced ending of the classes.

In 1988, the MERC overturned the Administrative Law Judge's (ALJ) decision in the case. It remanded the case back to him, requiring that he fulfill his obligation to hold hearings and gather evidence on what was the actual employment structure in the situation and whether the termination of classes was a violation of the rights, at least of the teacher. But in August, 1993, ALJ Kurtz repeated his earlier decision without fulfilling the mandate of the 1988 remand.]

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Foundation in Nature" and discarded those that were dependent on "the mutable minds, opinions, appetites, and passions of particular men."(1)

The creation of a Global Computer Network is one of the surprising developments of our times. Applying the method of Political Arithmetic to this achievement raises the question: What are the factors that nourished the growth and development of this network and what are the impediments to its continued development and expansion?

Introduction

There is an international computer network that spans the globe and connects universities, researchers and computer users around the world.(2) It is "the largest machine that man has ever constructed, the international global network."(3) This significant world development has occurred in the past 25 years. Though it has involved millions of people around the world, others who are not participants in this new global computer community know practically nothing of its existence.

This global network is accomplished by, and makes possible, a high degree of automation. Such automation means that society has the possibility of providing for more of the needs of people with comparatively less labor than ever before.

Probably one of the most important examples of the promise of this new technology is the creation and expansion of a users news network called Usenet News. Usenet reaches over six million people worldwide with over 4,500 different newsgroup subjects and millions of bytes of articles per day. This news uses no paper, no glue, no postage. Yet, this technology makes it possible for the users themselves to determine and provide for the content and range of information that is conveyed via this new news medium.(4) It also makes possible the rapid response and discussion of articles posted and provides a forum where issues can be freely debated and information exchanged. This news provides for the information exchange and learning needed by system administrators, programmers, engineers, scientists, and users in their daily work. In turn, they contribute to the network's development. The continuing growth of Usenet News is a tribute to the pioneers who have developed this new technology of computer automation.

J.C.R. Licklider was one of these early network pioneers. His vision of an Intergalactic Computer Network helped to inspire these developments. He and Albert Vezza, describing an earlier network advance, wrote, "Shakespeare could have been foreseeing the present situation in information networking when he said, `...What's past is prologue; what's to come, in yours and my discharge'."(5) The story of the network's growth and development contains important lessons for its continued expansion. The development of this international network, linking millions of people around the world, now stands at a turning point. Will it continue to go forward or will it be detoured? An understanding of the environment and policies that nourished the development of the network provides a scientific foundation on which to base its further expansion. Such an understanding will also make it possible to continue to contribute to the Net Commonwealth that has evolved through these policies.

Part I
The Development of the ARPAnet

In 1962, the report "On Distributed Communications Networks" by Paul Baran, was published by the Rand Corporation.(6) Baran's research, done under a standing contract from the U.S. Air Force, discussed how the U.S. military could protect its communications systems from serious attack. Baran outlined the principle of "redundancy of connectivity" and explored various models of forming communications systems and evaluating their vulnerability.

The report proposed a communications system where there would be no obvious central command and control point, but all surviving points would be able to reestablish contact in the event of an attack on any one point. Thus damage to a part would not destroy the whole and its effect on the whole would be minimized.

One of his recommendations was for a national public utility to transport computer data, much in the way the telephone system transports voice data. "Is it time now to start thinking about a new and possibly non-existent public utility," Baran asked, "a common user digital data communication plant designed specifically for the transmission of digital data among a large set of subscribers?"(7)

He cautioned against limiting the choice of technology to create such a network to that which was currently in use. He proposed that a packet switching, store and forward technology be developed for a data network. He wrote 11 reports. At least one of these was classified and the rest were not widely circulated among the scientific and academic community. Another networking pioneer, Donald W. Davies, of the United Kingdom, also did important work in this field and has been credited with introducing the term 'packet switching'.

Other researchers were interested in computers and communications, particularly in the computer as a communication device. J.C.R. Licklider was one of the most influential. He was particularly interested in the man-computer communication relationship. "Lick", as he asked people to call him, wondered how the computer could help humans to think and to solve problems. In the article, "Man Computer Symbiosis", he explored how the computer could help humans to do intellectual work. Lick was also interested in the question of how the computer could help humans to communicate better.(8) "In a few years men will be able to communicate more effectively through a machine than face to face," Licklider and Robert Taylor wrote, "When minds interact, new ideas emerge."(9)

Pioneers like Paul Baran and J.C.R. Licklider were proposing the development of computer technology in ways that hadn't been developed before.

While Baran's work was known mainly in military circles, Licklider had access to such military research and writing, but was also involved in the academic computer science research and education community. Larry Roberts, another of the pioneers of network research, was influenced by Lick's vision of an Intergalactic Computer Network to change his life and career. Lick's contribution, Roberts explains, represented the effort to "define the problems and benefits resulting from computer networking."(10)

After informal conversations with Licklider, Fernando Corbato and Alan Perlis, at the Second Congress on Information System Sciences in Hot Springs, Virginia, in November 1964, Larry Roberts "concluded that the most important problem in the computer field before us at the time was computer networking; the ability to access one computer from another easily and economically to permit resource sharing," Roberts recalled, "That was a topic in which Licklider was very interested and his enthusiasm infected me."(11)

During the early 1960s the U.S. military under its Advanced Research Projects Agency (ARPA) established two new funding offices, the Information Processing Technology Office (IPTO) and another for behavioral science. From 1962-64, Licklider took a leave from his work at Bolt, Beranek and Newman, (BBN) to give guidance to these two newly created offices. In reviewing this seminal period, Alan Perlis recalled how Lick's philosophy guided ARPA's funding of computer science research. Perlis explained, "I think that we all should be grateful to ARPA for not focusing on very specific projects such as workstations. There was no order issued that said, `We want a proposal on a worksta-

tion.' Goodness knows, they would have gotten many of them. Instead, I think that ARPA, through Lick, realized that if you get `n' good people together to do research on computing, you're going to illuminate some reasonable fraction of the ways of proceeding because the computer is such a general instrument." In retrospect Perlis explained, "We owe a great deal to ARPA for not circumscribing directions that people took in those days. I like to believe that the purpose of the military is to support ARPA, and the purpose of ARPA is to support research."(12)

Licklider confirmed that he was guided in his philosophy by the rationale that a broad investigation of a problem was necessary in order to solve that problem. He explained, "There's a lot of reason for adopting a broad delimitation rather than a narrow one because if you're trying to find out where ideas come from, you don't want to isolate yourself from the areas that they come from."(13)

Licklider attracted others involved in computer research to his vision that computer networking was the most important challenge.

In 1966-67 MIT's Lincoln Laboratory in Lexington, MA and System Development Corp. (SDC), in Santa Monica, California, got a grant from the U.S. Department of Defense (DOD) to begin research on linking computers across the continent. Larry Roberts, describing this work, explained, "Convinced that it was a worthwhile goal, we set up a test network to see where the problems would be. Since computer time sharing experiments at MIT, (CTSS [Compatible Time Sharing System -ed]) and Dartmouth, (DTSS [Dartmouth Time Sharing System -ed]) had demonstrated that it was possible to link different computer users to a single computer, the cross country experiment built on this advance." (i.e. once timesharing was possible, the linking of remote computers was also possible.)(14)

Roberts reported that there was no trouble linking dissimilar computers. (i.e. the TX-2 computer at Lincoln Laboratory in Massachusetts and the Q-32 computer at SDC in California) The problems, he claimed, were with the telephone lines across the continent, i.e. that the throughput was inadequate to accomplish their goals. Thus their experiment set the basis for justifying research in setting up a nationwide store and forward, packet switching data network.

During this period, ARPA was funding computer research at several U.S. universities and research laboratories. The decision was made to include these research contractors in an experimental network — the ARPAnet. A plan was created for a working network to link 16 research groups together. This plan for the ARPAnet was made available at the October 1967 ACM Symposium on Operating Principles in Gatlinburg, Tennessee.(15)

Shortly thereafter, Larry Roberts was recruited to head the IPTO office at ARPA to guide the research. A Request for Proposal (RFP) set out specifications for the project and asked for bids. Proposals were invited to create an operational network at four sites and to provide a design for a network that could include 17 sites.

The award for the contract went to BBN in Cambridge, MA. in January, 1969. The planned network would make use of minicomputers to serve as switching nodes for the host computers at four sites that were to be connected to the network. The Honeywell DDP-516 minicomputers were chosen for the network of interface message processors (IMPs) that would be linked to each other. Each of the IMPs (i.e. nodes) would be linked to one host computer. These IMPs were configured with 12K 16-bit words of memory though they were among the most powerful minicomputers available at the time.

The opening stanzas of a poem by Vint Cerf, an ARPAnet pioneer, describe these early days of networking(16):

Like distant islands sundered by the sea,

We had no sense of one community.
We lived and worked apart and rarely knew
That others searched with us for knowledge, too.

Distant ARPA spurred us in our quest
And for our part we worked and put to test
New thoughts and theories of computing art;
We deemed it science not, but made a start

Each time a new machine was built and sold,
We'd add it to our list of needs and told
Our source of funds "Alas! Our knowledge loom
Will halt 'til it's in our computer room.

But, could these new resources not be shared?
Let links be built; machines and men be paired!
Let distance be no barrier! They set
That goal: design and build the ARPAnet!

On August 30, 1969, the first IMP arrived at the University of California, Los Angeles (UCLA) which was to be the first site of the new network. It was connected to the SDS Sigma 7 computer at UCLA. Shortly thereafter IMPs were delivered to the other three sites in this initial testbed network. At Stanford Research Institute (SRI), the IMP was connected to an XDS-940 computer. At the University of California, Santa Barbara (UCSB), the IMP was connected to an IBM 360/75. And at the University of Utah (Utah), the fourth site, the IMP was connected to a DEC PDP-10.

By the end of 1969, the first four IMPs had been connected to the host computers at their individual sites and the network connections between the IMPs were operational. The researchers and scientists involved could begin to identify the problems they had to solve to develop a working network where there would be communication from host to host.

There were programming and technical problems to be solved so the different computers would be able to communicate with each other. Also, there was a need for an agreed upon set of signals that would open up communication channels, allow data to pass thru, and then would close the channels. These agreed upon standards were called protocols. The initial proposal for the ARPAnet required that the sites work together to establish the necessary protocols. Beginning in 1968, meetings of a group to discuss establishing these protocols took place. (17) In 1969, the group which called itself the Network Working Group (NWG) began to put together a set of documents that would be available to everyone involved for consideration and discussion. They called these documents Requests For Comment, (RFC) and RFC 1, dated April, 1969, was mailed to the participants.(18)

As the problems of setting up the four computer network were identified and solved, the network was expanded to several more sites.(19) By April 1971, there were 15 nodes and 23 hosts in the network. The earliest sites attached to the network were connected to Honeywell DDP-516 IMPs.(20) These sites were:

1. UCLA
2. SRI
3. UCSB
4. U. of UTAH
5. BBN
6. MIT
7. RAND Corp
8. SDC
9. Harvard
10. Lincoln Lab
11. Stanford
12. U. of Illinois, Urbana
13. Case Western Reserve U.
14. Carnegie Mellon U. (CMU)
15. NASA-AMES

Then a smaller minicomputer, the Honeywell 316, was utilized. It was compatible with the DDP-516 IMP but was available at half the cost. Some nodes were configured as TIPs (i.e., Terminal IMPs) beginning with:

16. NASA-AMES TIP

17. MITRE TIP

By January 1973, there were 35 nodes of which 14 were TIPs including a satellite link which connected California with a TIP in Hawaii.

With the rapid increase of network traffic, problems were discovered with the reliability of the subnet and corrections had to be worked on. In mid 1973, Norway and England were added to the Net by a low speed line, adding to the problems to be solved. By September 1973, there were 40 nodes and 45 hosts on the network. And the traffic had expanded from 1 million packets per day in 1972 to 2.9 million packets per day by September, 1973.

By 1977, there were 111 host computers connected via the ARPAnet. By 1983 there were 4,000.(21)

As the network was put into operation, the researchers learned which of their original assumptions and models were inaccurate. For example, BBN describes how they had initially failed to understand that the IMPs would need to do error checking of the IMP/host interface. They explain: "The first four IMPs were developed and installed on schedule by the end of 1969. No sooner were these IMPs in the field than it became clear that some provision was needed to connect hosts relatively distant from an IMP (i.e., up to 2,000 feet instead of the expected 50 feet). Thus, in early 1970 a `distant' IMP/host interface was developed.

