

# The Amateur Computerist

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The Netizens and the Internet

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“For the society the impact will be good or bad depending mainly on the question: Will ‘to be on line’ be a privilege or a right?”  
J.C.R. Licklider and Robert W. Taylor

## What is a Netizen?

In conducting research online to determine people's uses for the global computer communications network (i.e., the Net(1)) I became aware that there was a new social institution developing and I grew excited at the prospects of this new social institution. In response to the excitement I discovered from those who wrote me (and which I also experienced), I felt that the people I was writing about were citizens of the Net. Sometimes people on the Net would call users of the Net, a net.citizen (read net citizen). This idea I transformed into Net Citizen, which in shortened form is Netizen.

Netizens are Net Citizens who utilize the Net from their home, workplace, school, library, or other locations. These people are among those who populate the Net and make it a human resource. These Netizens participate to help make the Net both an intellectual and a social resource.

The Netizens' community highlights the importance of using the current state (circa 1994) of the Internet

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/NSFnet /Usenet/etc. as a model for the upcoming NII(2). In order to do this, it is necessary to be aware of the history of the Net. Various texts for this exist: *The Netizens and the Wonderful World of the Net — An Anthology* (i.e. the netbook) contains the historical perspective and social context needed to understand the advance represented by the global telecommunications network. The netbook is for those who want to contribute to the care and nurture of the Net.(3)

The NSFnet Acceptable Use Policy (AUP) has been a valuable regulation which helped to define the NSFnet (the backbone of the U.S. portion of the global Internet) as a resource based on sharing via an educational orientation. This orientation exists on the Net rather than the more tradition commercial profit-oriented model. This regulation has helped the Net to grow.

More information about Netizens is “The Net and the Netizens: The Impact the Net has on People's Lives” which appears in this issue. The paper is also available elsewhere online in several forms.(4)

[Editor's Note: In September 1993, the U.S. government set up an advisory committee under the U.S. Department of Commerce to advise it on the future of the U.S. segment of the Internet. This work was done under what was called the NII (the National Information Infrastructure). As part of classwork in a college course several students were asked to propose the policy concerning the NII that would represent the interests of different strata of U.S. society. What follows is one student's proposal for principles representing the Netizens' interests for the future development of the Net. For the class the following areas of concern were listed, and the interests of various strata (such as the business community, the education community, and so on were described). The

areas to be discussed were privacy, equity, intellectual property, implementation strategy, vision, and additional thoughts.]

### **A Netizen Position on Privacy**

The Net is a tool to help people communicate openly. As such, concerns about privacy and security should be secondary to keeping the principle of openness active and feasible. So the Clipper Chip should be opposed, but emphasis should be given to the governmental protection of freedom of speech and equal opportunity to connect to open areas, and towards the guidance of Net citizens to contribute to the whole. In opposition to the Clipper Chip, the government should be told what it should be doing rather than what it shouldn't be doing.

### **A Netizen Position on Equity/Access**

Access should be made available in public locations; libraries, community centers, schools, etc. Local phone numbers should be available for home users to connect to the network using modems.

### **A Netizen Position on Intellectual Property**

Netizens should be encouraged to submit creative works and ideas into the public domain, rather than attempt to gain profit from these ideas. Protection should be enforced so that others don't make a profit off of these ideas. As a whole, ideas are most often built upon ideas of others. As such, it is hard to properly credit the origin of works or ideas to a single individual. The culture of sharing best promotes the free creation and building of ideas upon other ideas. The new capability to cooperate and contribute made possible by the Net should be fully realized.

### **A Netizen Position on Functionality and Standard Operating Ability**

Equal ability to access is more important than high bandwidth for high intensity applications (such as graphics). It is much more important to connect the people of the world via text (and ftp/http for limited graphics, etc.) than to have a few connected with high graphics content.

Standards should be set so almost any personal computer type can connect in for basic text exchange.

### **A Netizen Position on Implementation Strategy**

Global community networks should be installed or extended and operated as a public service to community

members. They could be operated by local government, or a collaboration between local government, public universities and other public entities. The federal government should continue to fund the interconnecting lines. People should be able to log into a terminal from a public library or community center or be able to call a local phone number from their home to connect to the community network. The community networks should enable people to use global network resources such as Usenet News, e-mail, telnet, ftp, www, gopher.

Another possible model is to make network access points from which to connect to the world, and community use form around them.(5)

### **A Netizen Vision**

Global Community Networks would allow citizens of a community to connect to the Global Computer Communications Network. This enables community members to communicate with others in their community and with the world. In addition, community networks often facilitate communications and distribution of information between citizens about their local and national governments. In democratic countries, this might facilitate a greater role for citizens in the governmental process. Global community network access should be only available for those who are acting as representatives of themselves and their ideas toward a cooperative goal such as education or research that will serve the whole network. Those in the private sector who are only interested in advancing their own profit should have to gain access to the Network via other avenues. The public sector should not be asked to subsidize the private sector's profit making purposes.

The concept of global community networking will enable people around the world to connect to the Net, and in the process connect to other Netizens from around the world. This in turn would help further the growth of the Net by connecting a diversity of people who have various opinions, specialities and interests. This worldwide connection of people and other information resources of different sorts will help the world move forward in solving different societal problems.

### **The Vision Behind the Concept of Global Community Networking**

A Net which will grow to encompass all possible resources in order to facilitate the free flow of information sharing.

Notes:

- (1) The Net equals Internet/Usenet/Bitnet/Fidonet/etc.
- (2) The NII is the U.S. government's proposal for a National Information Infrastructure.
- (3) *The Netizens and the Wonderful World of the Net — An Anthology* is available on the Net and is abbreviated as the netbook.
- (4) The Netizens material is available at the following sites:

[gopher://gopher.cic.net/1/e-serials/archive/alphabetic/a/amateur-computerist/netbook](http://gopher://gopher.cic.net/1/e-serials/archive/alphabetic/a/amateur-computerist/netbook)

[ftp://wuarchive.wustl.edu/doc/misc/acn/netbook/ch.7\\_Netizen](http://ftp://wuarchive.wustl.edu/doc/misc/acn/netbook/ch.7_Netizen)

<http://scrg.cs.tcd.ie/scrg/u/rcwoods/netbook/contents.html>

Other helpful texts include *The Origins of RFCs* by Stephen D. Crocker in RFC 1000:

[gopher://ds2.internic.net/00/rfc/rfc1000.txt](http://ds2.internic.net/00/rfc/rfc1000.txt)

The Usenet History Archives is accessible via anonymous ftp at [weber.ucsd.edu](http://weber.ucsd.edu) in the directory `/pub/usenet.hist`

Netnews newsgroups of interest:

- `alt.amateur-comp` — Discussion of amateur and grass roots use of computers and computer networking for those who want to see such access spread.
- `alt.culture.internet` — The culture of the Internet
- `alt.culture.usenet` — The Usenet community
- `alt.current-events.net-abuse` — Discussion of what constitutes “net abuse”
- `alt.folklore.computers` — Stories and anecdotes about computers, historical discussion etc.
- `alt.internet.media-coverage` — Discussion of media coverage of the Internet
- `alt.uu.future` — Teaching and learning in the Usenet University
- `comp.infosystems.interpedia` — The Internet Encyclopedia
- `comp.society` — The impact of technology on society (moderated)
- `comp.society.cu-digest` — The Computer Underground Digest (moderated)
- `comp.society.development` — Computer technology in developing countries
- `comp.society.folklore` — Computer folklore & culture past and present (moderated)
- `comp.society.futures` — Events in technology affecting future computing
- `comp.society.privacy` — Effects of technology on privacy (moderated)
- `news.admin.policy` — Policy issues of Usenet

`news.future` — The future technology of network news systems

`news.misc` — Discussion of Usenet itself

- (5) The National Public Telecomputing Network (NPTN) has a good introduction to this idea.
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## The Vision of Interactive Computing and the Future

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What is the reality behind all the talk about the Information Superhighway? This is a very important question which the Clinton and Gore Administration seem to be ignoring. However understanding the history of the current Nets is a crucial step towards building the network of the future. It is my goal in this article to uncover the vision behind the Internet, Usenet and other associated physical and logical networks.

While the Nets are basically young — ARPAnet started in 1969 — their 25+ year growth has been substantial. The ARPAnet was the experimental network connecting the mainframe computers of universities and other contractors funded and encouraged by the Advanced Research Projects Agency of the U.S. Department of Defense (DoD). The ARPAnet started out as a test bed for computer networking, communication protocols, and computer and data resource sharing. However, what it developed into was something of a completely surprising nature. The widest use of the ARPAnet was for human-human communication using electronic mail (e-mail) and discussion lists. (Popular lists were the wine-tasters and sci-fi lovers lists.) The human communications aspect of the ARPAnet continues to be today's most popular usage of the ‘Net’ by a vast variety of people through e-mail, Usenet News discussion groups, mailing lists, internet relay chat (irc), and so on. However, the ARPAnet was the product of previous research itself.

Before the 1960s, computers operated in batch mode. This meant that a user had to provide a program on punch cards to the local computer center. Often a programmer had to wait over a day in order to see the results from his or her input. In addition if there were any mistakes in the creation of the punched cards, the

stack or individual card had to be punched again and resubmitted, which would take another day. This does not account for bugs in the code, which someone only finds out after attempting to compile the code. This was a very inefficient way of utilizing the power of the computer from the viewpoint of a human, in addition to discouraging those unfamiliar with computers. This led to people thinking of ways to alter the interface between people and computers. The idea of time-sharing developed among some in the computer research communities. Time-sharing amounts to people utilizing the computer (then the mainframe) simultaneously. Time-sharing operated by giving the impression that the user is the only one on the computer. This is executed by having the computer divvy out slices of CPU time to all the users in a sequential manner.

Research in time-sharing was being done around the country at different research centers in early 1960s. Some examples were CTSS (Computer Time-sharing System) at MIT, DTSS (Dartmouth Time-sharing System) at Dartmouth, a system at BBN, and so on. J.C.R. Licklider, the founding director of ARPA's Information Processing Techniques Office (IPTO), thought of time-sharing as interactive computing. Interactive computing meant the user had a way to communicate and respond to the computer's responses in a way that batch processing did not allow.

Both Robert Taylor and Larry Roberts, future successors of Licklider as director of IPTO, pinpoint Licklider as the originator of the vision which set ARPA's priorities and goals and basically drove ARPA to help develop the concept and practice of networking computers.

In an Interview conducted by the Charles Babbage Institute (CBI), Roberts said: "what I concluded was that we had to do something about communications, and that really, the idea of the galactic network that Lick talked about, probably more than anybody, was something that we had to start seriously thinking about. So in a way networking grew out of Lick's talking about that, although Lick himself could not make anything happen because it was too early when he talked about it. But he did convince me it was important." (Charles Babbage Institute, Oral Interview with Lawrence Roberts, p. 29)

Taylor also pointed out the importance of Licklider's vision to future network development in a CBI conducted interview: "I don't think... anyone who's been in that DARPA position since [Licklider] has had the vision that Licklider had. His being at that place at that

time is a testament to the tenuousness of it all. It was really a fortunate circumstance. I think most of the significant advances in computer technology, especially in the systems part of computer science... were simply extrapolations of Licklider's vision. They were not really new visions of their own. So he's really the father of it all." (Charles Babbage Institute, Oral Interview with Robert Taylor, p. 8)

Crucial to the definition of today's networks were the thoughts awakened in the minds of those researchers interested in time-sharing. These researchers began to think about social issues related to time-sharing. One such topic was the formation of communities of the people who used the time-sharing systems. Fernando Corbato and Robert Fano wrote, "The time-sharing computer system can unite a group of investigators in a cooperative search for the solution to a common problem, or it can serve as a community pool of knowledge and skill on which anyone can draw according to his needs. Projecting the concept on a large scale, one can conceive of such a facility as an extraordinarily powerful library serving an entire community — in short, an intellectual public utility." ("Time-sharing on Computers", *Information*, p. 76)

Robert Taylor spoke about some of the unexpected circumstances that time-sharing made possible: "They were just talking about a network where they could have a compatibility across these systems, and at least do some load sharing, and some program sharing, data sharing — that sort of thing. Whereas, the thing that struck me about the time-sharing experience was that before there was a time-sharing system, let's say at MIT, then there were a lot of individual people who didn't know each other who were interested in computing in one way or another, and who were doing whatever they could, however they could. As soon as the time-sharing system became usable, these people began to know one another, share a lot of information, and ask of one another, 'How do I use this? Where do I find that?' It was really phenomenal to see this computer become a medium that stimulated the formation of a human community. ... And so, here ARPA had a number of sites by this time, each of which had its own sense of community and was digitally isolated from the other one. I saw a phrase in the Licklider memo. The phrase was in a totally different context — something that he referred to as an 'intergalactic network.' I asked him about this later ... recently, in fact I said, 'Did you have a networking of the ARPAnet sort in mind when you used that

phrase?’ He said, ‘No, I was thinking about a single time-sharing system that was intergalactic...’” (Charles Babbage Institute, Oral Interview with Robert Taylor, p. 24)

As Taylor recounts, the users of the time-sharing systems would, usually unexpectedly, form a new community. People now were connected to others who were also interested in these new computing systems.

Licklider was one of the first users of the new time-sharing systems, and took the time to play around with them. Examining the uses of this new way of communicating with the computer enabled Licklider to think about the future possibilities. This was helpful because Licklider went on to establish the priorities and direction for ARPA's IPTO research monies. Many of the interviewees in the CBI interviews said that ARPA's money was given in those days to help seed research which would be helpful to society in general and only secondarily helpful to the military.

The vision driving ARPA inspired bright researchers working on computer related topics. Roberts explains that Licklider's work (and that of the IPTO's directors after him) educated people who were to become the leaders in the computer industry in general. Roberts describes the impact that Licklider and his vision made on ARPA and future IPTO directors: “Well, I think that the one influence is... the production of people in the computer field that are trained, and knowledgeable, and capable, and that form the basis for the progress the United States has made in the computer field. That production of people started with Lick, when he started the IPTO program and started the big university programs. It was really due to Lick, in large part, because I think it was that early set of activities that I continued with that produced the most people with the big university contracts. That produced a base for them to expand their whole department, and produced excitement in the university” (Charles Babbage Institute, Oral Interview with Lawrence Roberts, p. 29)

The important effect on academia led to an even more profound effect on the future of the computer industry. Roberts continues: “So it was clear that that was a big impact on the universities and therefore, in the industry. You can almost track all those people and see what effect that has had. The people from those projects are in large part the leaders throughout the industry” (ibid., p. 30)

Licklider's “Intergalactic Network” was a time-sharing utility which would serve the entire galaxy. This

early vision of time-sharing spawned the idea of interconnecting different time-sharing systems by networking them together. This network would allow those on geographically separated time-sharing systems to share data, programs, research, and later other ideas and anything that could be typed out. Licklider and Taylor collaborated on an article titled “The Computer as a Communications Device” which foresaw today's Net. They wrote: “We have seen the beginnings of communication through a computer — communication among people at consoles located in the same room or on the same university campus or even at distantly separated laboratories of the same research and development organization. This kind of communication — through a single multiaccess computer with the aid of telephone lines — is beginning to foster cooperation and promote coherence more effectively than do present arrangements for sharing computer programs by exchanging magnetic tape by messenger or mail.” (Licklider and Taylor, p. 28)

Later in the article, they point out that the interconnection of computers leads to a much broader class of connections than might have been expected. A new form of community is described: “The collection of people, hardware, and software — the multiaccess computer together with its local community of users — will become a node in a geographically distributed computer network. Let us assume for a moment that such a network has been formed.... Through the network of message processors, therefore, all the large computers can communicate with one another. And through them, all the members of the super community can communicate — with other people, with programs, with data, or with a selected combinations of those resources.” (ibid., p. 32)

Licklider and Taylor demonstrate their interest in more than just hardware and software when they write about the new social dynamics that the connections of disperse computers and people will create. They explain: “[These communities] will be communities not of common location, but of common interest. In each field, the overall community of interest will be large enough to support a comprehensive system of field-oriented programs and data.” (ibid., p. 38)

In exploring this community of common affinity, the pair look for the possible positive reasons to connect to and be a part of these new computer facilitated communities: “First, life will be happier for the online individual because the people with whom one interacts most strongly will be selected more by commonality of

interests and goals than by accidents of proximity. Second, communication will be more effective and productive, and therefore more enjoyable. Third, much communication and interaction will be with programs and programming models, which will be (a) highly responsive, (b) supplementary to one's own capabilities, rather than competitive, and (c) capable of representing progressively more complex ideas without necessarily displaying all the levels of their structure at the same time — and which will therefore be both challenging and rewarding. And, fourth, there will be plenty of opportunity for everyone (who can afford a console) to find his calling, for the whole world of information, with all its fields and disciplines, will be open to him, with programs ready to guide him or to help him explore.” (ibid., p. 40)

Licklider and Taylor conclude their article with a prophetic question. Since the advantages that computer networks make possible will only happen if these advantages are available to all who want to make use of them. The question is posed as follows: “For the society, the impact will be good or bad depending mainly on the question: Will ‘to be on line’ be a privilege or a right? If only a favored segment of the population gets a chance to enjoy the advantage of ‘intelligence amplification,’ the network may exaggerate the discontinuity in the spectrum of intellectual opportunity.” (ibid., p. 40)

The question they raise is one of access. The authors point out that the positive effects of computer networking would only come about if the networks are made easy to use and available. Lastly they argue that access should be made available because of the global benefits which they predict would ensue. They end by writing: “...if the network idea should prove to do for education what a few have envisioned in hope, if not in concrete detailed plan, and if all minds should prove to be responsive, surely the boon to humankind would be beyond measure.” (ibid., p. 40)

Licklider and Taylor raise an important point that access should be made available to all who want to use the computer networks. The relevance to today is that it is important to ask if the National Information Infrastructure is being designed with the principle of making equality of access as important. There was a vision of the interconnection and interaction of diverse communities guiding creation of the original ARPAnet. In the design of the expansion of the Network, it is important to keep the original vision in mind to consider if the vision was correct, or if it was just important in the

initial development of networking technologies and techniques. However, very little emphasis has been placed on either the study of Licklider's vision or the role and advantages the Nets have played up to this point. In addition, the public has not been allowed to play a role in the planning process for the new initiatives which the federal government is currently undertaking. This is a plea to you to demand more of a part in the development of the future of the Net.

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### Net Cultural Assumptions

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[Author's Note: This article was originally written on July 5, 1992. This version is edited and expanded somewhat. The question was about the application of copyright law to Usenet. New material is enclosed in [ ]'s.]

Recalling a bit of the history of the net, we need to look at the way that the Net started and how it has grown. The seminal concept of the Net is that folks on different machines \*desire\* to share information in an easy and timely manner, despite the spatial separation between them and the machines they are using.

That is that the persons using the Net to communicate \*want to communicate\* and are willing to cooperate in effecting that communication.

This is the absolute basic principle: you want to communicate with the other folks on the net.

There is no one holding a gun to your head telling you that you \*must\* post something to the net. (At least, I hope no one is doing that!)

From this, everything else follows. The mechanics of how it happens have changed drastically from the original shell script implementation of simply checking the time stamps on files and sending files that had changed since the last check to some other machine. The first attempt was barely adequate for two machines, and required a lot of human effort to assure that directory structures between the machines was identical.

As soon as one other machine was added to the mix, it became obvious that some sort of automated methods of assuring that the communication would not breakdown when someone wanted to start a new topic.

Tom Truscott, Jim Ellis and Steve Bellovin, with assistance from lots of folks at Duke and UNC, convened an informal conference and hashed the basic facilities and needs out in about three hours. Then in about two weeks, they wrote it and got it working on the “original three” sites, duke (computer science), unc (computer science) and phs (dept of physiology, in the duke medical center). At that time, the “A version” of NetNews (as it was originally called) had been placed on the conference tape at the Toronto USENIX meeting in January of 1980.

[There is some disagreement over this. I clearly recall using Netnews prior to getting married in January of 1980. Our honeymoon was delayed since my wife's supervisors were at the Toronto USENIX Conference. She was a programmer at the phs site. :-) ]

Under the conditions of the academic UNIX licenses in those days, the software was placed in the “public domain” and it was the most popular program from that Conference Tape. I do not recall that anyone was quite expecting the explosion that followed.

[Steve Bellovin wrote me to confirm this. His comment was that they expected maybe a 100 machines

and ONE net.group. An updated version of Netnews, with much expanded capacity was on the spring conference tape.]

The early ARPAnet already had a number of mailing lists, and the management of them was already quite a headache for the folks involved. The NetNews software was quickly recognized as a superior means of dealing with very active lists and was quickly placed into service.

At that point, there were already problems with providing e-mail service between the ARPAnet machines and the UUCP based network. The confusion between bangpath notation and the domain-name system was well established, with lots of rancor and confusion already evident.

In any case, one of the early assumptions was that there would be “local” groups of machines sharing news, and that there would be little crossover between groups. The model was that a campus of a university would have a news network, and it might be shared with another university that was logically and physically close to it, but spatially inconvenient for folks to get together physically, and that NetNews would allow them to share information in a timely manner.

But again, there was a basic point to the model, that the people wanted to communicate, and would cooperate in effecting that communication.

The sharing of information was to be handled in local/regional areas, and the details of who would pay for the phone calls, and the legal mumbo-jumbo of “responsibility” was to be handled with the usual academic hand waving and under color of academic freedom. [Well, there were some arrangements, but they didn't impinge on my view of the situation. It wasn't all hand waving.]

When the direction of evolution took an unexpected turn, and a continental network emerged, spanning the continent from California to North Carolina, and Toronto to San Diego, it was sort of a shock to realize what had happened.

And, since everyone was in an academic environment (well, decvax was commercial, but it was a very special case — Bell Labs was academic really, but it was another special case) and involved in computer science, there was never any kind of special concern for the legal mumbo-jumbo. Everyone \*wanted\* to be on the net, and it was clear that they were cooperating in doing so. (Some folk at Bell Labs were watching the legal stuff, not in terms of individual posters' rights, but in terms of

protecting AT&T's rights in and to UNIX source code and proprietary information.)

The conventions of net.<name>, fa.<name> and <name> developed as being netwide, gated mailing lists, and local topic groups. And the hierarchical subcategories soon appeared. Moderated groups appeared and were placed in the mod.\* hierarchy.

Under the strain of being an international network, with several new machines being added daily, certain limitations in the basic assumptions made themselves painfully obvious. And the rewrite known as B-news made room for the continuing expansion.

And still, folks \*wanted to communicate\* and cooperated in doing so. An informal structure for the efficient management of the topology of the network arose, based around a set of sites willing to transfer news over a set of “backbone” links, and then fan out distributions to the mid-level and leaf sites. The administrators of these backbone sites knew each other, and respected each other in terms of cooperating and managing the growth of a Net that had \*no formal existence!\*

The “backbone cabal” (as it was mockingly referred to, in recognition of its extra-legal existence) established some general procedures for adding groups, and for dealing with problems that threatened the voluntary cooperative nature of the net.

The debate over copyright of postings became, for the first time, truly acrimonious. As more sites joined, more and more of them being non-academic in nature, the missing or hidden assumptions that guided the folk attempting to manage the net, began to exert pressure. It \*was\* stated, plainly and clearly, in several places, that a person posted to the Net as a voluntary act, and that they were assumed to understand that asserting copyright was not a “friendly” action IN THE LIGHT OF THIS ASSUMPTION.

[NOTE Well: At the time the Net was formed, the U.S. of A. was \*not\* a signatory to the Berne Convention on International Copyrights! The U.S. had its own peculiar set of laws about copyrights, and something without a notice was not copyrighted.]

Meanwhile, AT&T was “liberated” by the MFJ ruling by Judge Green, in the U.S. Justice Department's Anti-Trust suit against AT&T, to compete in the computer industry (with certain limitations). All at once, the whole nature of things changed, the universities were no longer bound by the license restrictions that programs and utilities developed on the “free license” UNIX brand Operating System be placed in the public domain, and

the Net continued to grow by leaps and bounds.

The power of the backbone cabal held through the time of the Great Renaming, when the old net.\*, fa.\* and mod.\* was transformed overnight into the “Seven sisters” of {comp, misc, news, rec, sci, soc, and talk}, plus a smattering of local hierarchies.

And more sites became connected to the net. Still under the assumption that the sites wanted to communicate, and would cooperate in doing so. It was noted that postings were voluntary, and that the backbone considered all postings to be essentially placed in the public domain.

But now, this discussion was being held in news.admin, not out in net.general or net.admin where all would see it, and all were, in fact, encouraged to read and comment. And most net.readers were simply no longer directly involved in the guidance and development of the net. Partly to remedy this lack of direct involvement, but more as a result of the dissolution of the backbone cabal (which happened when a vocal group of folks established the alt.\* hierarchy because the backbone folk had decided that there would \*not\* be a rec.sex group — several of the backbone administrators threw up their hands and recognized that the anarchy was no longer under control) the “Guidelines” were worked out that provided for a popularity poll (a “vote”) for the establishment of new newsgroups.

And the Net continued to grow, but now sites coming into the Net were no longer really reminded of the basic assumptions before coming on line, that they were joining a voluntary association, and that people posting were assumed to be communicating in public because they wanted to, and that it was a “public domain” situation. There was no backbone cabal to contact the new site admin. and assure the Net that the new site understood the voluntary nature of the association.

Home sites and commercial sites began to proliferate in much greater numbers than before, and anyone could get a feed of as much or as little of the news as they wanted, and it was no longer assured that all sites \*would\* see an item posted to news.announce.important.

And in 1987 and 1989 — BANG! The second of the really major assumption changes hit. The U.S.A. signed the Berne Convention, and practically overnight, the Net went from a default of no copyrights, to a situation where copyright was automatic. The results of this are still resounding throughout the net.