Augmented simply by heftier line drivers, these distant interfaces made clear, for the first time, the fallacy in the assumption that had been made that no error control was needed on the host/IMP interface because there would be no errors on such a local connection."(22)

The expanding operational network made it possible to uncover the actual bugs. In describing the importance of an operational network to the research efforts, as opposed to being limited to a laboratory model, Alex McKenzie and David Walden, in their article "ARPAnet, the Defense Data Network, and Internet"(23) write: "Errors in coding control were another problem. However carefully one designs, codes, and performs quality control, errors can still slip through. Fortunately, with a large number of IMPs in the network, most of these errors are found quickly because they occur so frequently. For instance, a bug in an IMP code that occurs once a day in one IMP, occurs every 15 min in a 100-IMP network. Unfortunately, some bugs still will remain. If a symptom of a bug is detected somewhere in a 100-IMP network once a week (often enough to be a problem), then it will happen only once every 2 years in a single IMP in a development lab for a programmer trying to find the source of the symptom. Thus, achieving a totally bug-free network is very difficult."

In October 1972, the First International Conference on Computer Communications was held in Washington, D.C. A public demonstration of the ARPAnet was given setting up an actual node with 40 terminals. Representatives from projects around the world including Canada, France, Japan, Norway, Sweden, Great Britain and the U.S. discussed the need to begin work on establishing agreed upon protocols. The InterNetwork Working Group (INWG) was created to begin discussions for a common protocol and Vinton Cerf, who was involved with UCLA ARPAnet, was chosen as the first chairman. The vision proposed for the international interconnection of networks was "a mesh of independent, autonomous networks interconnected by gateways, just as independent circuits of ARPAnet are interconnected by IMPs."(24)

The network continued to grow and expand.

In 1975 the ARPAnet was transferred to the control of the Defense Communications Agency (DAC).

Evaluating the success of ARPAnet research, Licklider recalled that he felt ARPA had been run by an enlightened set of military men while he was involved with it. "I don't want to brag about ARPA," he ex-

plains, "It is in my view, however, a very enlightened place. It was fun to work there. I think I never encountered brighter, more creative people, than the inhabitants of the third floor E-ring of the Pentagon. But that, I'll say, was a long time ago, and I simply don't know how bright and likeable they are now. But ARPA didn't constrain me much." (25)

The following description of the exciting research environment of the early ARPAnet, was posted on Usenet News by Eugene Miya, who had been a student at one of the early ARPA sites. He wrote:

"It was an effort to connect different kinds of computers back when a school or company had only one (that's 1) computer. The first configuration of the ARPAnet had only 4 computers, I had luckily selected a school at one of those 4 sites: UCLA/Rand Corp, UCSB (us), SRI, and the U of Utah.

"Who? The U.S. DoD: Defense Department's Advanced Research Projects Agency. ARPA was the sugar daddy of computer science. Some very bright people were given some money, freedom, and had a lot of vision. It not only started computer networks, but also computer graphics, computer flight simulation, head mounted displays, parallel processing, queuing models, VLSI, and a host of other ideas. Far from being evil warmongers, some neat work was done.

"Why? Lots of reasons: intellectual curiosity, the need to have different machines communicate, study fault tolerance of communications systems in the event of nuclear war, share and connect expensive resources, very soft ideas to very hard ideas....

"I first saw the term 'internetwork' in a paper by folk from Xerox PARC (another ARPAnet host). The issue was one of interconnecting Ethernets (which had the 256 [slightly less] host limitation). Schoch's CACM worm program paper is a good one. I learned much of this with the help of the NIC (Network Information Center). This does not mean the Internet is like this today. I think the early ARPAnet was kind of a wondrous neat place, sort of a golden era. You could get into other people's machines with a minimum of hassle (someone else paid the bills). No more...."

He continued; "Where did I fit in? I was a fresh nuclear engineering major, spending odd hours (2 a.m. - 4 a.m., sometimes on Fridays and weekends) doing hackerish things rather than doing student things: studying or dating, etc. I put together an interactive SPSS and learned a lot playing chess on an MIT[-MC] DEC-10 from an IBM-360. Think of the problems: 32-bit versus 36-bit, different character set [remember I started with EBCDIC], FTP then is largely FTP now, has changed very little. We didn't have text editors available to students on the IBM (yes you could use the ARPAnet via punched card decks). Learned a lot. I wish I had hacked more." (26)

One of the surprising developments to the researchers of the ARPAnet was the great popularity of electronic mail. Analyzing the reasons for this unanticipated benefit from their network development, Licklider and Vezza wrote, "By the fall of 1973, the great effectiveness and convenience of such fast, informed messages services... had been discovered by almost everyone who had worked on the development of the ARPAnet – and especially by the then Director of ARPA, S.J. Lukasik, who soon had most of his office directors and program managers communicating with him and with their colleagues and their contractors via the network.

Thereafter, both the number of (intercommunicating) electronic mail systems and the number of users of them on the ARPAnet increased rapidly."(27)

"One of the advantages of the message system over letter mail," they added, "was that, in an ARPAnet message, one could write tersely and type imperfectly, even to an older person in a superior position and even to a person one did not know very well, and the recipient took no offense. The formality and perfec-

tion that most people expect in a typed letter did not become associated with network messages, probably because the network was so much faster, so much more like the telephone.... Among the advantages of the network message services over the telephone were the fact that one could proceed immediately to the point without having to engage in small talk first, that the message services produced a preservable record, and that the sender and receiver did not have to be available at the same time."(28)

Describing e-mail, the authors of the *Completion Report* (1978) wrote: "The largest single surprise of the ARPAnet program has been the incredible popularity and success of network mail. There is little doubt that the techniques of network mail developed in connection with the ARPAnet program are going to sweep the country and drastically change the techniques used for inter-communication in the public and private sectors."(29)

Not only was the network used to see what the actual problems would be, the communication it made possible gave the researchers the ability to collaborate to deal with these problems.

Summarizing the important breakthrough represented by the ARPAnet, the authors of the *Completion Report* conclude: "This ARPA program has created no less than a revolution in computer technology and has been one of the most successful projects ever undertaken by ARPA. The program has initiated extensive changes in the Defense Department's use of computers as well as in the use of computers by the entire public and private sectors, both in the United States and around the world.

"Just as the telephone, the telegraph, and the printing press had far-reaching effects on human intercommunication, the widespread utilization of computer networks which has been catalyzed by the ARPAnet project represents a similarly far-reaching change in the use of computers by mankind.

The full impact of the technical changes set in motion by this project may not be understood for many years."(30)

Notes for Part I

(1)*The Writings of Sir William Petty*, ed Hull, London, 1899, reprint edition Augustus Kelley Publishers, N.Y., p. 244.

(2)"Internet Society News," vol 1, no. 2, Spring, 1992, back inside cover.

(3)Ithiel de Sola Pool, *Technologies Without Boundaries*, Cambridge, 1990, p. 56.

(4)See for example, Michael Hauben, "Social Forces Behind the Development of Usenet News," *The Amateur Computerist*, vol 5, no. 1-2.

(5)"Applications of Information Network", *Proceedings of the IEEE*, vol 66, No. 11, November, 1978, p. 57.

(6)Baran, September, 1962, p. 2. (Correspondence from Willis Ware of Rand Corp. indicated that this report was created under a standing contract with the U.S. Air Force.)

(7)Ibid., p. 40. P. Baran et al, See also "On Distributed Communications," Vols I through XI, RAND Corporation Memos, August, 1964. (See also description by Larry Roberts, "The ARPAnet and Computer Networks" reprinted in *A History of Personal Workstations*, ed by Adele Goldberg, N.Y. 1988, 147.)

(8)"Man Computer Symbiosis", in "In Memoriam: J.C.R. Licklider 1915-1990."

(9)See "The Computer as a Communication device" in "In Memoriam: J.C.R. Licklider 1915-1990", p. 21.

(10)See "The ARPAnet and Computer Networks" reprinted in *A History of Personal Workstations*, ed by Adele Goldberg, N.Y. 1988, p. 143.

(11)Ibid., pp. 143-144. See also "The ARPAnet and Computer Networks,"

(12)*Workstations*, ibid., p. 129.

(13)"Some Reflections on Early History," *Workstations*, p. 118. Licklider also commented on how people who were opposed to Defense research during the 1960s wrote proposals for research to ARPA to spend money on something other than airplane carriers. See p. 130.

(14)See, for example, "Toward a Cooperative Network of Time-Shared Computers," by Thomas Marill and Lawrence G. Roberts, *Proceedings - FJCC*, 1966, p. 426.

(15)Roberts, Workstations, p. 146. Describing ARPA's decision to build a network to connect the computer science and research contractors as the plan for the ARPAnet, Roberts writes: "These projects and their computers provided an ideal environment for an experimental network project; consequently the ARPAnet was planned during 1967 with the aid of these researchers to link these project's computers together. One task was to develop a computer interface protocol acceptable to all 16 research groups. A second task was to design a new communications technology to support 35 computers at 16 sites with 500,000 packets/day traffic. The initial plan for the ARPAnet was published in October 1967 at the ACM Symposium on Operating System Principles in Gatlinburg Tennessee." (pp.

145-146) Also, Roberts describes the network design for the ARPAnet. He writes, "The communications network design was that of the now conventional packet network; interface message processors (IMPs) at each node interconnected by leased telecommunication lines providing a store and forward service on very short messages." (p. 146)

(16)From "Requiem for the ARPAnet" by Vinton G. Cerf, *Users' Dictionary of Computer Networks*, Bedford, MA, 1989.

(17)A description of the beginning of the Network Working Group, "The Origins of RFCs" by Stephen D. Crocker, is contained in RFC 1000 by J. Reynolds and J. Postel.

(18)See *Completion Report*, by F. Heart, A. McKenzie, J. McQuillian, and D. Walden, BBN Report 4799, January 4, 1978, pp. III 46-48.

(19)Ibid.

(20)List of sites based on a posting on Usenet by Joel Levin on Oct. 17, 1990. The *Completion Report* confirms these sites, but names Burroughs as one of the first 15 sites.

(21)See *Completion Report* and "ARPAnet, the Defense Data Network, and Internet" in the *Froehlich/Kent Encyclopedia of Telecommunications*, vol 1.

(22) *Completion Report*, p. III-55.

(23)See *Completion Report* and "ARPAnet, the Defense Data Network, and Internet" in the *Froehlich/Kent Encyclopedia of Telecommunications*, vol 1, p. 361.

(24)Ibid. pp. 361-2.

(25) *Workstations*, p. 126.

(26)From Eugene Miya in alt.folklore.computers, comp.misc, Re: Internet: The origins, Oct 16 1990.

(27)"Applications", p. 44.

(28)Ibid.

(29) *Completion Report*, pp. III 113-116.

(30)Ibid., p. I-2.

Thanks to Harvey Lynn of Rand Corp. and Alex McKenzie of BBN for making important materials available.

(To be continued)

(**Battle** continued from page one)

[Following is the first installment of excerpts from the Brief taking exception to the ALJ's latest decision.]

STATE OF MICHIGAN
EMPLOYMENT RELATIONS COMMISSION
LABOR RELATIONS DIVISION

DEARBORN PUBLIC SCHOOLS; GARDEN CITY PUBLIC SCHOOLS; UAW LOCAL 600; UAW INTERNATIONAL UNION; UAW-FORD NATIONAL DEVELOPMENT AND TRAINING CENTER; FORD MOTOR COMPANY, Respondents IN CASE NO. C 87 D-94 through C 87 D-99 CONSOLIDATED WITH GARDEN CITY PUBLIC SCHOOLS CASE NO. C 86 K-294 AND GCEA, MEA CASE NO. CU 86 K-68

and

RONDA HAUBEN, AN INDIVIDUAL REPRESENTED PRO PER, CHARGING PARTY

EXCEPTION

I am filing this exception to all of the decision recently issued by ALJ Kurtz in the above captioned case.

BRIEF

Introduction:

At the end of the 1980s an item was posted on a computer conferencing system in Ann Arbor, Michigan asking for opinions evaluating the 1980s.

The item titled "A look back at the 1980s" said, "The 1980s are now history. When you reflect on this time period, what stands out? How will it compare to the 1970s, 60s and 50s?"

There were 56 responses. One response however stands out. The response was, "Personal computers. Nothing else matters."

The above was described in an article in *The Amateur Computerist* titled "When Will their Walls Come Tumbling Down: The Battle Over Programming". The article appeared in the Winter 1990 issue (vol 3 no 1). It went on to explain: "*The Amateur Computerist* is the child of the personal computer. It is also the child of the battle over who will be allowed to program the personal computer. This newsletter grew out of the fight for computer programming classes by workers at the Ford Rouge Plant in Michigan." (ibid.)

The newsletter is now in its 5th year of publication and it has published programs by workers at the Ford Rouge Factory since its beginning. It is published by workers who were in the computer programming classes in an effort to continue the battle for programming education.

In the first issue of the newsletter, the Introduction stated:

"This newsletter is to inform people of developments in the effort to advance computer education. Workers at the Ford Rouge Plant in Dearborn, MI. were denied computer programming classes. There was an effort by administrators of the UAW-Ford program at the Dearborn Engine Plant to kill interest in computers and computer programming. We want to keep interest alive because computers are the future...." (from vol 1 no 1, February 11, 1988)

Following are some of the key events that help define the background of this fight over computer programming classes at the Dearborn Engine Plant.