This change still did not really undo the underlying assumption — people using the Net WANT to com-



municate. Those who worry about the law and being risk free tend to lose sight of this. The poster of an item is seeking to communicate their ideas, and they (posters) \*don't\* worry about the copyrights and other restrictions until they are brought to their attention by some other poster or administrator.

The Net has lost sight of its basic nature, a voluntary association of sites exchanging news in a standard format \*under the assumption\* that the site and its users want to communicate, and will cooperate in doing so.

The Net is acknowledged as a working anarchy. There is no authority beyond the administrator of a single machine, and links between machines are still (by and large) informal arrangements. The adding of commercial providers merely makes the model very murky, since the feeding of a group TO the commercial providers are still generally informal arrangements. [No comments have been made otherwise to me.]

So what is the point of this overly long history lesson? When NetNews began, it was clearly a situation where items were donated to the Net freely and voluntarily. The resolution of an early debate on the appearance of a copyright notice on a posting was the clearly stated principle that posting on the Net was contributing the item to the public domain (in some sense, the moral rights were \*not\* at issue then, before the U.S. joined the Berne Copyright Convention.) Postings with a copyright did not make it very far before someone noticed and corrected the misapprehensions of the poster.

Today, this assumption is forgotten, folk forget that they are in a voluntary situation (if they were ever informed of it) and that this was started as a public domain forum.

In My Opinion, folks posting an item to the Net are doing so \*voluntarily\* and they mean to have that item distributed anywhere "the net" may send it. I consider it a feckless argument to try and maintain a distinction between whether that distribution takes place automatically or with human direction or control. It is known (or should be known) before posting that the automatic systems are going to send it to places that the poster has absolutely no control over, either in terms of space, or in terms of time. They intend to have that item seen and read by other humans on the other end of the virtual circuit. And they implicitly invite that other human to react to that item.

Being a "nominally reasonable" person, with due regard for the moral rights of an author to be known as

the author of a particular work, I will maintain attributions on the items. But they have also granted automatic systems the right to send that item to me without compensation (or even a [imo] reasonable expectation of compensation,) that is, it is a gift.

[Actually, certain situations have happened that actually make me care about some of these "niceties" in relation to the operation of my site. I now am of the opinion that a poster "pressing the send key" is commanding his machine to connect to other machines and to place copies of his article there as a gift for the readers on that machine. These machines (connected directly or indirectly to the posters machine) do simply what the poster has commanded them to do. The poster is the responsible party. Furthermore, in exchange for having the privilege of commanding other machines to distribute the posting, the poster allows other posters to use his machine for the same purpose. Not a contractual obligation, but a simple exchange of favors. Informal and cooperative.]

Finally, in my opinion, if they do \*not\* want me to receive the item, then they should not post it "on the net."

And a prediction: Someday, someone who does not understand the \*voluntary\* nature of the net, is going to actually sue someone for some misunderstanding. I would sure enjoy being called as an "expert witness" for that trial (if it ever gets to trial.)

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[Editor's Note: The US joined the Berne Convention on March 1, 1989. To be consistent with that convention, once a work or idea is fixed in a tangible form, the creator holds the copyright and no © or other notice is required for copyright status.]

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## **The Ethics of Usenet Etiquette A Short Essay Concerning Advertising on the Internet.**

by Cal Woods  
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The anarchy and absence of rules on the Internet\* has brought it both fame and infamy. This feature of such a vast and potentially influential organ brings both benefits and disadvantages. In the former category, the equality of status in opinion, combined with accessibility

of information, opens an opportunity for dynamism and self-expression that would normally have been quashed by simple discouragement at the effort required. The Internet provides a platform for experiment and allows many people to combine their knowledge. It also provides superb resources for making knowledge available through various means. I think we are individually well-aware of the benefits of the net, so I will let it speak for itself.

The equality of access to those with the appropriate technological means and mind grants great liberties and opportunities, but concurrently with freedom comes the possibility for its abuse, an abuse that the 'lawless' society of the Net may seem ill-fit to deal with. Yet for a society without laws, the Internet functions with an incredible fluidity. You can say anything on Usenet, (even advertise,) yet while there are no written rules as to how you can say it, the Net regulates itself well enough to avoid collapse.

This apparent weakness adds to what the Internet is and does. The weakness that allows Canter & Siegel to argue that they did nothing 'illegal' because there are no laws, is an integral part of the Net community's make-up. As well as the advantages mentioned above, the very fact that sense of community and a realization of the need for cooperation is emphasized by knowledge of the fact that the enterprise is open to attack and could be destroyed by one person.

The 'Highway' code, such as it is, is based on common-sense, a mutual respect of others, and the fear of the loss of that respect and exclusion from the community. I know not to post messages pertaining to the guitar archive to rec.gardens.orchids because it does not take much effort to see that it would be inappropriate to do so. It serves me no purpose, it annoys the readers of that group, and it damages the Net community in wasted bandwidth.

Usenet, a public forum, should remain lawless, as any attempt to impose strictures on so amorphous an entity is destined to practical failure. The only method of discipline at our disposal is education, and if transgressions continue, to ostracize offenders and ask to have them physically removed from the community. The Internet is designed for mass communication of information, and it effectively fights back by educating those who, inadvertently or not, fall foul of the unwritten rules of etiquette.

The subject of this essay is the recent abuse of Usenet that is known as 'spamming' — when a message,

usually advertising some product or service, is sent to a large number of newsgroups, many of which are inappropriate for its distribution. In short, the problem of advertising on Usenet, and on the Internet in general.

It would obviously be a claim of those wishing to advertise that they would like to go out and attempt to attract clients. This is understandable, but is not the way Usenet functions — it is constructed into groups that pertain to particular interests. To send messages to groups dealing with topics unconcerned with the product you advertise is a breach of etiquette. No one would have minded if Canter & Siegel had hawked their wares ONLY in groups such as alt.visa.us. It may be true that many gardeners or guitar players might have been interested in their service, but if this is so, those people would have searched for that information.

With any group, the creator, moderator, or simply those active in the group, must rely on the initial interest of the user being sufficient that they actively seek the information that will get them to forums and sites pertaining to their topic of interest. All news reading programs, in my experience, allow a search by subject-name, and many tools have and are being developed to enable searching (e.g. Archie, and the capabilities of Mosaic). This is the case whether I am looking for gardening tips, guitar chords or legal assistance.

An advertiser who spams, implicitly considers that the purpose it serves them in gaining new customers, outweighs the annoyance caused to readers and the waste of resources. Not many can see this. Even this may not be true: in terms of pure numbers, Chris Kwasnicki (victim of the recent 'Weight Loss' spam and forgery) reports that he received more hate-mail than interest expressed. But even if Canter & Siegel's current claim to financial success remains true in the long-run, this does not validate any right to mass-advertising. The reason they have gained the enmity of countless thousands is because they put their own personal gain above the Net itself. Usenet does provide for advertising, and for personal and corporate gain, but it will clearly do so only in ways that does not threaten Usenet itself.

Learning how to behave, on the Net as in society, is something we pick up with practice, and whose justification we largely 'come to understand'. If people can't see why it is ridiculous to post guitar chords to gardening groups, they are not fit to be granted a license to sail in cyberspace. Everyone makes mistakes while learning or while entering a new field, but a general sense of etiquette will provide reasonable bounds. Newcomers

to Usenet (“newbies”) or those who are beguiled by the promise of ‘Making Money Fast’, who step over the line are quickly informed by their peers of their mistake, and their willingness to co-operate in the larger endeavor ensures that they attempt never to bring attention upon themselves again.

A much more serious transgression is a failure to adopt the correct attitude when using the Net. Canter & Siegel may have been newcomers to Usenet and thought their motive of personal gain was appropriate (it's a stretch, I know). To my knowledge, they made no use of the Net in explaining or apologizing for their actions. And the subsequent glorification of their deeds shows that they have learned nothing, and will continue to abuse the Net. They should therefore, in so far as it is possible, be excluded from it — shunned while on the Internet, and denied access to it. If there must be a ‘law’ which they have transgressed, at its most minimal it can be this: that the network itself could not cope with many people making such widely cross-posted articles, which is why the rest of us are bound in not taking such acts. If ‘One must be honest to live outside the law’, then because of the very structure of the Internet, we must all be honest.

The whole basis of the above argument derives from the fact that ‘we’ and not business, nor any government, ‘own’ the Internet. By ‘we’ I mean that the Internet is produced by, and used by, individuals. This is in contrast to television, where the material on offer is produced by another. Additionally, the Internet is largely profit-free. The attempt of companies such as America-On-Line or Prodigy to provide their own services, to construct an Internet of their own, is entirely valid; (as is the charging for material retrieved from a personal or corporate archive.) Nor do I have any substantial gripe against these companies as providers of access to the Internet, but this is provisional on the fact that while they design and run their other services, they do not have any say in the content or construction of the ‘net.’

Canter & Siegel of course paid nothing for their ad except the fee for connection. There is advertising to be done, and with it money to be made, on the Net, by companies and by individuals. But it cannot be at the expense of either the opinion, information and products freely given and maintained on the Net, nor the ‘ettiq'al’ code that sustains it.

Make no mistake about it, the Internet could greatly benefit from the influx of cash that paid advertising might bring; the important thing however is to retain

control. If Gibson guitars were to offer the University of Nevada a fee to have a ten-line ASCII ad appended to the welcome screen of anonymous ftp users, I would encourage them to accept. But if it meant any restriction on the content of what Jim Carson and I could archive there, I would hope they reject.

This issue, of control of the Internet, is the real challenge that the Net community must ready itself for. In the end, as with the radio and television in the United States, a controlling hand may be granted to business. But the diversity, multi nationalism and the fact that we have come this far WITHOUT the help of either of these agencies, gives us a strong base with which to maintain our independence.

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\*Note: By ‘Internet’ I mean the entire network of sites and boards allowing communication by e-mail, ftp, telnet, gopher, WWW, etc. By ‘Usenet’ I mean the bulletin-board system of alt, rec, comp, etc., also known as ‘NetNews’. I hope these are fairly accurate, or at least understandable.

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[Author’s Note: This paper can also be found on WWW:  
URL: <http://scrg.cs.tcd.ie/scrg/u/rcwoods/ettics.html>]

## **Ethics and the Internet: RFC 1087**

### Status of this Memo

This memo is a statement of policy by the Internet Activities Board (IAB) concerning the proper use of the resources of the Internet. Distribution of this memo is unlimited.

### Introduction

At great human and economic cost, resources drawn from the U.S. Government, industry and the academic community have been assembled into a collection of interconnected networks called the Internet. Begun as a vehicle for experimental network research in the mid-1970s, the Internet has become an important national infrastructure supporting an increasingly widespread, multi-disciplinary community of researchers ranging, inter alia, from computer scientists and electrical engineers to mathematicians, physicists, medical researchers, chemists, astronomers and space scientists.

As is true of other common infrastructures (e.g., roads, water reservoirs and delivery systems, and the power generation and distribution network), there is widespread dependence on the Internet by its users for the support of day-to-day research activities.

The reliable operation of the Internet and the responsible use of its resources is of common interest and concern for its users, operators and sponsors. Recent events involving the hosts on the Internet and in similar network infrastructures underscore the need to reiterate the professional responsibility every Internet user bears to colleagues and to the sponsors of the system. Many of the Internet resources are provided by the U.S. Government. Abuse of the system thus becomes a Federal matter above and beyond simple professional ethics.

### IAB Statement of Policy

The Internet is a national facility whose utility is largely a consequence of its wide availability and accessibility. Irresponsible use of this critical resource poses an enormous threat to its continued availability to the technical community.

The U.S. Government sponsors of this system have a fiduciary responsibility to the public to allocate government resources wisely and effectively. Justification for the support of this system suffers when highly disruptive abuses occur. Access to and use of the Internet is a privilege and should be treated as such by all users of this system.

The IAB strongly endorses the view of the Division Advisory Panel of the National Science Foundation Division of Network, Communications Research and Infrastructure which, in paraphrase, characterized as unethical and unacceptable any activity which purposely:

- (a) seeks to gain unauthorized access to the resources of the Internet,
- (b) disrupts the intended use of the Internet,
- (c) wastes resources (people, capacity, computer) through such actions,
- (d) destroys the integrity of computer-based information, and/or
- (e) compromises the privacy of users.

The Internet exists in the general research milieu. Portions of it continue to be used to support research and experimentation on networking. Because experimentation on the Internet has the potential to affect all of its components and users, researchers have the responsibility to exercise great caution in the conduct of their

work. Negligence in the conduct of Internet-wide experiments is both irresponsible and unacceptable.

The IAB plans to take whatever actions it can, in concert with Federal agencies and other interested parties, to identify and to set up technical and procedural mechanisms to make the Internet more resistant to disruption. Such security, however, may be extremely expensive and may be counterproductive if it inhibits the free flow of information which makes the Internet so valuable. In the final analysis, the health and well-being of the Internet is the responsibility of its users who must, uniformly, guard against abuses which disrupt the system and threaten its long-term viability.

## The Internet Society

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One of the greatest wonders of this world is not a crumbling edifice, nor is it a towering monolith; rather, it is the throbbing, pulsating mesh of circuitry referred to as the Internet.

The beauty of the Internet (sometimes referred to as “the Net”) is visible not just at the primal architectural level (the basic paradigm is chopping data up into little packets and sending the packets separately across a coaxial cable and reassembling these packets at the other end — that this simple idea works so well is a wonder in and of itself), but also at an intermediate level (the existence of lucid protocols such as SMTP, message routing, NFS, ...), and at the social level.

The latter level is what will be addressed most in this posting. By “social” (I hate this word!), I mean the level at which users interact with the net. This can involve transferring of files, creating virtual sessions, obtaining information, and inter-personal activities such as exchanging e-mail and using TALK to communicate. The big advantage of the Internet is that it is real-time. That is, whatever the exchange of data that takes place, it is instantaneous. The potential of such a faculty is enormous and to this date, it has almost always been used to its fullest. However, a disturbing change in attitude has manifested in the social structure of the net.

The social structure of the Internet is anarchistic. Power is highly localized to a domain (in my case “nist.gov”) or sub-domains (“carb.nist.gov”) or even hosts

("iris1.carb.nist.gov"). System administrators at a given domain/host have as much power as any other administrator across the net. The Internet flourishes mainly due to the cooperation of the local nodes. In fact, even for compilation of the Internet's size, SRI international relies on the cooperation of system administrators. It is difficult to appreciate how much it truly relies on simple trust and openness. The protocols and the programs that make the Internet (FTP, Telnet, SMTP) are based on forbearance. A lot of tools we see today used to navigate the Net were made possible simply because of this leniency of access (users without privilege could write sophisticated programs and experiment with various aspects of the Net). Changing this will not only dissuade development of better software, but will also make the Net into a travesty of what it currently is.

Take for example the way the protocol works as it transfers data across the Net. A packet of information is usually sent to ALL machines in a LAN before it gets to the outside world. The only thing that prevents this data from being accessed "illegally" is a "gentleman's agreement". It is at this place that security is most lax. Changing this would change the basic design of how the Internet works, and if implemented inefficiently (I see no way how this could be done in an efficient manner), it would make it a slower network. The beauty of the Internet is based on the fact that transmission of data can happen in a simple, unhindered manner.

Why should one want to change it? There has been a lot of hype about security (or lack thereof) on the Net. People lament the rising "crime rate" and loss of open collaboration. Some of it is undeniably true. However, it has existed from the time the ARPANet shelved off to form the Internet. At that time, the people using the Net knew how to take care of themselves. With rising population, the Internet's security has become a factor. But the Internet rose because of its lax and free-flowing nature (the decline of the more rigorous network, the BITNET, is an example that illustrates that flexibility flourishes). The problem is visible mainly because of the incompetence of system administrators: Any security problem can be handled best by simply configuring a system correctly. Even AIX (IBM's UNIX), which is so bug ridden, can be made into a secure system at a certain cost (of accessibility). But, the more you want to be part of the Net, the less privacy you have.

There are two sorts of individuals whose ideas are destructive to the very nature of the Net. The first are those who claim that extra security (and some of their

ideas involve an entire restructuring of the Net) in the form of encryption schemes, etc., are the answer to the Net's problems. My response is that if you wish to be protected, it's easy enough; people have been doing this for ages. Set up firewalls, remove complete access to the Net, and set up layers of machines to shield yourself from the Net. But no, these people aren't content with having THEIR system secure — they wish to impose their inane ideas on the rest of the Net.

The classic example of this, of course, is the Clipper chip and SKIPJACK encryption scheme which supposedly guarantees "secure communication", but the government has the privilege to monitor this communication anytime. As John Perry Barlow has put it, "trusting the government with your privacy is like trusting a Peeping Tom to install your window blinds." (If you are interested in more information on this proposal and how you can oppose it, let me know.)

Any general scheme like the above is very unrealistic because it entails the cooperation of all the people across the Net. Instead, the paranoid people can take steps to protect their systems as much as they want. Eventually, the local user community, if incensed enough, will rebel, or find alternative measures, in order to gain access to the Net (from personal experience, this HAS happened). But the important thing is that security lies in configuration. You can protect your house adequately if you are willing to invest in a lot of alarm systems and locks, but you shouldn't force this unrealistic view on everyone else around the world. This approach, approved by a few, is held in contempt by most of the Net and in the current foreseeable future will NOT happen.

Most of the Internet protocols are very open: the SMTP protocol is one example where one can fake e-mail messages in an instant (as demonstrated here—I could be "president@whitehouse.gov"). But this is the same openness which, I believe, has resulted in us having very cool mail packages such as pine or elm. NFS is another protocol that weakens a system's security to a great extreme. Can you implement NFS with so much security (such as encryption, etc.) and have it still be efficient? I don't think so. Gopher servers are another security risk, but only if improperly configured. With the right set of locks, your machine can indeed exist reasonably securely on the Net. The Net, and its simplicity should not be compromised for human misdemeanors.

But why do we need locks in the first place? Why

can't everything be open? This brings us to the sort of individuals abusing the Net. These are unemployed morons who have nothing better to do than to waste the Net's resources in several ways. These are the sort of people who indulge in muds and IRC. While the latter does have potential, what it is now is best emphasized by what Bobby wrote me once:

"... I hope it haunts you till the day IRC actually turns into a real medium, not some combination of losers, net-junkies, net-surfers, role-players and 'I'm wiredom I'm cool' freaks."

This could also apply to those who MUD and the ones who attempt to crack machines. The security holes are there! What are they trying to prove? The fact remains that most people of this sort don't appreciate the Net. This is part of a letter I read in the U. Magazine:

"...The power of GOPHERS and other data access tools are restructuring the way we get info. Not to mention the fun things like e-mail (even to the president!), IRC servers, netTREK, and other net-based games."

It clearly shows this person's inclination of how the Net should be used. Net-based games are expensive and cost the whole Net. IRC, well, it is a medium that could be used for better purposes, but it is a loss right now. I say all this because it is this attitude that is prevalent among those who steal passwords and exploit other system's weaknesses (this is different from those finding out how to do it and then not doing it).

Commercialization also brings the need for security. As long as the Net is used to simply exchange ideas, it is reasonable to expect that most people would not be interested in forging addresses, etc. But now you can order merchandise over e-mail! There's economic incentive involved. While I am not sure about how this should be handled, it can't be denied that commercialization (in any form, including "selling" access to the Net, allowing for business transactions, etc.) brings in people whose motives aren't in the best interests of the Net. With the system the way it is, you can't keep these people out and I doubt if this is the solution.

In the past, there was an automatic filter—you had to do something special (go to college, work in a big enough company, etc.) in order to gain access to the net. This was appreciated and thus the people who used it were less prone to abuse it. These days, for \$40 a year, a modem and a computer, you have access. When it becomes so easily available, people start taking it for granted.

To summarize, people who cry about security should

mind their own business and properly configure their systems. The same people who whine so much are those who have a single system manager for a hundred networked computers. This is clearly bound to cause problems. There is NOTHING that can't be made secure with existing protocols — provided you are willing to pay the price of less access to the Net. I would also argue that there is NOTHING one can do to have completely access to the Net and STILL have the privacy one wants.

The root of the problem, however, is with users who have no respect for the wondrous nature of the Net. While this is simply human nature, encouraging a healthy respect towards what the Net can do, for both those who believe in making the Net so rigid that nothing gets done, and those who intend to "harm" the net, is the way to go.

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Usenet newsgroups such comp.security.\*, etc.

## The Internet: Maintaining and Extending Diversity

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### INTRODUCTION

The structure of this essay is to briefly describe pertinent features of the Internet as it now stands in relation to the key questions that face the rapid, burgeoning, development — 'Who pays?' 'Who runs the Internet?' and 'What for?' — and argues that the situation as it currently stands is well suited to withstanding monopolization by any one sector.

The essay then swings to the other end of the spectrum and considers issues relating to how access to the Internet might be expanded to all members of society, as an inexpensive public commodity, rather than an expensive, personal, luxury good; and takes a broad survey of possibilities for the Net as an instrument of social policy-making on a national level.

### STAYING A PART OF THE CULTURE : RESISTING TAKEOVERS

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The first thing that it is important to realize when beginning a discussion on the future of the Internet is to realize that the multi-nationalism of the Net means that it is unlikely that any decisions will be taken on a global level.

Being divided into nations is a fundamental identification that many people, never query or think beyond. The Internet blows away this barrier, enabling communication at lightning speeds between continents. Yet the key factors in determining the direction the Internet takes are profoundly affected by the fact that many nations, each thinking independently of the other, are involved.

The very broadest platform for discussion of these issues will be at the level of nations — NOT internationally — simply because that's the way things are done in the twentieth century. Americans and the American government will decide what happens in America, Irish society will decide what is allowable in Ireland, and so on. The nation is our biggest unit of co-operation, and it will be a long time before the upstart 'Internet' makes any real impression upon people's minds to encourage us to communicate globally.

No decision can be taken in a void, but in the context of the existing structure and past history of the Internet.

The Internet has risen gradually, growing like a web, extending ever outward. The huge costs associated with developing and maintaining the Internet's infrastructure are shared. As each business or academic institution becomes aware of the benefits of being connected to the Internet they must be prepared to pay for the development required. Certain people or groups might be said to 'own' certain parts of the physical infrastructure, but no one owns it all. Commercial investment is used as the demand becomes apparent. Commercial companies make money on everything, from selling computers and software to leasing the lines on which the information flows.

At a more profound level than ownership, no one is in control of the Internet as a whole. Again, the person who runs a site can refuse to carry certain groups or material, but they do so only for that site, and for nowhere else. Even if governments restrict the material coming into a country, they do so only for that country. Those who invest in the Internet have some say as to what goes on there. If a nation decides what material is suitable for its population and what not, that information is reachable somewhere in the world, and if there is a

demand for it, then it will be obtained. It is probably wisest, then, that restrictions on the Internet remain minimal, since oppressive strictures only force problems underground. Previous history of the repression of 'social vices' repeatedly demonstrates complete failure.

This feature of diversity means that any absolute control of the Internet by a government or a corporation would now be very difficult to achieve. In the same way as we each download into our accounts only what we want there, some measure of control could be gained on a wider scale by 'owning' the sites or the link to the Internet, created by individuals or companies or governments using their own capital.

An obvious example that illustrates both of these points about diversity and control is the recent upsurge throughout the world in commercial companies offering access to on-line services and the Internet. The various companies have to pay wages, equipment and overheads for maintaining the bulletin boards and other services they themselves provide, but not for the information on the Internet, which 'looks after itself'. This has led at least one operator to advertise that clients get the Internet 'free'!

Online services do two things as regards the net: they provide access, and they also help structure the net, so that it is easily negotiable. The latter of these the Internet is learning to do for itself, in particular via freely available programs such as Mosaic, so once on the net, a user can set themselves up fairly well. The only problem is getting on in the first place.

As far as I can see, the crucial factor in maintaining the freedom on the net as a whole is the freedom given to users within the larger groups. In other words, so long as schools, universities and colleges, and businesses, as the main groups of users, give their students and employees complete access to the Internet, enabling them to work beyond and outside of their academic or company purposes, then the Net as a whole will be beyond the hands of any one group. Put in their most obvious form — control by a large number makes control by any one person more difficult; and freedom of expression by a large number makes any repression more difficult for those who would restrict access.

In sum: to talk of people 'taking decisions' as though some power group has the potential to sit down and decide how the Net is going to be, is an abuse of language, given the current determining factors of the Internet.

## BECOMING A PART OF THE CULTURE 1 : COMMUNITY ACCESS

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In the U.S., Federal and State Governments are drawing on property and sales taxes, and on state lotteries, in order to plough money into education, and thereby, into the net. But the clear beneficiaries of this cash are not the general public. The Internet began as a means of communicating information between professionals in the computer and scientific worlds, and its original nodes are places of research — universities and large companies. But since then much wider uses for the Internet have become apparent — Usenet has become a gathering place for serious discussants interested in every conceivable subject,(1) and the material kept at archives worldwide has similarly diversified. Leisure has also found its way onto the Net because of the potential to encode information in pictures, sounds and movies. The Internet has even been touted (and implemented in small scale (2)) as a discussion forum and decision making process for social policy on many levels.

Taxpayers who have no problem donating a percentage of their hard-earned income to academic institutions on the basis that it ultimately benefits society may now have reason to feel aggrieved that they themselves are not seeing the benefit of the tax money they contribute. Those in academic establishments are perceived to have an unfair advantage that the ordinary citizen could well do with — access to information and education. Despite the perceived egalitarianism of the net, that equality is available only to an intellectual and business elite. The technological capabilities exist that mean the Net can reach into any building — not just universities and office-blocks but libraries and individual homes as well. If the ordinary tax-payer is supporting the net, then why aren't they seeing any of it?

Further, if the Net is to become a social instrument with potential quorums of entire communities, states and even populations, giving access to the public at large will require the current 'indirect stream' to turn itself into a direct flood.