In Spring 1983, computer programming classes were begun at the Dearborn Engine Plant of the Ford Rouge Factory in Dearborn, Michigan. The classes met with eager interest on the part of workers and continued to grow and expand.

Classes ran smoothly and expanded until Fall, 1985. Then, despite the contractual, state, and federal funding requirements to continue and expand the computer program at the Dearborn Engine Plant, the classes were cut back. These cutbacks were opposed by students and the teacher of the classes.

A hard fought battle ensued from 1985 until 1987 to keep the classes going.

On February 4, 1987 a letter was sent to officials of Ford, the UAW and the Dearborn Schools asking why computer programming classes were being cut out at the Dearborn Engine Plant. The letter contained a postscript written by UAW workers which said:

"And we shouldn't be treated as if we are doing something wrong. Why are you trying so hard to discourage us from continuing our programming training?"

Several names of workers at the Ford Rouge Plant who were in the classes followed. Despite continued opposition to these cuts, computer programming classes were ended at the Dearborn Engine Plant. These computer programming classes were part of a program at the "Schoolhouse in the Factory." In order to understand how these classes were cut out despite the fact they were a contract benefit and part of what was supposed to be a public school program providing that kind of education to the public, and whether the attack on these classes was a violation of rights of the teacher and students involved, it is important to look back at how the "Schoolhouse in the Factory" was created and how it was greeted by workers.

DETAILS AND BACKGROUND

The story starts with the massive layoffs in the auto industry in the early 1970s. In response, workers determined that they would fight for shorter hours of work so that more workers could be employed. From 1973-1979 auto workers in the U.S. won shorter working hours in their contracts in the form of individual days off that were called Paid Personal Days.

Coincident with the reduction in hours of work, the auto companies undertook major investment programs to update the technology they used.

"The Schoolhouse in the Factory" was housed in the Dearborn Engine Plant of the Ford Rouge Factory in Dearborn, Michigan. According to E. E. Wise, a management spokesperson, technology at the Dearborn Engine Plant was upgraded.

He described what had happened at a talk in 1984: "...by the end of 1983 the North American auto industry had spent an estimated $80 billion on retooling and renovating its manufacturing and assembly plants (more money, by the way, than it took to put a man on the moon).

The Dearborn Engine Plant has participated fully in this industry-wide revolution. Over a two and one-half year period, 1978-1981, we spent more than $590 million to transform the plant from an antiquated producer of V-8 engines into one of the most modern four-cylinder engine manufacturers in the world. And the improvements continue. Last month we completed the conversion of

our plant from a producer of 1.6 liter to 1.9 liter engines.... In 1980, we installed state-of-the-art automation that was hard-line, or not easily adapted for new applications. Since 1980, we have increased dramatically our deployment of robots and flexible automation units. By 1990, we expect to have 70 such units..." (*Labor Law Review*, Spring, 1985)

Along with this new technology, the 1982 UAW-Ford contract substituted a paid education benefit for auto workers in place of the paid personal days. Funded under what was called the Nickel Fund, workers gave up a raise of 5 cents per hour to contribute to an education fund for an education benefit.

Describing this education fund, E. E. Wise explained: "At the Dearborn Engine Plant our education facility includes the UAW-Ford Employee Development Center, which teaches basic literacy skills and high school equivalency courses and the Learning Center, which provides basic and advanced technical training." (Ibid., p. 575)

To set up this education facility, Ford and the UAW entered into contracts with the Dearborn Public Schools, (the local public school district which provides education in Dearborn, where the Ford Rouge Factory is located) and with the Garden City Public Schools, because Dearborn was not eligible for State... adult education funds. The alliance with Garden City Public Schools made it possible for Dearborn to access these funds.

(To be continued)

COMMON SENSE
THE NET AND NETIZENS:
The Impact the Net has on People's Lives
by Michael Hauben

(Author's Note: Beginning in March, 1993, I started research by posting to Usenet, Freenet, and some mailing lists. In response to my inquiries about the uses people have found about the Net I received many enthusiastic replies. This data demonstrates that the Net substantially improves people's everyday lives. This impact is possible only via the open access to the Net. Any commercialization will make such access more restrictive or controlled. Hopefully this paper and other people's hard work can help strengthen people to defend the public access to the Net.)

[Editor's Note: The serialization begins in this issue with Part I.]

Part I

I. PREFACE

Welcome to the 21st Century. You are a Netizen (Net Citizen), and you exist as a citizen of the world thanks to the global connectivity that the Net gives you. You consider everyone as your compatriot. You physically live in one country but you are in contact with much of the world via the global computer network. Virtually you live next door to every other single netizen in the world. Geographical separation is replaced by existence in the same virtual space.

The situation I describe is only a prediction of the future, but a large part of the necessary infrastructure currently exists. The Net - or the Internet, Usenet, BITNET, VMSnet, FIDOnet, and so on - has rapidly grown to cover all of the developed countries in the world. The only parts of the world yet to be connected via E-mail are parts of Africa, Asia Minor, and South East Asia. (See the Internet Society NEWS Vol 2 No 1 back page for reference.) Everyday more computers attach to the existing networks and every new computer adds to the user base - at least ten million people are interconnected today. Why do all these people "waste" their time sitting in front of a computer typing away? They have very good reason to! Ten million people plus can not be wrong.

We are seeing a revitalization of society. The frameworks are being redesigned from the bottom up. A new more democratic world is becoming

possible. According to one user the Net has "immeasurably increased the quality of my life." The Net seems to open a new lease on life for people. Social connections which never before were possible, or relatively hard to achieve, are now much more accessible, by those on the Net.

A new world of connections between people - either privately from individual to individual or publicly from individuals to the collective mass of many on the net is possible. The old model of distribution of information is from the central Network Broadcasting Company to everyone else. This is the top-down model of decisions of what information is, made by a few, distributed for mass-consumption. Now a person has the ability to broadcast his or her ideas and questions around the world and people respond. The computer networks form a new grassroots connection that allows the excluded sections of society to have a voice. This new media is unprecedented. Previous grassroots media have existed for much smaller sized selections of people. The model of the Net proves the old way does not have to be the way of networking. The Net does not abolish the idea of networking - or making connections with strangers that prove to be advantageous to one or both parties.

This complete connection of the body of citizens of the world does not exist as of today, and it will definitely be a fight to make access to the Net open and available to all. However, in the future we might be seeing the possible expansion of what it means to be a social animal. Practically every single individual on the Net today is available to every other person on the Net. Someone might suggest this universal connection exists with the telephone network today. However the telephone companies charge more for the further you have to call. Use of the Net is currently un-metered. International connection coexists on the same level with local connection. Also the computer networks allow a more advanced connection between the people who are communicating.

While you need to know a person's name to locate their telephone number, or perhaps you may have received the number from them personally. With computer - communication systems, information or thoughts are connected to people's names and electronic-mail addresses. On the Net, one can connect to others who have similar interests or whose thought processes you enjoy.

Connections not before possible, imaginable or feasible, whether global (across the world) or just around the corner (locally) are now happening everyday.

Netizens make it a point to be helpful and friendly - if they feel it to be worthwhile. Many Netizens feel they have an obligation to be helpful and answer queries and followup on discussions to put their opinion into the pot of opinions. Over a period of time the voluntary contributions to the Net have built it into a useful connection to other people around the world. Many people who replied to my "Is the Net a Source of Social/Econ. Wealth?" post responded to my point calling the net a source of accurate information. People corrected me and said it was also a source of opinions. However, the reader can train himself to figure out the accurate information from the breadth of opinions. I hope to give an example of this by grouping a wide sample of the answers I got to my research together in one document. The Net can be a helpful medium to understand the world. Only by seeing all points of view can anyone attempt to figure out his position on a topic.

Information, and thus people, are coming alive. Netizens can interact with other people to help add to or alter that information. Information is no longer a fixed commodity or source on the Nets. It is constantly being added to and improved collectively. The Net is a grand intellectual and social commune in the spirit of the collectivity from the origins of human society. Netizens working together continually expand the store of information worldwide.

One person called the Net an untapped resource because it provides an alternative to the normal channels and ways of doing things. The Net allows for the meeting of minds to form and develop ideas. It brings people's thinking processes out of isolation. Every user of the Net gains the role of being special and useful. The fact that every user has his own opinions and interests adds to the general body of specialized knowledge on the Net. Each Netizen thus becomes a special valuable resource to the Net. Each user contributes to the whole intellectual and social value and possibilities of the Net.

(To be continued)

"Imminent Death of the Net is Predicted!"

An Editorial

On September 15, 1993, the U.S. government issued the *National Information Infrastructure Agenda for Action* (NII Agenda for Action) as a plan to replace the NSF sponsored backbone of the Internet with a private net. Will the U.S. government succeed in its efforts to dismantle the public research and education and science net that has been developed over the past 25 years and replace it with a private commercial net?

In his work, *Political Arithmetic,* Sir William Petty, who has been called the Father of the Science of Economics, explains why a careful examination of the public interest is needed. Without such it is easy to be immobilized because of an inaccurate assessment of the situation. What is the public interest in the current battle over the Net?

The past 25 years have brought important technological and social breakthroughs which have resulted in significant new developments – a computer users network has grown up and expanded which connects computer users around the world and makes possible scientific, technical, and social achievements never before imagined.(See "From ARPAnet to Usenet", this issue, p. 1)

What are these developments? How have they been achieved? What is their significance and potential?

The creation of a working computer, then of timesharing (CTSS and DTSS), then of the personal computer and of UNIX and the ARPAnet, and then the further development of these achievements to create an extensive computer network that is worldwide in scope and connects people not only to each other, but also to larger groupings, has been a remarkable human achievement.

This computer network is not only a means of interaction and communication between computers and between people and computers and between people and people. It is also a new stage of human literacy where forms and substance not previously possible are now available on a broad scale, broadcast worldwide to a massive audience.

The global computer network has made possible and is the product of research in computer automation and software development. It demonstrates that an open, cooperative, experimental environment where participants support and help each other, an environment free from market pressures, commercial time constraints, and `bottom line' considerations, can produced an invaluable public and social resource.

The development of the Net was the result of a relatively small number of computer pioneers from the academic and government and research sectors working cooperatively to produce a significant public resource. The creation and expansion of the global network shows that the conditions under which production occurs, greatly affects whether the production of social wealth will be encouraged or impeded.

The development and growth of the ARPAnet and then the NSF backbone of the Internet have been the result of public funds and an Acceptable Use Policy, (AUP) that have governed those funds. The current AUP governing the NSF backbone to the Internet

is reproduced elsewhere in this issue. (See "U.S. Government Plans and Proposals on NSF backbone to the Internet")

The AUP requires that the research carried out via the net be open and available to others. Thus many benefit from the contributions of others. Also, a high level of automation is used which means that much labor is saved. The problems of automation can be broadcast widely so they can be examined and solved. Posts are donated, e-mail is donated, programs are donated, standards work is donated.

This open communication is necessary to produce the high tech hardware and software that has been developed and nourished through Usenet News and the Internet. Does the U.S. government's plan to give the Net to private companies through the NII Agenda for Action propose a helpful plan to encourage further network development?

Unlike academic institutions functioning under the National Science Foundation's AUP, private companies feel no obligation to support their employees so they can contribute to Usenet or the Global Internet. Such companies may even set up internal Usenet groups, but hourly workers, at companies like Ford Motor Company, continue to be denied access internally and externally.

Analyzing a similar situation that existed in the 1800s, John Kells Ingram, in *A History of Political Economy,* describes how one sector of the economy in Great Britain was held back and dependent upon the forward moving sector to advance it. He writes:

"The organization of agricultural industry could not at that period make any marked progress, for the direction of its operations was still in the hands of the feudal class, which could not in general really learn the habits of industrial life, or place itself in sufficient harmony with the workers on its domains. The industry of the towns had to proceed that of the country, and the latter had developed mainly by the action of the former." (Ingram, 1915, pp. 37-8)

The Report on *The National Information Infrastructure, Agenda for Action* (NII Agenda for Action), published on September 15, 1993 by the U.S. government, is based on the principle of subordinating the advanced automated Net sector of the U.S. economy to the development of the backward industrial sector, thus turning the principle that the backward has to be subordinated to the advanced on its head. The NII Agenda for Action proposes to give away the public NSF backbone and put network development into private hands subject to so called "market forces". The report contains no examination of the great achievements represented by the past 25 years of network development. Nor does it analyze the factors that made this achievement possible. It doesn't consider how those developing the Global Network were free of market forces and under regulatory obligation to be serving a public and scientific purpose. For example, the NII Agenda for Action doesn't acknowledge that the NSF backbone was open to other networks as long as what they did was open in exchange and not proprietary. And the NII Agenda for Action doesn't examine the benefits that came from protection of freedom of speech, while commercial and public relations usage were restricted under the Acceptable Use Policy.