A certain small proportion of the education money to Colleges and universities reaches the public in the form of 'Freenets' in local communities, but the numbers are small. The dependence on academic institutions is waning, and some Freenet projects are now looking to local online providers and to government to play their part in communities by allowing non-profit groups to

give access. (3) (4) (5)

But despite all these efforts, if use of the Internet is to occur on a grand scale, then investment on a grand scale will be required. It is tempting then to send out a call to governments to provide funds for nationwide investment, perhaps by the creation of the same kind of companies as AOL and Delphi except non-profit and tax funded.

Internet's history suggests that this grand investment will come from a myriad of diverse locations. This is probably best, since with large scale 'ownership' of Net resources must come the feeling of 'controlling' the Net — the piper calls the tune — especially if that investor is a government. Unless governments are prepared to grant the same sweeping freedoms as the majority of academic and business institutions, than such large player in the field would bring an unbalancing effect. Despite the circumstances depicted in the first part of this paper, I think that the area of public access has yet been inadequately colonized by the public at large, so that large scale investment by governments now would potentially grant them a large measure of control.

It is probably best then, that the call goes out for government investment not in national systems that it can call its own, or to put in place infrastructure over which it has exclusive control, but from local communities and states to apply for grants for use toward the foundation (and expansion (6)) of smaller-scale groupings.

The interest in Freenets and community access will hopefully grow from its present trickle and see a similar rate of growth similar the Internet's own exponential spread. Freenet providers are always in a difficult position, because they need to obtain funds, but without any strings attached. Optimistically, there is a promising analogy between the examples quoted here and the initially 'indirect' development of networking technology from university and other research funds.

What people fear about involvement of a dominant body in providing Internet services is that it will impose some kind of restrictions or censorship. If a government runs sites, it is perfectly entitled to do whatever it wants with those sites, but in the same way as AOL and Prodigy have found that the Net is 'bigger than they are', central government will find local and state communities organized and ready to assert their power.



## BECOMING A PART OF THE CULTURE 2 : NATIONWIDE ACCESS

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In the long term, possibilities exist for nationwide use of computer networks. Community leaders have been made aware of the Internet's potential for regaining some of the 'bottom-up' made difficult by centralized governments and parliaments. Very often, not only is a system 'top-heavy' but its top is one that is widely mistrusted as being a representative voice of ordinary people. If discussion of national issues were to take place in a forum accessible to the masses, there would be an opportunity for citizens to express their opinions directly, and bring politicians to greater account.

True 'polis'-ticians will realize the opportunity of returning power to a public forum with an informed public, and perhaps encourage it, even though it means a radical crumbling of their own ivory towers. The whole idea of Internet for the people is to stop prophecies like this coming true, "I think companies like AOL are well positioned to be the way most Americans connect to the Internet." (7) yet avoid having to tow the line in return for government cash.

A fully functioning democratic federation does not simply involve local people being responsible for local decisions, but also having an effective voice in national policy. In order to achieve this, it must be possible for communication to pass smoothly between lower to higher echelons and back. The requirements of such an organ are that information be widely disseminated, discussion that grants an equal voice to all participants, and, even if decisions are taken by a minority, the power to call those decision-makers to account. These are inherent characteristics of the Internet.

The Internet has thus far survived the arrival of commercial enterprises due in a large measure to the fact that it was already home to the enterprises that businesses wanted to use computers and computer networks for. The Internet can strengthen its chances of surviving a (national) governmental influx by already being the place where policy discussion is held. Preparation is already underway in the form of these local groups who are organizing locally. And the power to turn these into national and even international forums resides in the compatibility of the technology itself.

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Notes:

1. The perfect example of this is the recent Call for Discussion of a separate 'arts' hierarchy on Usenet. Message-ID: <mccombtmCwvB2J.3E0@netcom.com> Subject: RFD: New Hierarchy for Arts & Humanities From: mcombtm@netcom.com (Todd Michel McComb)

Newsgroups: <wide arts cross-posting; taken from sci.classics>.

2. e.g. Santa Monica's 'Public Electronic Network' "Paid for entirely by taxpayer dollars and accessible to all city residents, PEN is the first free, government-sponsored electronic network in the United States." 'Yakety-Yak, Do Talk Back!' Joan Van Tassel \_Wired\_ Jan. 94.

3. "Since our Freenet is non-profit we are trying to get our Net connection donated from a local service provider."

Message-ID: <JCOLLIE.94Sep29232916@blue.weeg.uiowa.edu>

Newsgroups: alt.amateur-comp, alt.culture.usenet, alt.internet.mediacoveryage

From: jeffrey-ollie@uiowa.edu (Jeffrey C. Ollie)

Date: 29 Sep 1994 23:29:17 -0500

He continues however: "Since the service provider is donating the Net connection to someone that will be giving access away (we won't charge users anything, we'll be entirely run on donations and grants), the service provider has a valid interest in limiting what we give away as we would be taking away their business." For more on the argument as to whether commercial companies will lose or benefit from Freenets, see Tom Grundner's Letter to the Editor "Free-Nets benefit commercial networks." in Sept.7 \_Chronicle\_.

4. "We, at dorsai, have requested \$1.3 million from the government (which we will match with equivalent funds coming from the private sector) to build 16 sites on the Net. Those will be put in schools, libraries, community centers..."

Message-ID: <CwwuA6.4r1@dorsai.org>

Newsgroups: alt.amateur-comp, alt.culture.usenet, alt.internet.mediacoveryage

From: tristan@dorsai.org (Net-Runner)

Date: Thu, 29 Sep 1994 21:27:41 GMT

5. In 'Putting Citizens on Line' in the \_Chronicle of Higher Education\_ David L. Wilson reports that "All

of the nearly \$2 million budgeted for the [Sailor] project came from federal money funneled to public libraries.” (page A19)

6. Wilson quotes Ken Klingenstein: “In general, the community networks I have seen failed because they never reached critical mass, or because they reached critical mass and collapsed under their own weight.’ Once a community understands the power of networking, he says, the system becomes flooded. If money isn’t available to expand users become frustrated as the system slows down, and eventually they stop participating.”

7. Steve Case, president of America Online. Quoted in ‘Hooked Up To The Max’ Philip Elmer-Dewitt. *Time* magazine article posted to alt.internet.media-coverage 94-09-23 12:28:12 EDT

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[Author’s Note: This paper can be found on the WWW at [http://scrg.cs.tcd.ie/scrg/u/rcwoods/internet\\_diversity.html](http://scrg.cs.tcd.ie/scrg/u/rcwoods/internet_diversity.html)

## Do You Want to Lose Your Voice

by Ken Malone

(Reprinted from *The Searchlight* Jan 20, 1944, p. 8, Flint, MI)

[Editor’s Note: The following article was written in 1944 by Ken Malone, an editor of the uncensored local union newspaper *The Searchlight*. The fight by Chevrolet auto workers in Flint, Michigan, to defend freedom of the press is reminiscent of the battle over the Net today. Therefore, we are including this article in this special issue because of the helpful perspective it can provide for today. Sadly, Ken Malone, who was a Flint Sit Down Striker in 1936-37 died in August 1993.]

Brothers and Sisters, do you wish to have your *Searchlight* suspended?

If you do, then just listen to the whispering campaigns that are going on in the shop and in the lobby of the union hall. These campaigns are being carried on daily. They are being carried on by people who contribute nothing to the paper. It may be they can’t write.

In the last membership meeting there were several desperate attempts by a very few to emasculate the paper. Some even advocated control a la Hitler. I mean com-

plete abolition of it.

These few people who would take your paper from you are those who want complete control of your union to the detriment of the membership.

Comparatively speaking, there are few members who attend membership meetings, so consequently few know what goes on in their union. One might answer that by saying that it is any member’s fault that he doesn’t attend meetings to keep abreast of his union. That is very true, but suppose each of our 11,000 members decided to attend a membership meeting, how would we accommodate them? Our main auditorium will seat probably 500 at most.

Others may say, oh well, that is a remote possibility that all our members may decide to attend the same meetings. With that I agree. But because of such excuses are we going to close our eyes and ears to these attempts to remove the last semblance of aggressiveness from our union? I say we aren’t going back to the last membership meeting, I said there were a few bold attempts to wrest the most potent voice of you brothers and sisters from you. One proposal read thus: We recommend that *The Searchlight* be suspended until the election of a new editorial staff.

The two (2) people responsible for the above attempt at keeping you ignorant of what your union is doing, promised a very small handful of people who were blindly led into supporting such a move, that they (the two) would take the floor in membership meeting and fight to put it across. But these two who, by the way, are in favor of the incentive or bonus plan, didn’t even try to get the floor on so vicious a thing, much less fight for its passage.

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.

Knowing they can’t justify their arguments through the paper, they stoop to whispering campaigns and snaring innocent victims into temporarily supporting legislation that would make Hitler wince.

It isn’t so long ago we were unable to get enough people interested in their own union affairs to get a quorum to hold a meeting. But since *The Searchlight* has awakened many of them to what may happen to our union, we have large turn-outs at each membership meeting. There was a time that for months we had no

membership meetings because of the lack of interest due to a lack of enlightenment as to what transpired in the union. That isn't so today and 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.

In closing, 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 *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.

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## Summary — Royal Society of London as Scientific Perspective

[Editor's Note: The following article is part 3 of "From ARPAnet to Usenet". Parts 1 and 2 appeared in *The Amateur Computerist*, vol 5 no. 3/4 and vol 6 no. 1.]

### Part III

The early 1600s, like contemporary times, was a period in Britain when new forms and methods of production were becoming possible. An attitude of respect for data that comes from the physical world and scientific observations based on that data had been developing in Great Britain and on the Continent (especially in Italy.)

Interested in putting into practice the scientific method and principles that had been developed by Sir Francis Bacon, and in applying their science to serve the well being of the British people, a group of amateur scientists began to gather. Meeting in each other's homes and then in Gresham College in London, they formed what came to be known as the Invisible College. They met on Wednesdays and conducted experiments in different areas of production and science. The following stanzas are from a ballad of the period describing their activities:

“If to be rich, and to be learned  
Be every nations chiefest glory,  
How much are Englishmen concerned  
Gresham to celebrate in story  
Who built th' Exchange to enrich the Citty

And Colledge founded the Witty”  
“A second hath described at full  
The Philosophy of making Cloth  
Tells you, what Grass doth make course Wooll  
And what it is that breeds the Moth  
Great learning is 'ith art of Clothing  
Though vulgar People think it nothing. (43)

The experiments conducted by amateur scientists like Robert Boyle, Sir Christopher Wren, Thomas Hooker, and Sir William Petty, and the understanding of the laws of how the physical world operated generated from their experiments, led to a significant increase in the ability of British industry to modernize its methods of production. This breakthrough made possible the industrial revolution.(44)

This same need for an experiential basis for knowledge and for a broadness of knowledge and honesty about problems was understood by the researchers who worked on the ARPAnet. A similar attitude nourished the birth and early development of the uucp network that was born and grew up as the child of the UNIX community, Usenet News.

Putting one's theories and models into a form actually tested and revised based on the data received, has been the basis for the startling developments in the field of computer communication and automation which have made the global network possible.

U.S. government funding through the Advanced Research Projects Agency (ARPA) and the Acceptable Use Policy (AUP) that accompanies U.S. government funding, helped to create an atmosphere encouraging experimentation and innovation. The ARPAnet pioneers were free from the limitations of commercial objectives and artificial time pressures.

The obligation of the academic community to keep scientific work open to the public and to avoid using their funds to support any particular commercial interest, in a similar way, made it possible for Usenet pioneers to create and develop a network that has made possible the cooperative solving of technical and scientific problems.(45)

The development of the ARPAnet and its evolution into the NSF backbone of the Internet, and the creation and expansion of Usenet News, are the harbinger of a significant new capacity of our society to produce for the needs of its people. It is this potential capacity, which is only beginning to be realized and is helping to change governments and economic systems like those in Eastern Europe and the former Soviet Union, that

obstruct its fruition.(46) This capacity has been developed by those free of market forces, by scientists and researchers, by computer scientists working under academic conditions or government contracts, and by student and amateur participants. The active cooperation of people around the world is a force to continue to expand the participatory nature of Usenet News and the global computer network, the Internet, and to oppose efforts to commercialize and freeze these developments. A cooperative culture has been created and has in turn nurtured the growing Global Computer Communications Network that has developed over the past 25 years. This cooperative networking culture, this Net Commonwealth, portends to transform society as we now know it.

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Notes:

(43) Taken from “In praise of the choice Company of Philosophers and Wits who meet on Wednesdays weekly at Gresham College,” in “The Economic Writings of Sir William Petty,” ed. Charles Henry Hull, vol II, Cambridge, 1899, p. 324.

(44) See “Sir Francis Bacon and the Shorter Hours Bill,” *The Amateur Computerist*, vol. 5, no. 1-2.

(45) See “Arte, Computers and Usenet News,” in “*The Amateur Computerist*,” vol. 4 Supplement, Fall '92.

(46) See for example “The Information Technologies and East European Societies,” by Gary L. Geipel, A. Tomatz Jarmoszko, and Seymour Goodman, in “East European Politics and Society,” vol. 5, no. 3, p. 394-438.

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## **BOOK PROPOSAL**

### **THE NET AS AN AGENT FOR CHANGE**

#### **On the History and Impact of the Global Computer Network**

The story of the creation and development of the Global Computer Network, an achievement that is one of the great achievements of human society, is a story as important as the reality of the Net itself. The story of how the Net has been built is not only helpful in its own right, but it is also needed to gain much needed perspective on the impact that this development will have for human society in the upcoming new Millennium. This book will

tell the story of the building of the Net and it will present some of the many experiences and observations of people around the world about the impact that the Net is having on their lives.

#### Chapter Outline

##### Introduction and Preface

##### Chapter 1 — The Vision — Interactive Computing and Creating a Supercommunity of Cooperative Online Communities

The early experience of interactive computing and of time-sharing instead of batch processing led computer science pioneers to realize that they were on the verge of the creation of an important new technology. This chapter will describe the vision and the developments that gave birth to the foundation on which the Global Computer Network was built.

##### Chapter 2 — ARPA and the ARPAnet

This chapter will describe the process that made it possible to build the Net. J.C.R. Licklider, whose vision of an intergalactic computer network helped to inspire computer scientists and graduate students who built the ARPAnet, convinced the U.S. Department of Defense to support research to advance computer science technology. He and the subsequent directors of the Advanced Research Projects Agency (ARPA) made government support and funding available to academic and research computer scientists to carry on the advanced computer science research needed to build the ARPAnet.

##### Chapter 3 — The Network Working Group Solves the Problem of Host to Host Protocols and Creates the basis for the Internet.

While the ARPA contractor BBN established a network of IMPs to make a network possible, graduate students at sites with ARPA contracts were charged with the task of making it possible for different computers on the ARPAnet to communicate with each other. Creating a body of common experience as part of the Network Working Group, and common knowledge and discussion through the Requests For Comment (RFC's), the Network Working Group learned how to solve the Host to Host protocol problem and the basis was set for the Internet.

#### Chapter 4 — Meanwhile UNIX is born

UNIX grew out of the collaboration of academic and industrial researchers, sponsored by the U.S. government on the Multics project. During the late 1960s, the increased demand on AT&T for telephone service led to pressure to make its operations more efficient. During this same time period, Bell Labs computer science researchers who had been involved with research on operating systems and time-sharing with the Multics project had their site withdrawn from the Project in 1969. In order to have access to the advanced form of computing first provided by CTSS and then Multics, Bell Labs researchers created their own time-sharing system, which came to be known as UNIX, based on the lessons they learned from the Multics collaboration. Then when AT&T had to automate its switching and telephone support operations, UNIX made it possible.

#### Chapter 5 — TCP is created and the Internet is Born

Building on the experiences of the Network Working Group (NWG) and the body of technical knowledge it created, the problem of how to build a network of networks was clarified. This chapter describes the process by which Transport Control Protocol (TCP) was created and then how this made possible the Internet.

#### Chapter 6 — The Evolution of Usenet News — The Poor Man's ARPAnet

This chapter describes how Usenet News began and how it grew. Using UNIX and UNIX tools, particularly uucp, which were released with UNIX Edition 7 in the summer of 1979, graduate students at Duke University and the University of North Carolina at Chapel Hill designed the Netnews software to make it possible for different UNIX sites to create a communications network. From a small local uucp network connecting the computers at their different sites, a global uucp network grew up that surprised even the pioneers themselves. From its early beginnings as an online community which provided needed online support for the UNIX community, Usenet News continues to grow and expand at an amazing rate today. This chapter will also describe the participatory online community that Usenet News makes possible today.

#### Chapter 7 — UCB gives the world BSD and bundles TCP/IP with it

The U.S. government realized that it needed to standardize its computer operating systems and turned to the

University of California Berkeley to create a version of UNIX to do so. When it built TCP/IP into the new Berkeley Software Distribution (BSD) of UNIX, an important step in making computer networking available to the world was made.

#### Chapter 8 — Other Nets Link Up

CSNet, BITNET, Fidonet, Freenet — these are some of the other Nets that have developed as part of or alongside the Internet, but which have helped to develop the Global Network that now exists. This chapter describes some of the forces that helped these Nets develop and what has happened with them.

#### Chapter 9 — Hello World! We're all ears!

Who is out there? Comments from people around the world who are connecting to the Net about what they see as the importance of the Net and what they feel are the problems to continued network expansion.

#### Chapter 10 — The Net and the Netizens

What does the Net mean to those who are on it? This chapter describes experiences that Netizens have had and observations they have offered in response to questions posted on the Net as to its impact for those who are online. This chapter describes the importance of the Net for an ever expanding set of people around the world.

#### Chapter 11 — The Soul of the Net: The Netizens and the cooperative online Culture.

This chapter describes the cooperative culture that many have observed is the “Soul of the Net”. Something very important has been created online and it has helped to promote both a new vision of what is possible and a new understanding of the challenge to our society that these developments represent. A long standing aspect of Net culture is the concern that the exploding growth of the Net can't be sustained. This has come to be known as “The Imminent Death of the Net is Predicted.” Many are once again predicting “the imminent death of the net.” This chapter explores how the Net survived and flourished thus far and examines how and why the Net will continue to expand and flourish.

# THE NET AND NETIZENS: The Impact the Net has on People's Lives

by Michael Hauben  
hauben@columbia.edu

[Editor's Note: The Preface to the following article appeared in the *Amateur Computerist* Vol. 5 no. 3/4]

## INTRODUCTION

The world of the Netizen was envisioned some twenty five years ago by J.C.R. Licklider and Robert Taylor in "The Computer as a Communication Device" (*Science and Technology*, April 1968). Licklider brought to his leadership of the Department of Defense's ARPAnet a vision of "the intergalactic computer network." Whenever he would speak of ARPAnet, he would mention this vision. J.C.R. Licklider was a prophet of the Net. In this paper, "The Computer as a Communication Device", that Licklider wrote with Robert Taylor, they established several principles which would make the computer play a helpful role in human communication. They clarified their definition of communication as a creative process by writing: "But to communicate is more than to send and to receive. Do two tape recorders communicate when they play to each other and record from each other? Not really — not in our sense. We believe that communicators have to do something non-trivial with the information they send and receive. And to interact with the richness of living information — not merely in the passive way that we have become accustomed to using books and libraries, but as active participants in an ongoing process, bringing something to it through our interaction with it, and not simply receiving from it by our connection to it... We want to emphasize something beyond its one-way transfer: the increasing significance of the jointly constructive, the mutually reinforcing aspect of communication — the part that transcends 'now we both know a fact that only one of us knew before.' When minds interact, new ideas emerge. We want to talk about the creative aspect of communication."

Licklider and Taylor defined four principles for computers to make a contribution towards human communication. They are:

1) Communication is defined as an interactive creative process.

2) Response times need to be short to make the "conversation" free and easy.

3) Larger networks would form out of smaller regional networks.

4) Communities would form out of affinity and common interests.

In this paper I will explore the uses Netizens have discovered for the Net. Licklider's and Taylor's understandings from their 1968 paper have stood the test of time, and do represent the Net today. In a later paper Licklider co-wrote with Albert Veza, "Applications of Information Networks" (Proceedings of IEEE, Vol. 66, No. 11, Nov. 1978), they explore the possible business applications of information networks. Licklider and Veza's survey of business applications in 1978 come short of the possibilities Licklider and Taylor outlined in their 1968 paper, and represent but a tiny fraction of the resources the Net currently embodies.

In the 1968 paper, Licklider and Taylor focused on the Net being comprising of a network of networks. While other researchers of the time focused on the sharing of computing resources, Licklider and Taylor kept an open mind and wrote: "...The collection of people, hardware, and software — the multi-access computer together with its local community of users — will become a node in a geographically distributed computer network. Let us assume for a moment that such a network has been formed.... Through the network of message processors, therefore, all the large computers can communicate with one another. And through them, all the members of the super community can communicate—with other people, with programs, with data, or with a selected combinations of those resources." (32)

Their concept of the sharing of both computing and human resources together matches the modern Net. The networking of various human connections quickly forms, changes its goals, disbands and reforms into new collaborations. The fluidity of such group dynamics leads to a quickening of the creation of new ideas. Groups can form to discuss an idea, focus in or broaden out and reform to fit the new ideas that have been worked out.

Netnews, irc, mailing lists and mud/mush/moo/m\*\* (various of the available discussion tools on the Net) are extremely dynamic. Most can be formed immediately for either short or long term use. As interests or events form, discussion groups can be created. (e.g., 9NOV89-L about Germany after the fall of the Berlin

Wall and Unification.)

The virtual space created on (non-commercial) computer networks is accessible universally. This space is accessible from the connections that exist, whereas social networks in the physical world generally are connected by limited gateways. So the capability of networking on computer nets overcomes limitations inherent in non-computer social networks. This is important because it reduces the problems of population growth. Population growth now does not mean limited resources any more — rather that very growth of population now means an improvement of resources. Thus growth of population can be seen as a positive asset. This is a new way of looking at people in capitalist society. Every new person can mean a new set of perspectives and specialties to add to the wealth of knowledge of the world. This new view of people could help improve the view of the future. The old model looks down on population growth and people as a strain on the environment rather than the increase of intellectual contribution these individuals can make. However, access to the Net needs to be universal for the Net to fully utilize the contribution each person can represent. Once access is limited — the Net and those on the Net lose the possible advantages the Net can offer. Lastly the people on the Net need to be active in order to bring about the best possible use of the Network.

Licklider foresaw that the Net allows for people of common interests, who are otherwise strangers, to communicate. Much of the magic of the Net is the ability to make a contribution of your ideas, and then be connected to utter strangers. He saw that people would connect to others via this Net in ways that had been much harder in the past. Licklider observed as the ARPAnet spanned two continents. This physical connection allowed for wider social collaborations to form. This was the beginning of computer data networks facilitating connections of people around the world.

The Net is alive because of its use by ordinary people. Pioneering research is happening, but the meat of the Net experience is the normal everyday use of the Net. Thus I have included many of the responses to my research in this paper. In response to another survey of Net uses, Steve Cavrak recently wrote the following to the COMMUNET mailing list: “The Internet is NOT a place of 'innovative stories.' Rather it is a place of impressively common, every day electronic activity. It is not a hot bed of dangerous, high-tech, experimentation, it is a place where pretty much ordinary people do their

day to day work.”

My research on and about the Net was very exciting for me. When I posted my inquiries, I usually received the first reply within a couple of hours. The feeling of receiving that very first reply from a total stranger is always exhilarating! That set of first replies from people reminds me of the magic of E-Mail. It is nice that there can be reminders of how exciting it all is — so that the value does not become lost in the shuffle.

What follows is a collection and presentation of but a little of the wonderful data that I received in the process of my research utilizing the Net.

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## A. CRITICAL MASS

The collection of individuals add to the interests and specialties of the whole. Most people can now gain something from the Net, while at the same time helping it out. A critical mass has developed on the net. Enough people exist that the whole is now greater than any one individual and thus makes it worthwhile to be part of it. People are meshing intellects and knowledge to form new ideas. As Larry Press said: “I now work on the Net at least 2 hours per day. I've had an account since around 1975 but it has only become super important in the last couple of years because a critical mass of membership was reached. I no longer work in LA, but in cyberspace.”

Many technical people on the Net think only “their type” currently inhabit the Net. Many different kinds of people are now connected to the Net. Even the original users of the Net (then several unconnected test-beds of network research) were not only from exclusively technical and scientific communities. Previously, the nets were only available in a few parts the world. Now however, people of all ages, from most parts of the globe, and of many professions make up the net.

From: Michael J. MacDonald

“One of the advantages that benefitted a close friend of mine was the immediate access to hundreds of people amateur and professional.... Her [health] prospects are much better than before the week of network monitoring.”

The original prototype networks (e.g., ARPAnet in the USA, NPL in the United Kingdom, CYCLADES in France and other networks around the world) developed the necessary physical infrastructure for a fertile social network to develop. As Einar Stefferud wrote,

“The ARPAnet has produced several monumental results. First, it provided the physical and electrical communications backbone for development of the latent social infrastructure we now call 'THE INTERNET COMMUNITY.’” (ConneXions, Oct. 1989 vol 3 No. 10. p. 21)

Many different kinds of people comprise the Net. The university community sponsors access for a broad range of people (students, professors, staff, professor emeritus, etc) Many businesses are also connected. A K-12 Net exists within the lower grades of education which invite younger people to be a part of our community. Special bulletin board software (e.g., Waffle) exists to connect personal computer users to the Net. Various UNIX bulletin board systems exist to connect other users. It is virtually impossible to tell what kinds of people connect to public bulletin board systems, as only a computer (or terminal) and modem are the prerequisites to connect. Many if not all Fidonet BBS's (a very common BBS type) have at least e-mail and many also participate through a gateway to Netnews. Prototype community network systems are forming around the world (e.g., Cleveland Freenet, Wellington Citynet, Santa Monica Public Electronic Network (PEN), Berkeley, Singapore) Access via these community systems can be as easy as visiting the community library and membership is open to all who live in the community.