Instead of serving the public good to provide and encourage automation and communications and thus to serve the well being of the people as a goal, the NII Agenda for Action proposes increasing "international competitiveness" as the new goal to be served by network developments. It proposes to put network development into private hands, giving away the public network and airwaves to the highest bidders.

Like the false and self serving economic arguments made by the Mercantilists of the 1700s who argued that the interests of the Merchants were the interests of the Sovereign and of the whole country, the NII

Agenda for Action claims that that which benefits private entrepreneurs will benefit everyone. The record of achievement of the Global Network, however, demonstrates the opposite. It demonstrates that only that which benefits the public, benefits everyone. It has shown that only when there is a public purpose that is mandated, and when commercial usage is restricted, will network development be encouraged. (See "From ARPAnet to Usenet")

The policy of private corporate domination and private profit making under the rubric of support for the so called "free market" is now being presented as the policy for any future network development by the Clinton and Gore administration in the U.S. Mercantilism was based on a similar false theory that the workers at home had to sacrifice for the Nation to benefit. But a Nation that impoverishes its people is not prospering. The Committee to oversee Network Development under the National Information Infrastructure is under the control of the U.S. Department of Commerce. It mandates the creation of a panel of those with private interests to oversee its plans. But such interests can only be hostile to further network development as their own private purposes create a conflict of interest with the network expanding to serve a larger public purpose.

What is needed is a public investigation with on-line access by the networking community so any committee conducting the investigation can appropriately be open to comments, contributions and debate over what problems further network development has to solve. Instead, the NII Agenda for Action is proposing to impose a false history and a false future on network developments. The Report proposes to give away the public network to private entrepreneurs and then to have the government pay dearly to use what has already been paid for by public funds. The U.S. taxpayers will have to pay high rates to private companies for the increased access to e-mail and the means to automate public services that the U.S. government has put on the public agenda. At the same time, the U.S. government is giving away the Net that has been built with taxpayer money.

After several articles by Brock Meeks were published in *Communications Daily* (on February 4, 1992, February 6, 1992, and February 21, 1992), Rep. Rick Boucher (D-Va) held a Congressional hearing on March 12, 1992 of the House Subcommittee on Science, Research and Technology to examine serious irregularities in the administration and oversight of the NSFNet by the National Science Foundation. After the hearing, the Inspector General of the U.S. for the NSF was asked to conduct an investigation into the unresolved questions. While the investigation was ongoing, Boucher's Committee changed the law regulating the obligations of the NSF rather than waiting for the report and recommendations of the Inspector General's Office, thereby undermining the very oversight process the Committee had set in motion. There is no sign of any implementation of the recommendations of the report. The NSF is now funding business uses of the Net, like putting the Security and Exchange Commission's data online. And the science and research obligations of the National Science Foundation have been subordinated to those of the U.S. Department of Commerce.

The *Review of the NSFnet* from the Office of the Inspector General of the NSF which was issued in April 1993, demonstrates the problems which occur when private entities are charged with oversight of a public network. Inevitable conflicts of interest develop. Thus the thrust of the NII Agenda for Action is to encourage conflict of interest and proprietary profit making with regard to the development of the Net, in place of further expansion for the public benefit.

If the U.S. government succeeds in giving the Net away to private proprietary companies, automation and technological development in the U.S. will be retarded.

Netizens, however, have access to computer communications and automation and the ability to discuss and debate issues. (See *The Net and Netizens*) The strength and resources of the net community is not to be underestimated nor taken for granted. There is a real battle ahead.

The problem for the Net is not that it is in public hands, in a not-for-profit environment. Nor is the problem that there aren't commercials online or enough high priced access available for commercial entities. To the contrary, these have been the great strength and encouragement of development of the Net. The problem is that the noncommercial principles need to be recognized and encouraged, not undermined and attacked, as the U.S. Congress and some U.S. government officials are doing. The AUP needs to be strengthened and the active vigilance of those online to help enforce it needs to be expanded. The problem with the Net is that there needs to be more free or very low cost access available to more of the public. Lessons have been learned by the Usenet community for spreading the Net. One needs to be able to get a free feed and therefore be obligated to help to spread the net in return by making the feed available to others. Also commercial uses have to be restricted or forbidden as they make the Net too expensive to transport and are also a violation of the academic obligation to serve one's community. The problem for the Net community and our society is that these lessons are being abandoned in the shadow of U.S. government actions to commercialize and privatize the Net.

The development and the expansion of the Net and of automation require an increasing number of people who know UNIX and who have access to Usenet for support in their work. The cost saving that increased government use of e-mail and other expanded government uses of the net will achieve will more than compensate for the costs of continuing the expansion of the net under a National Science Foundation subsidy for the backbone. There is a need for stricter regulation of network usage to coincide with the NSF AUP obligations that prohibit commercial usage. Ways are needed to enforce the AUP restrictions and penalize those who violate it. Government officials on the com-priv@psi.com list who are in charge of such enforcement encourage commercial usage and counsel commercial vendors how to evade the obligations of the AUP. But participants in other newsgroups have flamed commercial posters and even gotten apologies from a U.S. government official who is vigorously promoting commercialization and privatization of the net. Many netizens have taken up to condemn commercial usage of the net and to try to do something to stop it from spreading. Only by such actions can there be more public or educational access available and can the scientific and research purposes be protected.

The obligation to contribute to the Net if one is on it and to flame and discourage illegitimate and commercial activity on the Net continues. The lessons from the Net's development need to be applied to further plans and proposals to expand it. Also the lessons from the development of the Net need to be applied to the rest of the U.S. economy. Instead, private profiteers are being given the fruits of the millions of dollars of public investment and research and they will then become a force to protect their profits and thus freeze any further development or innovation. The U.S. Department of Commerce should be removed from any role in network development and the NSF required to uphold its mandate to provide for continuing network development in accord with its agency obligations.

Increasing vigilance and action are needed if the Net Commonwealth is to continue to expand and flourish. The NII Agenda for Action has predicted the death of the scientific, research, and education network, proposing to subsume it into a privately owned and operated so called "infrastructure" to serve

business. Many times before the death of the net has been threatened. In the past, netizens have taken such challenges seriously and have taken up to deal with the problems, thus defending and protecting the Net Commonwealth. A *Wall Street Journal* article on Sept. 16, 1993 shows that such a battle is on again today. (See "The Soul of the Internet")

"Imminent death of the Net is predicted. Films at 11:00." :-)

Letters To The Editor

From: Larry Kollar
E-mail: larryk@computone.com

Pretty good newsletter this issue! (vol 5 no 1-2 -ed.) It was particularly interesting since I was just trying to remember when the child labor/factory hours laws were passed (I was thinking 1820s, not late 1840s).

One piece, however, jumped out as being not quite right:

"In the tradition of Amateur Radio and Citizen's Band Radio, Usenet News is the product of the users' ideas and will. Unlike Amateur Radio and CB, however, Usenet is owned and controlled solely by the participants."

I made that connection as well a few years ago, thinking that computer networks might be this generation's amateur radio. But I'm not sure that one can say that Usenet is "owned and controlled solely by the participants," while amateur radio and CB are not. In the sense that government and international bodies determine what portions of the radio spectrum — the medium of communication — are allocated to the two services, that's true. However, the Usenet participants that own the computers, modems, disk drives, and so on do not own the medium of communication (leased lines and telephone networks) either.

In both radio and computer networks, one need only buy the equipment needed to connect. In the case of amateur radio, however, one must also pass a series of exams designed to test the participant's knowledge of theory and regulations. In return for passing these exams, the amateur radio operator (or "ham") may:

- Use higher power levels (up to 1000 watts) if needed for reliable communications.
- Operate in modes unavailable to CB (or many commercial) users. For example, the amateur packet radio network uses TCP/IP and is available worldwide; there are several e-mail gateways between ampr.org (the packet network) and the "normal" Internet. Some segments of the packet radio network use Internet "wormholes" and amateur radio satellites (or OSCARs) to move traffic around the world.
- Use a wider range of frequencies for local or international communications. Some amateurs are experimenting with high-speed data links (as fast as T-1, or 1.5 million bits per second!) on the microwave frequencies, for example.
- Build and operate equipment that is not FCC type-accepted. The same homebrewing spirit extolled in *ACN* remains strong in the amateur radio population.

Amateur packet radio is a godsend for me. I live outside the Atlanta direct-dial area, and accessing BBSs from home means running up long distance phone charges. Using packet radio, I bypass the traditional "land-line" BBSs and connect directly to a packet BBS over the air. (I get on Internet at work.)

As amateurs are expressly forbidden to use their frequencies for commercial traffic, the packet radio network is even more grass-roots than Internet! As the equipment becomes available to more users, the packet visionaries are talking about many of the same things as the Internet visionaries, such as digital voice (and video) links. The two networks will continue to develop in parallel for some time — but if commercial interests kill further Internet development (unlikely IMHO), the amateur packet network will continue forward.

The person you mentioned in *ACN*

who is sending e-mail to the MIR space station is using amateur radio; most of MIR's cosmonauts are hams and occasionally make voice contacts with people on the ground in addition to running the packet mailbox almost constantly. The USA's Space Shuttle often flies a mission, called SAREX for Shuttle Amateur Radio Experiment, that connects Shuttle astronauts to school children (among others) via voice and packet radio links. MIR and Shuttle missions have both used their amateur gear for reliable backup communications when normal mission communications channels went down temporarily. CB, on the other hand, provides the security of millions of users. Any commercial interest trying to take over the CB frequencies would be jammed to death. :-) Amateur radio's highest frequencies are used only lightly (so far) and there is a good bit of commercial pressure to reallocate those bands. It has already happened in one case, but that's another story.

I've rambled on long enough. Keep up the good work!

Larry Kollar
Senior Technical Writer
Computone Inc, Roswell, GA
Amateur Radio KC4WZK

From Charles Babbage Institute

Thank you kindly for your gift in May of *The Amateur Computerist....* It is in our collection and cataloged on both the local University catalog and the Research Libraries Information Network.... I would like to maintain a full set particularly since so few libraries seem to hold the title.

Sincerely,
Bruce H. Bruemmer, Archivist
Charles Babbage Institute
Center For The History Of
Information Processing

News From Europe

France

Minitel is a national telecommunications network available in France to anyone with a telephone. *The Amateur Computerist* newsletter, (ACN) sent some questions concerning Minitel to Yann Nicolas, who has used Minitel. What follows are the questions and his answers.

ACN> Can you describe what Minitel is and how it functions?

Yann> Well, physically, it looks like a brown box the size of a 14" computer monitor, with a little keyboard hooked up to it. You can open and close it putting the keyboard as the front side of the box (just like a laptop). The keyboard is very limited, AZERTY display (French) and a few more keys (shft, Envoi [Enter],...). The display is usually in black & white and uses rather low resolution (although I've heard of the introduction of hi-res Minitel terminals (320 X 200)). The best description I could give would be: a very accessible, much more developed CompuServe kind of network. There are (I think) four different numbers that you can dial, accessing different types of services (36-14, 36-15, 36-16 and 36-17). The most widely used number is 36-15 (commercial). I don't really know what the other ones do. They are more private numbers where you need passwords and stuff. The way it works is very simple: the terminal is hooked up to your phone jack and your phone is hooked up to the terminal. When the terminal is off (or not connected) the phone works like a regular phone, and if you want to get connected, you just dial 3615 on your phone, wait for a signal (about 10 seconds) and push [Envoi]. A sort of login prompt is displayed and you just have to type the address of the service to get connected to it. It is that simple.

ACN> Is there a monthly or other fee for using it? Can you say what it costs?

Yann> No, there is no monthly fee but there is a usage fee that is directly charged to your phone bill.

You don't need to identify yourself at anytime, the service is charged to your phone number. As far as the cost is concerned, the last time I was around it was about 1 FF per minute (i.e. $1 per 5-6 minutes of usage). You can get discounts depending on the time of the day (what we call red/white/blue zone, red being full price, white 30% off and blue 60% off. Weekends are usually blue (or white) and early morning and after 9:00 PM. The rest is red or white.... If you can follow me). A new thing that was also introduced is the discount by usage (like two hours of such a service gives you two more hours of 36-16 access of the same service (costing about $1 for one hour or so).

ACN> Is it like using your computer for home shopping? Are there other commercial services on it? Can you give a few examples?

Yann> Yes, I guess you could say that. You can basically do anything you want and get connected to anywhere that has a Minitel address. The address is usually the name of the store or company (e.g.: SNCF, AIR FRANCE,...). You can order from a catalog, get your plane/train tickets, check your grades/bank account ... The list is almost limitless. The interesting thing is the easy access and the user friendly interface: you can have pictures displayed or you just have to punch the number of what you want to access.... Hey, even my mother can do it. It is telling you that anybody that can push a key can do it (She has basically no clue of what my computers are about). Examples: SNCF - Train company, very useful, check schedule, buy tickets... AIR FRANCE/ TWA/... - plane, same thing ...TF1 - TV Station, to get latest info about anything (also A2, FR3...) LA REDOUTE - Famous mail order catalog (very good quality, very good prices)... ad infinitum. And these are the actual addresses of the services. You also have an electronic phone book (extremely useful) of every person and business in France.

ACN> Is e-mail possible between users?

Yann> E-mail as we know is not (I think) possible, but you can have e-mail through almost every service. You just create a mailbox and you are all set. A problem: anyone that wants to send a message has to connect to this service and therefore must know that you have a mailbox there. But all in all, it works pretty good. The thing you can do though is chat with different people at the same time (forum type). There are what we call rooms with different interests and you can enter this room and chat with everybody in the room. It is pretty neat.

ACN> Is there any ability to discuss issues publicly in a form like Usenet News on Minitel?

Yann> Not that I know of. There are probably some billboards or things like that but nothing like the somehow organized anarchy of the Usenet News. Everything is very organized and is usually moderated (you can be disconnected if your language does not fit the service or the forum). Luckily, there is a place for everybody and freedom of speech is usually preserved. The "sex" services are extremely important in the Minitel business (as are Horoscopes). You can connect to different services with chat mode (PLAYBOY/PENTHOUSE/... and much more).

ACN> Have people used it for non commercial purposes? Can you give some examples?

Yann> I think there is but I don't really have any examples. Maybe the service that is offered every year from June to July and gives the corrections of the big (HUGE) high school exam that everybody has to take at the end of 12th grade (Baccalaureate). The exams are very long, 4-6 hours for every subject: Math, Physics, Chemistry, Biology, French, English, German, Economics, Philosophy (the worst: 6 hours in room with a pen and a pile paper and a subject called "Love" written on the black board and that's it). Anyway, the subjects differ from region to region and some kind souls (professor, correctors) take the exams too, correct

it and post it (so you can see how bad you did)). It is also rather easy to create your own server and get Minitel access (meaning that you are the one creating the service and the address and people connect to your address). A friend of mine created one with an old Atari ST with one meg of RAM and a little modem and it was working fine. It asks for a lot of work though.

ACN> I have seen a description of how French students organized a demonstration against tuition increases using Minitel. Do you know of this situation?

Yann> I do not know about that.

ACN> Do different classes of people have different access? Can wealthy people do more with it because they can afford higher fees?

Yann> Well, I guess in a certain way yes. It is simple: if you can deal with a $500 phone every month, then I guess you can consider yourself as wealthy and therefore can buy more access time. As I told you everything is charged to your phone bill.... An example is my uncle. He was unemployed and bored, therefore used the Minitel extensively and got a huge phone bill (over $1,500) but being unemployed he was only getting the minimum wage (about $1,500 a month) and got into trouble. He is fine now though and learned his lesson. So you have to be very careful with it and not fall in a cycle. Some people got their lives shattered because of that.

ACN> Do workers at work have any access? Do they use it to do work? If so can you give some examples.

Yann> Yes most people do, but I don't know how they use it for work. I know my dad has a terminal in his office and that he is one of the very few that have unlimited free access to anything (then again he doesn't have to pay any phone bill, in his office that is because he is the boss) so that is pretty cool. I don't know what he does with it. (Frankly I don't think he even uses it. To give you an example he even has two secretaries that collect his Internet e-mail, sort and select it so he actually does not know how the Internet works.) I would say that the Minitel is still mainly a leisure network and that although it is useful it also has limitations (the biggest being that it is basically a closed network).

Russia

In the last issue of *The Amateur Computerist* we wrote about net access in Russia. We received an e-mail message that our report was very incomplete. We were informed that the Glasnet that we mentioned was a commercial network so all users of Glasnet pay for use.

What we left out was any mention of RELARN which was created on the basis of EUnet/Relcom. Relcom we were told serves 400 institutions and universities in Russia with side by side TCP/IP and UUCP/IP connections and with TCP/IP access to the Internet via EUnet. RELARN access is paid for by the Russian Ministry of Science and the Russian Academy of Sciences and is for noncommercial, scientific and educational purposes.

Germany

In response to our request for information about networking and conditions in various countries, we received information from Berlin, Germany. The writer sent us two lists containing 230 telephone numbers of BBSs in the Berlin area. He said these were mailbox lists and showed how developed the BBS culture was in Berlin.

We also learned that in the period of the Cold War, the telephone rate for a local call was 23 Dpfg (German pfennig) or about 18 cents (U.S.) regardless of duration. Since Jan. 1, 1993, the people of Berlin like those of the rest of Germany pay one unit (23 Dpfg) for each six minutes of a call within the local Berlin area. The local Berlin area however is 70 km wide and contains three million people. There is a night, weekend and holiday rate which is one unit (23 Dpfg) for each twelve minutes of a local call. Judging from the 230 BBSs, there are quite a number of people in Berlin who use personal computers and mo-

dems for their net access but the cost of equipment and phone calls is a burden for many. In Berlin, as elsewhere, competence in using data transfer techniques is not yet very widespread.

We asked if there is any mention of Usenet News in the media in Germany or was it kept out of the regular news media as it is here. He said it was the same there. No mention is made to let people know of this wonderful development.

Our writer shared with us some of the problems there are dealing with the government in his area but said he was part of a community of mutual support that helped him keep going.

We feel these details from Europe are helpful and welcome receiving similar information from other places as well.

News and Views From The Shop Floor

TOUGH COOKIES

by Floyd Hoke-Miller

"With no apologies"*

I asked a guy to tell me why
The workers were labeled "Red"
By all the rags of Sale price-tags,
And this is what he said:

"You gotta be tough, you gotta be
rough,
You gotta have guts and gall,
To work for wage this day and age
When big shots own it all.

You gotta be rude, you gotta be
shrewd,
You gotta have a gift for gab,
To hold your own against the throne
Of Old King Get By Grab.

You gotta growl, you gotta howl,
You gotta show your teeth,
Because a slave is never brave
When coward underneath.

You gotta fight for what is right
As liberty's never free–
For the iron jail, the coat of mail
Is held for you and me.

You can't be nice to human lice
That feed upon your blood,
And boast with pride about their
side
A liftin' you out a' the mud."

[Note: In a news release to the Detroit newspapers, the then head of Labor Relations for G.M., Harry Coen, made this comment on the workers and the Flint labor situation: "They're tough cookies."]

Do You Want To Lose Your Voice?

The Life and Times of
Kenney Malone (1905-1993)
A Tribute

"But the ranks of the warriors are
waning,
The radical group grows thin
And I'm wondering if the workers
Will rise again like men."
from "In Retrospect"
by Floyd Hoke-Miller

On August 14, 1993, Kenney Malone, one of the working class warriors who built industrial unions and an uncensored local working class press in the United States, died. Kenney was a fighter in the Great Flint Sit Down Strike of 1936-37. He was also an editor of the uncensored local union newspaper the Chevrolet sitdowners created to protect the victory they had won in that strike. These working class Radicals created an uncensored press to voice their demands and to debate their interests. Kenney's life and legacy hold important lessons for those today who are trying to build on the legacy of these working class warriors.

After the sit down strike, Kenney and several other sitdowners like George Carroll, Bert Boone, and Floyd Hoke-Miller realized they needed their own press to maintain the right to have a union. The newspaper would continue the spirit of the sitdowners and would protect the

industrial CIO union they had sacrificed so much to win. Kenney became part of the editorial staff of the newly founded newspaper, *The Searchlight*, the newspaper of UAW Local 659, Flint, Michigan.

Early issues of *The Searchlight* from 1943 explain that it was "the voice of an autonomous local." Later, the subtitle of the newspaper became "The Voice of the Chevrolet Worker". The early editors would not allow union officials a column to perpetuate themselves in their offices. Instead the editors insisted the newspaper should be the voice of the shop floor. One of the most important sections of the newspaper during this period was called "Shop News." Here the anti-union activities of management, union officials or other workers were criticized, often with the writer maintaining anonymity by using a pseudonym or by articles being printed unsigned.

"Do you want to Lose Your Voice", Kenney asked in the January 20, 1944 issue of *The Searchlight.* Explaining the importance to workers of an uncensored press, he wrote about the efforts being made by enemies of *The Searchlight* to weaken this voice. Kenney wrote: "Are we going to close our eyes and ears to these attempts to remove the last semblance of aggressiveness from our union?... The membership has never had access to so broad a knowledge of union affairs until they established *The Searchlight*. Now that many members are reading and becoming inquisitive about union affairs, it has caused a few who would keep you in the dark about your own union to become panicky." (from *The Searchlight*, Jan 20, 1944, p. 9)

Kenney described how by 1942 there was very little interest in union membership meetings. In fact, often, there weren't even enough members to have a quorum. But he writes, since "*The Searchlight* has awakened many of them to what may happen to our union, we have large turn-outs at each membership meeting." And, he continued, "if we protect and preserve our free speech and press by defeating these would-be blinders, we will continue to have large interesting and enlightening membership meetings."

Encouraging the membership to be active to support their press, he warned, "Brothers and Sisters, don't allow your strongest union protection to die for the lack of support. If this paper is controlled as some few wish it to be, then you may as well read the shop talk column in the Sunday Journal as far as learning the score on union issues."

"Presently," his article concluded, "*The Searchlight* is controlled by you, the membership. Keep it that way. Beware of these whispers and ghost stories. Better still, recapture control of every branch of your union by being more inquisitive and alert."

The uncensored working class voice that appeared in *The Searchlight* during its early years made it possible for workers to expose the conditions on the shop floor and to discuss and debate how to improve these conditions. One of the most important articles written by Kenney Malone was titled "Whadda Yuh Mean, `Tough Cookies'?" (January 20, 1944, p. 1) Addressing his article to the head of GM Labor Relations, Harry Coen, Kenney reviewed the working conditions during pre-union days before the Great Depression. Kenney wrote: "We remember you, Coen, when you were here at Chevrolet, in the so-called good old days and you are right in referring to us as a tough bunch of cookies for were we not tough, we couldn't have broken all world's records in making automobiles back in 1929, a million cars in a little over six months. Remember Coen. We were a pretty good bunch of guys in those days. No Seniority. No Union. No Contract. No Committeeman. No Pay. No Nothing, but work, work, work and more work. There wasn't a war on then, but we worked 14 hours a day, 7 days a week. Absenteeism was unheard of. Failure to report for work cost you your job." (from "Whadda Yuh Mean, `Tough Cookies'?," in *The Searchlight*, Jan. 20, 1944, p. 2)

The lesson for workers from this

period was that only the toughest survived. "This is the reason," Kenney told Coen, "I say you're on the beam when referring to us as tough cookies, for about half of that million cars was taken out of our hides, and I mean by this, you drove us almost beyond human endurance."

"The soft or weaker ones," Kenney noted, "fell at their machines and were carried out to be fired later if they got well. So you see, only the toughest of the tough could take it."

During the Depression, conditions only got worse: "About this time, the depression hit. Thousands of your tough cookies were laid off without any means of making a living. There was no W.P.A., no C.C.C. or any other organization to help, it was simply this, no work, no eat, and a lot of us didn't eat. I well remember the boss coming to me and saying, 'Ken, production has been cut two-thirds and we are going to lay off a large number of men and here is the way we are going to do it. The next two weeks, we are going to watch all the men and see who runs the most production and WE ARE GOING TO KEEP THE MEN WHO RUN THE MOST.' Imagine this, production was being cut two-thirds and they were going to keep the men who did the most work and here is what happened. We all speeded up, so instead of 70% being laid off it was 90%. After the lay-off came we worked about 2 days a week but in those 2 days we did about 4 days work, for every day the boss was threatening to fire us if we didn't run more stock. We worked this way for about one year, then things started picking up a little. A few men were hired back. Working conditions were terrible by now and everyone was complaining about the way we were treated."

Workers realized they needed to do something to change their conditions. The A.F.L. craft unions saw this as an opportunity. Kenney explained, "The A.F.L...thought it would be a good time to organize us, but the A.F.L. was no match for G.M."

Malone described how instead of allowing workers to form unions, GM hired spies to keep workers from organizing. He recounted how GM hired "a large number of thugs to force us in line. If you don't understand what I mean," he continued, "get a copy of the LaFollette Investigating Committee report on methods used by manufacturers to keep their employees from organizing. The Pinkerton Detective Agency," he explained, "one of the most vicious union-busting gangs in the world, was hired by G.M. to keep the A.F. of L. from organizing us. This agency," he wrote, placed their stool pigeons all over the plants and it wasn't long before the A.F. of L. gave up, calling it a bad job."

Kenney related how General Motors formed company unions as the next tactic to keep workers from organizing themselves. He reminded Coen how, "Then on the advice of the same agency, you formed the Works Council, figuring if the workers were demanding some kind of union, you would give them one you could control."