In addition to the living body of resources this diversity of Netizens represents, there is also a continuity growing body of digitized data that forms another body of resources. Whether it is Netizens digitizing great literature of the past (e.g.: the Gutenberg Project), or it is people gathering otherwise obscure or non-mainstream material (e.g., various Religions, unusual hobbies, gay lifestyle, fringe.), or if it is Netizens contributing new and original material (e.g., *The Amateur Computerist* newsletter), the Net follows in the great tradition of other public bottom-up institutions, such as the public library or the principle behind public education. The Net shares with these institutions that they serve the general populace. This data is just part of the treasure. Often living Netizens provide pointers to this digitized store of publicity available information. Many of the network access tools have been programmed with the principle of being available to everyone. The best example is the method of connecting to file repositories via ftp (file transfer protocol) by logging in as “anonymous.” Most (if not all) WAIS (Wide Area Information Systems), and gopher sites are open for all users of the Net. It is true

that the current membership of the Net Community is smaller than it will be, but the Net has reached a point of general usefulness no matter who you are.

All of this is exactly why the Net can not be allowed to be taken over by commercial entities. Once the commercial interests gain control, the Net will be perverted so as to make it no longer powerful for the ordinary person. Commercial interests vary from those of the common person. They attempt to take profit from any available way. Thus, the Netiquette of being helpful will soon have a price tag attached if commercial interests are allowed to gain control of distribution and ways of access. Adam Smith writes about the difference in interests between the common person and the business owner in *The Wealth of Nations*. Smith speaks about manufacturers when he writes: “It comes from an order of men, whose interest is never exactly the same with that of the public, who have generally an interest to deceive and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it.” (Modern Library Edition., p. 250)

The Net has only developed because of the hard work and voluntary dedication of many people. It has grown because the Net is in the control and power of the people at a bottom-level, and because these people developed it. People's posts and contributions to the Net have been the developing forces. [See “The Social Forces Behind the Development of Usenet News”, *The Amateur Computerist*, Volume 4, Issue 4/5]

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## B. GRASS ROOTS:

The Net brings people together. People put into connection with other people can be powerful. There is power in numbers. The Net allows an individual to realize his power. The Net, uncontrolled by commercial entities, becomes the gathering, discussion and planning center for many people.

The combined efforts of people interested in communication has led to the development and expansion of the global communications system. Ithiel de Sola Pool in *Technologies Without Boundaries* wrote: “The system becomes part of the largest machine that man has ever constructed — the global telecommunications network. The full map of it no one knows; it changes every day.” (Cambridge, 1990, p. 56)

What's on the Net? Well — Usenet News, Freenet, e-mail, Libraries, ftp sites, free software, electronic newsletters and journals, Multi-User Domain/Dungeon



(mud)/mush/moo, internet relay chat (irc) and various kinds of data banks. Different servers, like WAIS and Gophers attempt to order and make utilizing the vast varieties and wide spread information easier. There exist both public and private services and sources of information. The public and free services often come about through the voluntary efforts of one or a few people. These technologies allow a person to help make the world a better place by making his unique contribution available to the rest of the world. People who have been overlooked or have felt unable to contribute to the world, now can. Also, these networks allow much more open and public interaction over a much larger body of people than available before. The common people have a unique voice — which is now being aired in a new way.

The emphasis is that this new machine introduces every single person as someone special and in possession of a useful resource.

“Simple — by access to a vast amount of information and an enormous number of brains!” Brian May

“For a geographically sparse group as it is, MU\* allows people to get to know one another, the relevant newsgroup gives a sense that there's a community out there and things are happening, and an associated ftp site allows art and writing to be distributed.” Simon Raboczi

“In summary, nets have helped enormously in the dissemination of information from people knowledgeable in certain areas which would be difficult to obtain otherwise.” Brent Edwards

“I get to communicate rapidly and cheaply with zillions of people around the world.” Rosemary Warren

The following examples help to show how this is possible.

People are normally unprotected from the profit desires of large companies. Steven Alexander from California is using the Net to try to limit the power of otherwise money-hungry oil companies. This is an example of the power of connecting people to uphold what is fair and in the best interest of the common person in this society:

From: Steven Alexander

“I have started compiling and distributing (on the newsgroup ca.driving) a list of gas prices at particular stations in California to which many people will contribute and keep up to date, and which, I hope, will allow consumers to counteract what many of us suspect is the collusive (or in any case, price-gouging) behavior of the oil companies.”

Someone else from Germany also reported using the

Net to muckrake. He writes: “A company saying they were an e.V. — which means that they do not make profit but do it all for the public (eingetragener Verein). They did not give their phone number, but their address.

They offered a mailbox-account including service for 70,00 DM and said they would like to connect you to others — it was clearly aimed at people who do not know anything about the existing networks, thinking this was something new.

Asking publicly about this company resulted in the following:

Someone looked them up in the e.V. Register, where everyone must be named before he can call himself e.V. (and pay less taxes), they did not exist there.

And they did not exist in the IHK, where any company must be named before they can claim to be one.

Someone else said that he had contact with the person who sent the letter, only under another company-name, and that he simply ignored this person since he looked like a swindler.

So they are swindlers, and people from the Net proved it to us, we then of course did not engage with them at all.

Worst part is — they look like they might be a sub-organization of \*\*\*\*\*, which were recently discovered to try infiltrating public institutions by writing software for them containing backdoors for their informal organizations...”

The Net has proved its importance in other contemporary critical situations. As the only available line of communications, the Net helped defeat the attempted coup in the ex-Soviet Union in 1990. The members of the coup either did not know about or understand what RELCOM was, or the connections proved resilient enough for info about the coup to slip around the inside and out of the country in time to inform the world and encourage resistance to the coup. (See comp.risks article by Larry Press from 6 Sep 91)

The Net has also proved its value in providing a useful medium for students to use. Students participating in the Chinese Pro-Democracy movement have kept in touch with others around the world via their fragile connection to the Net. The Net provided an easy way of evading government censors to get news around the world about events in China and to receive back encouraging feedback. Such feedback is vital support to keep the fight on when it seems impossible or seems

wrong to do so. Students in France used the French Minitel system to organize a successful fight against attempted tuition raises by the French government.

The information flow on the Net is controlled by those who use the Net. People actively provide the information that they personally and other people want. This control is much more active than what is provided by other forms of mass media. Television, radio, magazines are all driven by who owns them and who writes for them. The Net gives people a media they can control. This control of information is a great power that has not been available before to the common everyday person. Declan McCreesh explains this by talking about access to the most up to date information.

From: Declan McCreesh

“You get the most up to date info. that people around the world can get their hands on, which is great. For instance, the media report who wins a Grand Prix, what happened and not a great deal more. On the net, however, you can get top speeds, latest car and technology developments, latest rumors, major debates as to whether Formula 1 or Indy cars are better etc.”

The Net helps to make the information available more accurate because of the many-to-many or broadcast and read and write capability. That new capability (which is not normally very prevalent in our society) allows an actual participant or observer to report something. This capability gives the power of journalism or the reporter to individuals. This new medium allows the source to report. This is true because the medium allows everyone online to make a contribution while the old media control who reports and what they say. The possibility of eyewitness accounts can make the information more accurate. Also this opens up the possibility for a grassroots network. Information is passed from person to person around the world. Thus a German citizen learned about the Chernobyl explosion from the Net before the German government decided to release it to the public via the media. The connection is people to people rather than governments to governments. Citizen Journalists can now distribute to more than those they know personally. The distribution of the writings of ordinary people is the second step after the advent of the inexpensive personal computer in the early 1980s. The personal computer and printer allowed anyone to produce mass quantities of documents. Personal publishing is now joined by personal wide-distribution.

Not only is there grass-roots reporting, but the assumption that filtering is necessary has been chal-

lenged. People can learn to sort through the various opinions themselves. Steve Welch disagreed with my first point, but agrees with discriminatory reading skills.

“When you get more information from diverse sources, you don't always...get more accurate information. However, you do develop skills in discerning ‘accurate information’... Or rather, you do if you want to come out of the infoglut jungle alive.”

Governments who rule based on control of information have been and will be undermined from the bottom up, if they have not already and will succumb to the tides of democracy. As Dr. Sun Yat-Sen of the Chinese Democracy Movement once said, “The worldwide democratic trend is mighty. Those who submit to it will prosper and those who resist it will perish.” The Net reintroduces the basic idea of democracy as people power to Netizens. Governments can no longer easily keep information from their people.

Many groups which do not have a strong established form of communications in society have found the Net to be a powerful tool. It has proved a fertile ground for groups which are not firmly established in their local culture. For example, for people far away from their homeland, the Net provides a new link.

From: Con Hennessy

“One use of e-mail is to send a weekly Irish news letter to those interested with e-mail addresses. This letter is to keep those Irish (and others) up to date with what has been in the news in Ireland for the last 7 days. The amount is usually around 40K and it is sent to over 1,500 addresses, with some of these addresses forwarding and faxing further so that the estimate of final recipients is 10,000.”

From: Godfrey Nolan

“The Net has immeasurably increased the quality of my life. I am Irish, but I have been living in England for the past five years. It is a lot more difficult to get information about Ireland than you would expect. However a man called Liam Ferrie who works in Digital in Galway, compiles a newspaper on the weeks events in Ireland and so I can now easily keep abreast of most developments in Irish current affairs, which helps me feel like I'm losing touch when I go home about twice a year. It is also transmitted to about 2000 Irish people all over the first and third worlds.”

From: Madhur K. Limdi

“I read your above posting and wanted to share my experience with you. I have been a frequent reader of news in Usenet groups!! Such as soc.culture.indian,

misc.news.southasia and both of these keep me reasonably informed about the happenings in my home country India.”

For example in the United States, the Net has been proven as stable communications for people of various religious and sexual persuasion (homosexual people, Buddhists, Universalists, etc).

From: Carole E. Mah

“For me and many of my friends, the Net is our main form of communication. Almost every aspect of interpersonal communication on the network has a gay/lesbian/bi aspect to it that forms a tight and intimate acquaintanceship which sometimes even boils over into arguments and enmities. This network of connections, friends, enemies, lovers, etc. facilitates political goals that would not otherwise be possible (organizing letter-writing campaigns about the Gays in the Military Ban via the ACT-UP list, being able to send e-mail directly to the White House, finding out about activism, bashing, etc. in other states and around the world, etc).”

From: Greg “Wolves” Woodbury

“We will be going to a march on Washington and are coordinating our plans and travel with a large number of other folks around the country via e-mail and conversations on Usenet.”

From: Jann VanOver

“I’m a member of a Buddhist organization and just found a man in Berkeley who keeps a Mailing List that sends daily guidance and discussions for this group. So I get a little religious boost when I log on each day.”

Many other communities have also found the Net to be an excellent medium to help increase communications:

From: Rob Dean

“As a member of the science fiction community, I’ve met quite a few people on the net, and then in person.”

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## C. COMMUNICATION WITH NEW PEOPLE

In many of the Netizens' lives the Net has alleviated feelings of loneliness which seem extremely too prevalent in today's society. The Net's ability to help people network both socially and intellectually makes the Net valuable and unreplaceable in people's lives. This is forming a group of people who want to keep the Net accessible and open.

The Net brings together people from diverse walks of life, and makes it easier for these people to communicate. It brings them all together into the same virtual

space and removes the impact or influence of first impressions.

Malcolm Humes writes, “I’m in awe of the power and energy linking thousands into a virtual intellectual coffee-house, where strangers can connect without the formalities of face to face rituals (hello, how are you today...) to allow a direct-connect style of communication that seems to transcend the 'how's the weather' kind of conversation to just let us connect without the bulls---.”

Strangers are no longer strange on the Net. People are freed to communicate without limits, fears or apprehension. As people new to the Net find out quickly, there is a rather generous atmosphere that thrives on the Net. People are happy to help others, and eventually get help in return.

From: Jean-Francois Messier

“My use of the Net is to get in touch with more people around the world. I don't know for what, when, how, but that's important for me. Not that I'm in a small town, far from everybody, but that I want to be able to establish links with others. In fact, because of those nets I use, I would !NOT! want to go to a small town, just because the phone calls would be too expensive. I've to say that I'm not an expressive people. I'm not a great talker, nor somebody who could make shows.... I'm more an 'introvert'....”

But yet Jean-Francois has made contact with me. This is an example of the social power of the net.

From: Laura Goodin

“Last summer I was traveling to Denver and I used a listserv mailing list to find out whether a particular running group I run with had a branch there. They did, and I had a wonderful time meeting people with a common interest (and drinking beer with them); I was no longer a stranger.”