"I remember," recalled Kenney, "the first meeting of this yellow dog union. They met with Arnold Lenz who had replaced you as head of Chevrolet. Lenz is from Germany where they are supposed to crawl to the boss. One member of the yellow dog union tried to get the floor and after some confusion, Lenz, who was chairing the meeting, said `Get this straight, you fellows are not up here to ask questions. I'll do the talking,' and he did."

Describing Lenz's actions at this meeting, Kenney Malone wrote: "Here are some of the things he said: `There will be no raises for anyone. You fellows may bring a complaint up but I will be the judge, as to whether the employee has a complaint or not.'"

"Lenz was the Judge and Jury," Kenney explained, and "as one member later testified. The only grievance ever granted by him was one asking that windows be closed on cold days."

Kenney compared Coen's actions with Hitler's, reminding Coen: "You see, Coen; you wouldn't even play fair with our own union, you never played fair in your life. It takes a man to admit when he's wrong, this is something you have never done. You are always right; the world is wrong. I know of one other guy in the world who thinks the same way and he has himself in a hell of a mess, so maybe Coen, you're not so smart after all"

Continuing his description of pre-union working conditions, Malone wrote: "Going back to that yellow-dog union you tried to shove down our throats. You kept us in line with it until the C.I.O. moved in. This was in 1936 and how you bellered bloody murder. You tried to fool the workers again by saying we were all Reds and agents of Moscow, but you were like the little boy who cried Wolf. The wolf was really here as far as you were concerned, but no one would believe you."

Recalling the events that preceded the Great Flint Sit Down Strike, Kenney wrote: "Before the big strike was called, a committee representing the C.I.O. requested a meeting with the Manager of the plant. Lenz was still the Manager, so he refused to grant them a meeting, but about two weeks later he agreed to meet with them for a few minutes, saying, 'Understand, I don't have to do this and the only reason I am doing it is just to let you know we won't have anything to do with a union here at Chevrolet.'"

Kenney was in that meeting, and he described it: "After the meeting got under way, one of the representatives asked what Lenz thought of the men wearing their union buttons in the plant. His answer was, `The first man who wears a union button in Chevrolet will be fired.' Then he was asked to consider a raise for skilled workers. It was pointed out they were making less than the production worker."

Kenney remembered, "Here Lenz made the most infamous remark ever uttered by a Labor-hating plant Manager and it went something like this, `We don't have skilled workers here at Chevrolet. We hire our men from the neck down. We don't give a damn what's above the shoulders,' then turning to Bob Travis, a member of the Committee, he said, `Do you know what they do to guys like you in Germany?' When Bob said he didn't, Lenz replied, `They machine gun them.' This was the last straw. A few days later we shut the plants down."

Kenney described how he and other strikers went to seize Plant 9 in Flint, in a diversionary tactic to lure the corporate spies out of Plant 4, the sole source of Chevrolet engines and the plant that the strikers had to occupy to win the strike.

"As I remember you, Coen," Ken explained: "I saw you in Plant 9 directing a group of your dirty thugs who were trying to beat our brains out. You were plenty scared, white as a ghost, and you must have been yellow for you stayed way back from the fight so no one could get to you."

According to Genora Dollinger, of the Women's Emergency Brigade, the group of women who kept the police from breaking into Plant 4 while the sitdowners secured the plant, Kenney was the only worker to cross from Plant 9 into Plant 4. Along with his brother who also worked in Plant 4, Kenney was an active participant in the Plant 4 sitdown. Describing GM's actions after the strike was won, Kenney wrote, "You again betrayed us. You had your supervision go to all the men who you thought were loyal to the company and organize them into a strong-arm squad, letting them roam the plants armed with clubs and black-jacks threatening to beat our heads off if we started any more trouble. You had a whistle installed to warn them if we started anything, and by the way, Coen, that whistle is being used now for a siren in case we have an air raid. As the old saying goes, it's an ill wind that blows no good."

Kenney's article to Harry Coen was written in response to a public attack in the press on the sitdown-

ers. Coen, Malone explained, said something like "That bunch up at Flint-Chevrolet are a tough bunch of cookies.... It was the breeding grounds of the sit-down strike.... They have a strike complex'." Kenney reported that Coen "referred to *The Searchlight* as dirty, low-down and scurrilous, saying, `Why they even attacked their president, calling him `The *Fuehrer*'.'"

Explaining how this comment showed that GM management was incapable of understanding democracy, Kenney wrote, "One thing that is noticeable in Coen's statement is that he wonders how we dare to disagree with our President, but of course Coen knows nothing of Democracy as most of his life has been spent carrying out the orders of his superiors, never once in his life protesting or giving thought to the fact that they might be wrong, naturally he would think everyone else is the same way, for anyone who ever worked for Chevrolet knows what happens to the guy who questions the authority of his superiors."

Describing GM's top down administration and the role it played in requiring blind obedience from everyone, Malone wrote, "Chevrolet more than any other unit of G.M. has always been run from the top and an order, regardless of how unjust or wrong it may be, must be carried out."

Because the conditions in the shops in 1944 were returning to the conditions that had led to the Sit Down Strike, workers at Chevrolet voted to strike, in spite of the No Strike Pledge given by their International Union. Kenney explained the reasons for the strike vote, "Now let's discuss Coen's statement of our being strike-minded. I'll answer this by saying we are, and we voted eight to one a few weeks ago to do this very thing. But we knew at the time the vote was taken we wouldn't be allowed to strike, but thought maybe you would-be big shots who are head of G.M. would be smart enough to recognize something was wrong with Management here and would do something about the conditions of your employees... but you did nothing then as now, but continued to abuse the workers, pushing them down until conditions became unbearable, and the workers took matters in their own hands, and that's exactly what will happen here at Chevrolet, not now perhaps, but after the war we intend to shut this plant down, and keep it down until we receive the treatment and working conditions other employees are given."

By 1950, workers were under a new attack. And an article written by Kenney opposing the provisions of the Taft-Hartley union shop, explained the problem. The Sitdowners had fought for the closed shop which allowed the union to represent workers, but provided that dues paying membership in the union was voluntary. A provision in the Taft Hartley law substituted the union shop for the closed shop. The union shop made it mandatory for workers to be in the union and to pay union dues. Kenney Malone predicted this provision would return workers to the days where the company organized and ran the union. In an article titled, "`21 or Bust': Twenty-one Questions For All Who Work for the Money They Receive" (*The Searchlight*, January 26, 1950), Kenney wrote, "Since none of you own the shops nor boss them either, these questions and answers are directed to you, my fellow Chevrolet workers."

He listed 21 reasons why workers should oppose the union shop, answering the 21 reasons that the International Union had given for workers to support the union shop. He wrote:

"1. Is the Union Shop something new in the Chevrolet? Certainly not, the management gave you one in the '30s. Brought your membership cards to you in person and let you vote for representation on their own line....

2. Will the Taft-Harley Union make our union stronger? In numbers, yes, economically no, because all the power will drift to the top. Management and the Union boys will get married, so to speak, and quit their

clandestine courtship...."

He observed that the sitdowners opposed the union shop:

"4. Are the old-timers that organized this union, when even talking organized labor was treason to the boss, in favor of the Taft-Hartley Union Shop?

I haven't talked to a single one yet that was. Make a personal check...."

Union officials, however, he wrote, welcomed the law and he described their motivation:

"6. Why do the top Union Officials want a Union Shop under this plan?

Because it is the easiest way out and it will become an automatic union where the boss will not only collect the dues but do the organizing, too, and you'll never know you have a union only when you see the deductions on the pay stubs."

In several other questions and answers, he exposed how the union shop provision of the Taft Hartley was contrary to all the experience workers had had of how to have independent unions. He wrote:

"11. How does labor history show that unions and closed shops were gained?

Not by the politician's paternalism, nor by the bosses' bountiful goodness, but by hard-fought years of class struggle. Not by collaboration and collusion.

"12. Why do people join unions?

There are three reasons: To get a job or hold one, to work without animosity with your fellow human beings, or because one realizes the boss is not your friend and it is necessary to join in mutual effort with each other in order to fight him. The last is the bonafide union worker."

Asking that workers look at both sides of the issue before deciding to vote for or against the union shop provision, Kenney wrote: "So, fellow union workers, in voicing my personal experiences, observations, and beliefs in opposition on this crucial question, I am only asking you to bear in mind that there is always two sides to any issue and both should be heard without malice or mayhem, without fear or favor. Let the truth be found in the balances of reason! That's democracy." (from *The Searchlight*, '21 Or Bust', Jan. 26, 1950, p. 1)

The union shop provision of Taft Hartley was passed, and just as Kenney had predicted, it meant that the strength of workers to organize into voluntary unions had been dealt a serious blow. Shortly after the union shop replaced the closed shop, the International Union announced that it was censoring *The Searchlight* for articles including "21 or Bust" which opposed the International Union's positions and actions.

The pages of *The Searchlight* during this period document the battle waged by the pioneers of the Chevrolet UAW local to defend their uncensored local union newspaper. They filed a grievance to be heard at the 1951 UAW International Convention in Cleveland, Ohio, opposing the censorship. The International Union railroaded the grievance and the discussion of it at the Convention, leaving it until the last few hours of the Convention and not allowing the spokespeople from UAW Local 659 to present their case. The convention rubber stamped the censorship of *The Searchlight*. The pioneers of an uncensored working class press had lost the battle. Articles expressing the militant flavor of the sit down Rebels would now appear only occasionally in *The Searchlight*, marked by periods when their articles wouldn't be printed. In 1954 and then again in 1956, the International Union brought charges against members of UAW Local 659, in part for militant articles which had appeared in the newspaper. Kenney was one of the Radical union pioneers put on trial for articles and poems printed in *The Searchlight.*

Kenney continued to write for *The Searchlight*. In the 1950s during the McCarthy period, he and several other sitdown pioneers signed their articles "/s Committee to Exterminate the Parasitic Boss Class".

The local union newspaper that had given Local 659 workers the

power and strength to lead the battles for vacations, medical benefits, pensions, COLA, and many other gains, had been muzzled by the International Union. Yet, in the 1980s Kenney began a column, "Kenney's Caustic Comments", in which he encouraged the writing of the History of the Sitdown and of *The Searchlight* even though it was very difficult to get this work printed, even in *The Searchlight*. "True labor history," he wrote, "is something far too important not to be told, especially about the many battles fought for a more equal share of the material things we produce." (*The Searchlight*, 8/1/88)

When George Carroll, the militant editor of *The Searchlight* died in 1954, the eulogy Kenney wrote explained that Carroll's death was a great loss to the union movement because Carroll had lived by the militant principles of a Union Man. Describing these principles, Kenney wrote, "He was MR. UNION MAN. There was none better.... He was liked and respected by all union men; hated and feared by all fakers and scissor-bills. His principles were, never give a rat a break." (*The Searchlight*, Oct. 1, 1954)

The principles that Kenney praised in George Carroll were the principles that the militant band of working class Radicals Kenney was part of, had practiced. Born in 1905, the same year as the birth of the Industrial Workers of the World, (I.W.W.) Kenny was proud that he had been a member of the I.W.W. The preamble to the I.W.W. explains its goals:

"The working class and the employing class have nothing in common. There can be no peace so long as hunger and want are found among millions of the working people and the few, who make up the employing class, have all the good things of life. Between these two classes a struggle must go on until the workers of the world organize as a class, take possession of the earth and the machinery of production, and abolish the wage system.... Instead of the conservative motto, 'A fair day's wage for a fair day's work,' we must inscribe on our banner the revolutionary watchword, 'Abolition of the wage system....' By organizing industrially we are forming the structure of the new society within the shell of the old." [from "The I.W.W. What It Is and What It Is Not"]

Genora Dollinger, describing Kenney's connection to the I.W.W., said, "He represented the best of the tradition of the I.W.W."

During the 1940s through the 1950s Kenny would have a big May Day party out at his house, where he would invite the working class militants from the shops to celebrate May Day, the workers' Labor Day. Sometimes, he reported, over 100 workers and their families attended.

Even after he retired from work, Kenney continued to submit articles to *The Searchlight* and to encourage others to fight their battles both on the shop floor and within the union. When he learned about the development of the computer news Network known as "Usenet News" which makes it possible to post uncensored news from one's computer onto a worldwide network that is accessible by computer users around the world, Kenney was very interested in the achievement this represented. When this global news network made it possible to post a description of the undemocratic conditions within the UAW and of the battle for a hearing over a grievance appeal, Kenney encouraged the posting of news from the shop floor and of workers struggles with management and their union officials on this news network.

When the UAW Public Review Board in a rare action, and after a 5 year battle, granted a UAW member's appeal, after the Brief for the appeal had been posted on Usenet News, Kenney was delighted. He warned, however, that there would be a real effort to take access to Usenet News away from the common people, just as access by workers to the uncensored press of *The Searchlight* had been stopped.

The battle waged by the Flint

Workers for their uncensored press is a helpful reminder of how dear access is to an uncensored media like Usenet News and how important it is to guard that access.

Kenney waged battles for an uncensored working class press over a period of more than 50 years so the voice of workers could be heard. His life provides lessons for our generation.

The loss of Kenney is a great loss for the working class in the U.S. It is important to learn the lessons from his life and work to build on the legacy he and his fellow and sister workers fought so hard to bequeath to future generations.

"Do You Want to Lose Your Voice?", warned Kenney Malone and he urged that one be more inquisitive and alert to fight against those who want to rob us of our voice.

In Memoriam

Sadly, Irene Wilson, wife of labor cartoonist 'Doc' Wilson, died on September 18, 1993 at age 86. Among her many helpful and important social contributions, Irene and her sister sewed the shirts which were part of the fight to protest Walter Reuther and the UAW International Executive Board's censorship of *The Searchlight* at the 1951 UAW Convention in Cleveland, Ohio.

It was a treat to know Irene and she is already sorely missed.

Report from Summer 1993 USENIX

[Editor's Note: The Summer 1993 USENIX was held in Cincinnati, Ohio. *The Amateur Computerist* was able to have a reporter there to survey the UNIX world represented at this Conference. Following is her report.]

It was exciting to be at a USENIX Conference. I knew of USENIX from the research and writing that I have done about the origin and development of Usenet. Usenet pioneers originally presented the NetNews software that they had developed for a "Poor Man's ARPAnet" at the Winter '80 USENIX meeting. It was from their presentations and work at USENIX over the years that Usenet got its beginnings and the help it needed to develop. Also, the pioneers of Usenet originally hoped that Usenet would be an electronic newsletter for USENIX participants.

Knowing of the role played in the development of NetNews, I was most interested in attending a USENIX Conference. The fact that one was held in the Midwest, in Cincinnati, where transportation from Detroit, Michigan was not as expensive as to the East or West Coast, made it possible to attend.

Some observations then about what I found at USENIX:

First, it was fun and a treat to participate in a conference where some of the pioneers of both Usenet and UNIX were still trying to carry on. For example, I attended two

workshops conducted by Rob Kolstad. The first was on UNIX Power tools. The second on Security in an Internet Environment. Kolstad is a pioneer of UNIX, Usenet and USENIX. His workshops were a helpful overview. The UNIX Power tools workshop introduced perl, and several UNIX tools, like lex and yacc, in a way that helped to show that it would be worthwhile and not too difficult to use these tools.

The workshop on UNIX security, which he did with Tina Darmohray, of Livermore Labs, showed the participants how to build a firewall to protect their computer systems from outside intrusion. Towards the end of the workshop in a section about "ethics", Kolstad proposed a situation where someone on a workplace system had root privileges and used them to harass another worker. Kolstad then allowed the audience to provide a wide range of discussion on how they would propose to deal with the situation. The discussion was reminiscent of a Usenet News discussion and was a spirited and interesting conclusion to a class on security.

In the process of the workshops, Kolstad shared some of his opinions on various issue. When he claimed that school kids shouldn't be on the Internet because they would only ask a lot of questions, he was challenged. He said he would be willing to hear what uses school kids could make of the networks. As he had to leave the conference earlier than expected, the proposed discussion never happened.

The workshop part of the conference was a treat. However, it would have been valuable to have had some sessions in more fundamental UNIX topics, such as perhaps going thru the basic UNIX principles presented in *The UNIX Programming Environment* by Kernighan and Pike (N.J., 1984). The fundamentals of the UNIX approach make UNIX the operating system of the 1990s, and they need to be spread more broadly and widely.

The USENIX Conference itself started on Wednesday (June 9, 1993). The introductory speaker set off a sour keynote for the rest of the conference. Bruce Tognazzini of Sunsoft danced around the stage in presenting his talk about how technology will advance but the ability of people to keep up with it will not. His solution was to create a mirage like Disney Land for people with a computer interface that hides the technology.

Sadly, this was the kind of talk I would have expected at a Macintosh conference, not at a UNIX conference. It was doubly disappointing as there was no mechanism provided for debate or discussion by the audience with the premises or conclusions of the speaker. The question of how to make computer technology available to a broader set of users is an important question, but the speaker failed to examine the question in a scientific way.

There were two streams of talks thereafter. One track was technical papers that had been selected by a review process from submitted papers and the second track was of invited talks. The papers presented during the technical presentations varied. There were interesting presentations mixed with others that seemed less useful. It was good to hear, for example, the "Call Path Profiling" presentation, as it demonstrated how researchers were trying to determine how much time different file name lookups took so as to increase program performance. But another talk at that session, based on a simulation rather than actual working research, was less helpful.

After lunch, the Invited Talk was a debate over different editors. Jim Blandy presented "emacs", Tom Christiansen presented "vi", and Rob Pike presented "Sam".

The discussion was lively and informative as I learned that with "vi" one has access to UNIX as a programming language. The open mike in the center of the audience encouraged people from the audience to present their preferences and the reasons for their choices.

Disappointing, particularly to a new attendee of a USENIX Conference, was that there seemed to be little

in the presentations of the fundamental ideas that make UNIX such a power. One of the organizers of an interesting session said that USENIX has sessions on the history at some conferences, but they can't at all conferences. I mentioned that 1994 will be the 25th anniversary of the invention of the UNIX kernel by Ken Thompson at Bell Labs (1969) building on the Multics experience. The organizer asked me what was Multics. Thus he seemed to be saying that one didn't need the history presented, yet he seemed unfamiliar with the history. However he did suggest that I get in touch with conference organizers for 1994 and propose that there be some event in honor of the 25th anniversary.

On Thursday afternoon, there was a Works In Progress, (WIP) session arranged by Peg Schafer. It was well attended and encouraged people to make presentations of their research work. The problem was that it limited the time to a too short ten minutes and also allowed commercial vendors to slip their sales presentations in as "research."

I presented a WIP on "UNIX and Computer Science" which will appear in a future issue of *The Amateur Computerist*. But the time allotted was too short to do the presentation justice. However, many people asked for copies afterwards.

Peter Honeyman presented some research of one of his students at the University of Michigan and also described his own research on mobile computing. But he was also short on time. There were other lively presentations, including one that described the expansion of an FTP server. It would have been helpful, however, to have had the WIP presentations be a more substantial part of the program so that more time could be allotted to each.

After the reception on Thursday evening, I attended the Usenet Birds of a Feather (BOF) session. Henry Spencer chaired and presented an Internet Draft toward a revision of RFC 1036 which governs the "format and procedures for interchange of network news articles." The draft is intended to obsolete RFC 1036 so that procedures for network news article interchange will more accurately reflect recent experience and will help set a basis for future developments. Henry presented various aspects of the draft and those present at the BOF discussed the proposed changes. The Internet Draft is available via ftp so it can be commented on before it becomes the basis of a more permanent RFC.

Before the end of the BOF, I pointed out that 1994 would be the 15th anniversary of Usenet News and I asked if there would be some way that there could be an appropriate commemoration.

On Friday afternoon, Mike O'Dell chaired a panel on anonymous servers. There was a microphone set up for people in the audience to be able to speak and the variety of viewpoints presented from the audience made the discussion much broader than it would have been if the discussion was just limited to those on the panel.

During this session, one of those speaking from the audience, Greg Rose, pointed out that the Internet is changing the world so why are we trying to present the world as it is in its old ways.

1994 is the 25th anniversary of UNIX and of the ARPAnet, father of the Internet. It is also the 15th anniversary of Usenet News. It would be good to see USENIX and other pioneer organizations hold commemorative events to honor these important developments that are the precursors of a better world. RH

[Editor's note: As we go to press with this issue we are glad to note that the announcement for the June 1994 USENIX meeting in Boston, MA, contains the invitation "Come Join Us In Celebrating the 25th Anniversary of UNIX".]

U.S. Government Plans and Proposals on NSF backbone to the Internet

[In April 1993, the Inspector General overseeing the NSFNet (the U.S. backbone to the Internet), issued a report describing many of the ways there have been changes in the structure and oversight of the NSFNet since 1990 by MERIT, (Michigan Education Research Instruction Triad, Inc., a non profit corporation owned and managed by nine of Michigan's four-year publicly supported universities), the contractor charged with administering the NSF backbone. In September 1993 the U.S. Department of Commerce issued the National Information Infrastructure - Agenda for Action, a plan for changing the fundamental basis of the NSFnet. That was followed by an Executive Order from U.S. President Clinton to set up a private sector committee to guide the process of transition from a government sponsored and funded backbone to a purely commercial venture. These documents demonstrate that the U.S. government is trying to change the course of development of the U.S. portion of the Internet.

It is important that those who care about the Net and its continued expansion and development examine these proposed changes and find a way to have a voice in influencing U.S. government policy. The following article begins a survey of the important documents describing these planned changes so as to encourage discussion and study of the changes being set in motion and carried out by the U.S. government.]

The document "Commercialization of the Internet: Summary Report" purports to describe a workshop held March 1-3, 1990 at Harvard University in Cambridge, MA by the "Science, Technology, and Public Policy Program" of the John F. Kennedy School of Government. Attendance at the Workshop was by invitation only. Listed participants included representatives from the U.S. Congress Office of Technology Assessment, the RAND Corporation, Brookings Institute, DARPA, MERIT, AT&T, MCI, AMERITECH, EDUCOM, Sprint International, Research Libraries Group, U.S. Department of Commerce's National Telecommunications and Information Administration, State of Ohio, IBM, Litel Telecommunications, Corporation for National Research Initiatives, Performance Systems International, UUNET, Digital Equipment Corporation, and the National Science Foundation.

The workshop took as its mandate to change the role of the U.S. government in network development. The Summary Report quotes the Program Plan of the NREN proposing that "the networks of Stages 2 and 3 will be implemented and operated so that they can become commercialized...." (from Federal Research Internet Coordinating Committee, "Program Plan for the National Research and Education Network," May 23, 1989, p. 4-5) It proposes that "a specific, structured process" be set in place "resulting in transition of the network from a government operation to a commercial service." (From Office of Science and Technology Policy, "The Federal High Performance Computing Program," September 8, 1989, p. 32 & 35.)

The Summary Report says that Stephen Wolff of the NSF outlined the acceptable use policy that had been governing the NSFnet: "Under the draft acceptable use policy in effect from 1988 to mid 1990, use of the NSFnet backbone had to support the purpose of `scientific research and other scholarly activities.' The interim policy promulgated in June 1990 is the same, except that the purpose of the NSFnet is now `to support research and education in and among academic institutions in the U.S. by access to unique resources and the opportunity for collaborative work'."

He outlines the distinction between commercialization and privatization of the NSFnet. The distinction we are told is that "commercialization" is "permitting commercial users and providers to access and use Internet facilities and services," while "privatization" is

"the elimination of the federal role in providing or subsidizing network services."

The Report claimed that despite the restrictions on commercial usage of the NSFnet, commercial usage was increasing 15-20% a month. The problem Wolff explained was that such commercial use of the NSF backbone might be offering unfair competition from the U.S. government to "private providers of network services (notably the public X.25 packet-switched networks, such as Sprintnet and Tymnet)."

Wolff gave no legal basis for his concern to avoid such so called 'government competition with commercial providers.' However such an argument would effectively eliminate all government services since each might be then attacked as competing with their commercial counterparts, e.g., no social security as that might compete with commercial insurance, no public schools as they compete with private schools, no post office as that competes with commercial mail or package delivery, etc. Such an argument eliminates the historic obligation of the U.S. government to provide for the health and welfare of the people.

There is no other reason offered in this Summary Report for abolishing the government role in the sponsoring and supporting of the NSFnet backbone to the Internet. To the contrary, the Summary claims that the participants recognized that it is cheaper and more efficient for the U.S. government to fund the backbone than to have to figure out other means of funding government supported users as "it is easier for NSF to simply provide one free backbone to all comers — rather than deal with 25 mid-level networks, 500 universities, or perhaps tens or hundreds of thousands of individual researchers."

Also, the Summary Report acknowledges that privately owned and funded TCP/IC companies will not be concerned with network development but with their bottom line profits. The Report explains: "The market-driven suppliers of TCP/IP-based Internet connectivity are naturally going after those markets that can be wired at a low cost per institution, i.e., large metropolitan areas, especially those with a high concentration of R&D facilities, such as Boston, San Francisco, and Washington, D.C. And that in the voice environment, this kind of targeted marketing by unregulated companies is widely recognized as cream-skimming." In the development of a network, all areas need to be connected, or the whole net is harmed.

The Summary Report also acknowledged that since there was un-metered access to the NSFnet, academic institutions would make access available across disciplines, but once the network was metered, who could have access would be restricted.

The Summary Report explained that in an academic network, all benefit from each other's contributions as "all networks benefit from access to each other's users and resources," while commercial entities often use the network's resources, but contribute much less to the network: "for example, because of the mailing lists available without charge on the Internet, three times as much traffic runs over the mail gateway from the Internet to MCI MAIL than to the Internet. This pattern is reinforced by the send-pays fee structure of MCI MAIL, which discourages mailing list distribution from within MCI MAIL."

The Summary Report claimed that MERIT, which is part of Michigan's public higher education system, and the State of Michigan Strategic Fund that provided $5 million to the NSFnet, were essentially "private entrepreneurs in the national operation of a backbone service." The problem with such an analysis is that MERIT and the State of Michigan Strategic Fund are public entities that cannot be private entrepreneurs.

The Summary Report demonstrated that dissenting opinions were not allowed.

Instead, the Harvard meeting en-

couraged the participants, many of whom are now on the com-priv@psi.com mailing list, to vigorously promote this significant change of direction of the NSFnet, with no public discussion or examination of the virtues or harm to come from such a change of policy. And many on the com-priv@psi.com mailing list ridicule or personally attack those whose posts oppose commercialization and privatization of the NSF backbone.

Shortly after the March 1990 Harvard workshop, there were abrupt changes in the contracts between MERIT and the NSF. Reviewing these changes, the Office of the Inspector General, (OIG) for the NSF in a report issued on March 23, 1993, explains: "In April 1990 MERIT submitted a revised statement of work `based on the input received from the National Science Foundation, in particular the need for adding nodes to and expanding the switching and transmission capacity for the NSFnet backbone." (Page 11 from "Revised Statement of Work/NSF Supplemental Proposal No 8944037", April 20, 1990.)

Then on May 29, 1990 an amendment to the cooperative proposal that MERIT had with the NSF provided MERIT with funding for the revision. A significant change in the nature and oversight of the NSFnet then followed, as documented by the Inspector General's report, carrying out steps toward the transition to commercialization and privatization of the NSFnet.

The NSF transferred MERIT's responsibilities to the Advanced Network & Services, Inc., (ANS, made up of MERIT, IBM and MCI) and agreed that ANS should seek commercial users for what was previously a network restricted to academic, government, or industry research and scientific use as defined by the Acceptable Use Policy of the NSF and the goals of the NSF.

Despite the continuing obligation to have the Acceptable Use Policy, (AUP) followed, a set of events was put into motion to evade any U.S. government or NSF obligation to continue to adhere to the AUP obligations. When the OIG Report examined how this substantial change in policy had come about, it merely noted that there was a lack of a "reasoned" documentation in NSF files providing for such a significant change of policy. Though the OIG admits that the U.S. government has an obligation to hear discussion on such significant changes in policy, the OIG claims that it is in the NSF's discretion as to whether it does so or not.

The AUP governing the use of the NSFnet is still in effect, yet U.S. government officials do not enforce it.

The AUP is derived from the authority vested in the NSF under the "National Science Foundation Act of 1950, as amended." According to the OIG Report, under this act, the NSF was given the authority "to foster and support the development and use of computer and other scientific and engineering methods and technologies, primarily for research and education in the sciences and engineering."(42 U.S.C. S 1862(a)(4).)

The report explains that in 1989, the NSF drafted an "Acceptable Use Policy (AUP) to define research and education traffic that may properly be conveyed under Section 4(a) of the NSF Act." And "in March 1992, NSF's Office of General Council concluded that `some form of acceptable use policy' will continue to be necessary to ensure that NSF funds are used to further the objections of section 3(a)(4) of the Act."

The AUP in force, according to the OIG Report, demonstrates some of the prohibitions and encouragement that led to network development. The AUP states:

"General Principle:

(1) NSFnet Backbone services are provided to support open research and education in and among U.S. research and instructional institutions, plus research arms of for--profit firms when engaged in open scholarly communication and research. Use for other purposes is not acceptable.

SPECIFICALLY ACCEPTABLE USES:

(2) Communication with foreign researchers and educators in connection with research or instruction, as long as any network that the foreign user employs for such communication provides reciprocal access to U.S. researchers and educators.

(3)Communication and exchange for professional development, to maintain currency, or to debate issues in a field or sub-field of knowledge.

(4) Use for disciplinary-society, university-association, government advisory, or standards activities related to the user's research and instructional activities.

(5) Use in applying for or administering grants or contracts for research or instruction, but not for other fund raising or public relations activities.

(6) Any other administrative communications or activities in direct support of research and instruction.

(7) Announcements of new products or activities in direct support of research and instruction, but not advertising of any kind.

(8) Any traffic originating from a network of another member agency of the Federal Networking Council if the traffic meets the acceptable use policy of that agency.

(9) Communication incidental to otherwise acceptable use, except for illegal or specifically unacceptable use.

UNACCEPTABLE USES

(10) Use for for-profit activities unless covered by the General Principle or as a specifically acceptable use.

(11) Extensive use for private or personal business.

This statement applies to use of the NSFnet Backbone only. NSF expects that connecting networks will formulate their own use policies. The NSF Division of the Networking and Communications Research and Infrastructure will resolve any questions about this Policy or its interpretation."

(from pp. 69-70 of Review of the NSFnet 23 March 1993 from the Office of Inspector General of the National Science Foundation)

The National Information Infrastructure Agenda for Action, (NII Agenda for Action) report issued by the U.S. Department of Commerce on September 15, 1993 mentions nothing of the AUP governing the NSFnet and mentions nothing of the NSFnet. Instead it claims that private companies have already been developing the network that will become the National Information Infrastructure. Thus this report includes no history or background of the last 25 years of network development, revising the historical development of the current U.S. NSFnet in a way similar to Eastern European historical "forgetting" documented by Milan Kundera in his book *Of Laughter and Forgetting*.

(To be continued)

C Program

(Stripper for Control M)

```
#include <stdio.h>
main() /*looking for return's */
{
  int c;
    while ((c = getchar()) != EOF)
      if (c != 015)
        putchar(c);

        exit(0);
}
```

Computers for the People: A History

Part VI

(Continued from Vol 5 No 1-2)

A battle against the dinosaurs of the 1970s was won. The technological thwarting and secrecy IBM and other Fortune 500 companies used to suppress innovation and development was shattered via the muckraking and tenacity of the Homebrew Computer Club members in San Francisco, California. Club members set out to get computers into the hands of the people, and they succeeded. The per-

sonal computer is the product of the fight they waged against the powers-that-be who tried to hold back technological development.

But a new battle looms on the horizon. High tech is awaiting its tie up to the processes of industrial production. Tying the personal computer to production can only be done by shop floor workers — skilled and unskilled, not by engineers detached from workers. John Kemeny, the inventor of the computer programming language BASIC, explained the companies have misunderstood the computer when they envision it as eliminating workers. Instead, what is needed is a broad training in programming and hands on experience that will prepare a generation "who are thoroughly acquainted with the power and limitations of computers, who know what questions have to be asked and answered and who are not intimidated by computer experts in a debate," Only when this exists wrote Kemeny, can we hope for the needed "fundamental change." (*Man and the Computer*, N.Y., 1972 p. 59)

Just as the hackers and hobbyists of the 1970s took up the cry of computer knowledge to the people, so a still more important technological explosion awaits modern society when the workers movement of the 1990s takes up to connect the computer to industrial production. And just as the anti war movement and the Watergate exposures of the 1960s and 1970s cleared the air so there could be the necessary free exchange of ideas and debate and criticism to develop the new technology, so the Iran Contra Scandal and the corporate attack on technical education need to be exposed to clear the air for the next technological breakthrough — the tying up of computers to production.

Robert Howard, in his book *Brave New Workplace*, shows that only if workers are allowed to know computer programming can technology develop. He explains how Dave Boggs, a machinist for Eastern Airlines understood the potential of computers for his work. Howard writes: "As soon as he learned that his department was getting its first piece of computerized equipment, Boggs immediately volunteered to operate the machine. The idea of computer control appealed to his machinist's sense of perfection. `I like to make parts that are right on the money,' he explains. `But no matter how hard you try with a regular punch press, you're always going to be off.' For Boggs, the computer promised `a greater degree of accuracy.'" (Robert Howard, *Brave New Workplace*, N.Y., 1985, p. 37)

David Boggs did not realize his dream. He was not allowed to program his machine. After numerous efforts to find out why not, he finally got an answer from company president Frank Borman. Borman informed Boggs, "it was in [the company's-ed]... `best interest' to have all the programming...done by a `small, specialized group'," which excluded workers, and particularly excluded the worker on the job. (See Ibid., p. 40)

The same problem has been ongoing at the Ford Motor Company's Rouge Factory in Dearborn, Michigan. The 1984 UAW-Ford contract contains a Letter of Understanding which addresses the technology problem of modern society. The letter says: "In view of the Company's interest in affording maximum opportunity for employees to progress with advancing technology, the Company shall make available appropriate specialized training programs for employees." (letter dated Oct 4, 1979 and included in the 1984 contract, vol. 4, pp. 198-201)

But this contractual obligation has not been implemented. Hourly workers may learn home wiring, or auto mechanics, or business, or real estate, or construction, or how to run IBM software. But they are not to learn computer programming. Workers are not to be allowed to have technical training; they are only permitted education in "personal development." (See literature of the UAW-Ford National Development and Training Center.)

When the pilot program of the UAW-Ford National Development and

Training Center was set up at the Dearborn Engine Plant in Dearborn, MI, a technical education component was included as part of that contract. And computer programming classes in the BASIC programming language were included as part of the basic skills resource center at the Employee Development Center of the Dearborn Engine Plant. But this component of the program was not encouraged to expand or continue. Instead it was thwarted by union and management representatives by not advertising it along with the other educational offerings, withholding needed supplies, combining different classes in one class, and eventually discontinuing the classes, allegedly because a letter sent management and union officers which said: "And we shouldn't be treated as if we're doing something wrong. Why are you trying so hard to discourage us from continuing our programming training?"

Floyd Hoke-Miller, a retired auto worker who was a pioneer of the sitdown strikes in Flint, MI explained that companies like Ford Motor Company and General Motors want to decide who they will train and who they won't and management is afraid the working class will demand a cut of the technological kitty – shorter hours and better pay. He says management is going to try to keep computing knowledge from workers, but "You don't corner knowledge." He elaborated, "You can't hide knowledge from people. The more you try, the more people are going to demand to be in on the knowledge. If something is being hidden they are going to feel there's something sinister being held against them and if it's true they'll fight for it."

John Kemeny, in the 1960s, explained the need for a broad popularizing of computer programming knowledge if our society was to progress. He created and spread the BASIC programming language and access to computers via time-sharing among the college population. From this environment the computer hackers of the 1970s sprang forth to take on in combat the computer establishment, and to give to the world the personal computer. Now in the 1990s, as when John Kemeny was writing in the 1960s, there is again a need for technological development, – but this time at the shop floor levels of U.S. factories – and thus there is again a need to popularize computer programming knowledge – particularly among shop floor workers. As Kemeny accurately prophesied in the 1960s: "I consider it imperative for the benefit of mankind that during the next decade computers become freely available.... Only if we manage to bring up a computer-educated generation will society have modern computers fully available to solve its serious problems. While computers alone cannot solve the problems of society, these problems are too complex to be solved without highly sophisticated use of computers."(p. 80)

(Note: Much of this article was inspired and informed by Stan Augarten's important book, *Bit by Bit An Illustrated History of Computers*, New York, 1984, 322 pgs. He has traced the development of computers through the past 400 years and provided descriptions of many different machines that helped to make the personal computer a reality. Also, his book contains helpful illustrations.)

The Soul of the Internet

On September 16, 1993, the *Wall Street Journal*, (WSJ), headlined an article "Computer Users Battle High-Tech Marketers Over Soul of Internet." This page one, column one article appeared after another article in the WSJ one week earlier. The earlier article seemed oblivious to the serious questions raised about the effort to commercialize and privatize the NSF backbone of the U.S. portion of the Internet. By his second article, the WSJ reporter, Steve Stecklow, discovered the 'Soul of the Internet.' He quoted *Amateur Computerist* editor

Ronda Hauben, "Something very significant and important has been created. It has been developed with a great deal of public and academic funds and effort. And there needs to be a serious public examination of how to continue, not freeze, the development." This public examination is especially needed to confront the rush to convert the national treasure, represented by the public, scientific, educational, and research network, into profit making ventures for commercial and private gain.

The *WSJ* article recognized that the National Science Foundation "subsidizes the Internet, and restricts commercial use on its high-speed data 'backbone.'" In contrast, it also quotes the "NSF networking director Steven S. Wolff" as saying, "The Internet is an enormous business opportunity...." The article then warns Wolff and other advocates of a profit producing, rather than a public serving net. Stecklow wrote: "But, despite the growing bandwagon, the Internet doesn't lend itself so naturally to free enterprise."

The Internet has a valuable soul of resource sharing, voluntary helpfulness and a public purpose, which conflicts with the effort to commercialize and privatize the NSF backbone and local access to it. Acknowledgment of this by the *Wall Street Journal* is a welcome event.

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