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## D. BROADENED AND WORLDLY PROSPECTIVE:

Easy connection to people and ideas from around the world has a powerful effect. Awareness that we are just members of the human species that spans the entire globe changes a person's point of view. It is a broadening perspective. It is very easy for people to assume a limited point of view if they are only exposed to certain ideas. The Net brings the isolated individual into contact with people, opinions, and views from the rest of the world. Exposure to many possible opinions gives the reader a chance to actually think something over

before making a decision as to a personal opinion. Having access to the "Marketplace of Ideas" allows a person to make a reasoned judgement of something. Both James Mill and Flint auto workers involved with their local union newspaper believed in this principle. (see "The Computer as Democratizer", *The Amateur Computerist*, Fall 1992, Vol. 4 No. 5 and "The Story of the Searchlight," Flint, Michigan, 1987.)

For example, from: Jean-Francois Messier

"Since that, my attitudes to other peoples, races and religions changed, since I had more chances to talk with other peoples around the world. When first exchanging mail with people from Yellowknife, Yukon, I had a real strange feeling: Getting messages and chatting with people that far from me. I noticed around me that a lot of people have opinions and positions about politics that are for themselves, without knowing others.

Because I have a much broader view of the world now, I changed and am more conciliatory and peaceful with other people. Writing to someone you never saw, changes the way you write, also, the instancy of the transmission makes the conversation much more 'live' than waiting for the damn slow paper mail.

Telecommunications opened the world to me and changed my visions of people and countries...."

From: Anthony Berno

"I could not begin to tell you how different my life would be without the Net. My life would be short about a dozen people, some of them central, I would be wallowing in ignorance on several significant subjects, and my mind would be lacking many broadening and enlightening influences."

From: Henry Choy

"More things to look at. Increased perspective on life. The computer network brings people closer together, and permits them to speak at will to a large audience. I recommend that the telecommunications and computer industry make large scale computer networking accessible to the general public. It's like making places accessible to the handicapped. People brought closer together will release some existing social tensions. People need to be heard, and they need to hear."

From: Paul Ready

"You don't have to go to another country to meet people from there. It is not the same as personally knowing them, but I always pay special attention to information from people outside the States. They are likely to have a different perspective on things."

From: Leandra Dean

"I love to study people, and the Net has been the best possible resource to this end. The Net is truly a window to the world, and without it we could only hope to physically meet virtually thousands of people every day to gain the same insights. I shudder to think about how different and closed in my life would be without the Net."

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## E. MATERIAL CHANGES TO PEOPLE'S LIVES AND LIFESTYLES.

We live in the physical real world material space. The Net forms a virtual space of information. The connections, interfaces or collaborations between these two worlds form an interesting area of study. Netizens attest to the power of the Net by explaining the effect the Net has had on their lives. Because of the information available and the new connections possible, people have both changed the way they live their lives and material possessions they have. There are examples of both changes in the material possessions and changes in lifestyle. The changes to lifestyle are probably the more profound changes, but the new connections made possible are important. Often the material gains are not financial, but rather the redistribution of worthwhile goods that might have lost personal value but circulate among others who it would be worthwhile for.

From: William Carroll

"Primarily because of the information and support from rec.bikes, three years ago I gave up driving to work and started riding my bike. Its one of the best decisions I've ever made."

A Response I received via E-Mail:

"When I started using ForumNet (a chat program similar to irc, but smaller — [Now called icb]) back in January 1990, I was fairly shy and insecure...I had a few close friends but was slow at making new ones. Within a few weeks, on ForumNet, I found myself able to be open, articulate, and well-liked in this virtual environment. Soon, this discovery began to affect my behavior in "real" face-to-face interaction. I met some of my computer friends in person and they made me feel so good about myself, like I really could be myself and converse and be liked and wanted.

Of course, computer-mediated social interaction is not properly a crutch to substitute for face-to-face encounters, but the ability to converse via keyboard and modem with real people at the other end of the line has

translated into the real-life ability for me to reach out to people without the mediating use of a computer. My life has improved. I wouldn't trade my experience with the Net for anything."

From: Jack Frisch

"I must begin my comments on the Internet with one simple yet significant statement: the availability and use of the Internet is changing my life profoundly."

From: Carole E. Mah

"I also used to facilitate a vegetarian list, which radically altered many people's lives, offering them access to mail-order foods, recipes, and friendship via net-contact with people who live in areas where non meat alternatives are readily available."

From: Charles Bandes

"I've spent three of my four years here at the Rhode Island School of Design actively hooked into the net, and I've got to say that it's been of great influence to me. I've met a number of correspondents with whom I've swapped art and ideas, as well as finding muds and mushes, where I was able to test out my ideas on vast quantities of people. The ability to access information instantly has changed my outlook on art to a certain degree, I've become very interested in networked art, e-mail-art, hypertext, multimedia, and mail art in general, and the Net is at least partially to thank for it. I have swapped snail mail mail-art as well as digital images across the country with artists I met online, as well as collaborating on written projects via the net."

From: Jann VanOver

"Well, the first thing I thought of is purchases I've made through the Net which have "changed my life" I drove my Subaru Station wagon until last fall when I acquired a VW Camper van that I saw on a local Net ad. I wasn't looking for a van, wasn't even shopping for another vehicle, but the second time this ad scrolled by me, I looked into it and eventually bought it. I will certainly say that driving a 23 year old VW camper van has changed my life! I thought I would be ridiculed, but have found that people have a lot of respect and admiration for this car!

Through the Net, I heard that Roger Waters was going to perform "The Wall" again, an event I had promised myself not to miss, so I made a trip to Berlin (East and West) in 1990 to see this concert. This was CERTAINLY a life changing event, seeing Berlin less than one week after the roads were open with no checkpoints required. I don't think I would have known about it soon enough if not for the Net."

From: Rob Dean

"As for me, my main hobby is and was playing wargames and role-playing games. Net access has allowed me to discuss these games with players across the world, picking up new ideas, and gathering opinions on new games before spending money on them. In addition, I've been able to buy and sell games via Net connections, allowing me to adjust my collection of games to meet my current interests, and get games that I no longer wanted to people who do want them, whether they live down the road from me in Maryland, or in Canada, Austria, Finland, Germany or Israel.

I have also taken an Esperanto course via e-mail, and correspond irregularly in Esperanto with interested parties world wide."

From: Caryn K. Roberts

"Usenet & Internet (what I think you meant by "Net") are available to me at work and by dialup connection to work from home. I have been materially enriched by the use of the Net. I have managed to sell items I no longer needed. I have been able to purchase items from others for good prices. I have saved money and am doing my part to recycle technology instead of adding burdens to the municipal waste disposal service.

Using the Net I have also been enriched by discussions and information found in numerous newsgroups from sci.med to sci.skeptic to many of the comp.\* groups. I have offered advice to solve problems and have been able to solve problems I had by using information in these forums."

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## F. THE NET AS A SOURCE OF ENORMOUS RESOURCES:

Before the Net was known as an enormous social network, it was developed to provide a sharing of resources. Many people originally joined in order to take advantage of those information resources they had heard about. The following are some examples of ways Netizens utilize the information resources available on the Net.

From: Tim North

"I'm faculty here at...University and I use the Net as a major source of technical information for my lectures, up-to-date product information, and informed opinion. As such I find that I am constantly better informed than the people around me. (That sounds vain, but it's not meant to be. It's simply meant to emphasize how strongly I feel that the Net is a superb information

resource.)”

From: R.J. White

“I used the Net to find parts for my 1971 Opel GT. I was living in North America at the time, and going through the normal channels, like GM, are no good. The Net was like an untapped resource.”

From: John Harper

“Uses of the network (1) I once asked a question about an obscure point in history of math. on the sci.math newsgroup and got a useful answer from Exeter, UK. Beforehand I had no idea where anyone knowing the answer might be. I had drawn a blank in Oxford. (2) I asked a question about a slightly less obscure point on comp.lang.fortran which generated a long (and helpful) discussion on the Net for a week or two.”

From: Paul Ready

“Yes, it is a worldwide rapid distribution center of information, on topics both popular and obscure. It may not make the information more valuable, but it certainly increases the information, and the propagation of information. To those connected, it is a valuable resource. Flame wars aside, a lot of generally inaccessible information is readily available.”

From: Lee Rothstein

“Usenet and mailing lists create a group of people who are motivated and capable of talking about a specific topic. The software allows deeply contextual conversations to occur with a minimum of rehash. As experience develops with the medium, each user realizes that the other that he talks to or will talk to generally help him/her, and can do him/her no harm because of the remoteness imposed by the cable.”

From: Lu Ann Johnson

“Hi! Usenet came to my rescue — I'm a librarian and was working with a group of students on a marketing project. They were marketing a make-believe product — a compact disc of “music hits of the 70's”. They needed a source to tell them how much it cost to produce a CD — without mastering, etc. I exhausted all my print resources so I posted the question in a business newsgroup. Within hours I learned from several companies that it cost about \$1.50 to produce a CD :) The students were very grateful to get the information.”

From: Laura Goodin

“I teach self-defense, and just yesterday in rec.martial-art someone posted information about a study on the effectiveness of Mace for self-defense that I had been looking for for years.”

From: Cliff Roberts

“I have been using Internet through a program in New Jersey to bring the fields of Science and Math to grammar school children grades K-8.

We have implemented a system where the class rooms are equipped with PC's and are able to dial in to a UNIX system. There they can send e-mail and post questions to a KidsQuest ID. The ID then routes the questions to volunteers with accounts on UNIX. The scientists then answer or give advice of where to find the information they want.

Another well accepted feature is to list out the soc.penpals list and e-mail people in different countries that are being studied in the schools.”

From: Joe Farrenkopf

“I think Usenet is a very interesting thing. For me, it's mostly just a way to pass (waste :- ) time when bored. However, I have gotten some very useful things from it. There is one group in particular called comp.lang.fortran, and on several occasions when I've had a problem writing a program, I was able to post to this group to get some help to find out what I was doing wrong. In these cases, it was an invaluable resource.”

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## G. COLLECTIVE WORK

As new connections are made between people more ideas travel over greater distances. This allows either like-minded people or complementary people to come in touch with each other. The varied resources of the networks allow these same people to keep in touch even if they wouldn't have been able to be in touch before. Electronic Mail allows enough detail to be contained in a message that most if not all communications can take place entirely electronically. This medium allows for new forms of collaborative work to form and thrive. New forms of research will probably arise from such possibilities. Here are some examples:

From: Wayne Hathaway

“One 'unusual' use I made of the Net happened in 1977. (Yep, it existed and had most of the e-mail infrastructure in place by then.)

Along with five other 'Net Folks' I wrote the following paper: 'The ARPAnet TELNET Protocol: Its Purpose, Principles, Implementation, and Impact on Host Operating System Design,' with Davidson, Postel, Mimno, Thomas, and Walden: Fifth Data Communications Symposium, Snowbird, UT; September 27-29, 1977.

What's so unusual about a collaborative paper, you

ask? Simply that the six of us never even made a TELEPHONE call about the paper, much less had a meeting or anything. Literally EVERYTHING — from the first ideas in a 'broadcast' mail to the distribution of the final 'troff-ready' version — was done with e-mail.

These days this might not be such a deal, but it was interesting back then.”

From: Paul Gillingwater

“About the most interesting thing here in Vienna was an on-line computer mediated art forum earlier this month, with video conferencing between two cities, plus an on-line discussion in a virtual MUD-type conference later that evening.”

A Response I received via e-mail:

“In response to your question about having fun on the net, and being creative, one incident comes to mind. I had met a woman on ForumNet (a system like IRC). She and I talked and talked about all sorts of things. One night, we felt especially artistic. We co-wrote a poem over the computer. I'd type a few words, she'd pick up where I left off (in the middle of sentences or wherever) and on and on. I don't think we had any idea what it was going to be in the end, thematically or structurally.

In the end, we had a very good poem, one that I would try to publish if I knew her whereabouts anymore...”

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## H. IMPROVING QUALITY OF EVERYDAY LIFE

Information flow can take various shapes. The strangest and perhaps most interesting one is how emotion can be attached to information flow. They often seem like two very different things. I received a large number of responses that reported real-life marriages arising from Net meetings. The Net facilitates the meeting of people of like interests. The newness of the Net means we can not fully understand it as of yet.

From: Caryn K. Roberts

“I have found friends on the Net. A lover. And two of the friends I met, also met online and got married. I attended the wedding (in California).”

From: Scott Kitchen

“I think I can add something for your paper. I met my fiancee 4 years ago over the net. I was at Ohio State, and she was in Princeton, and we started talking about an article of hers I'd read in rec.games.frp. We got to talking, eventually met, found we liked each other, and the rest is history. We'll be marrying soon. Scott Kitchen (e-mail) Jennifer Doyle (e-mail)”

From: jj

“Well, I met my spouse by having an argument with her about how to make pie crust in net.cooks.recipes (this was a while ago, needless to say).”

From: Greg “Wolves” Woodbury

“I met the woman who became my wife when I started talking to the folks at “phs” (the third site of the original Usenet) during the development of NetNews. I would not have been wandering around that area if I hadn't been interested in the development of the net.”

From: Laura Goodin

“And now, the BEST story: about eight months ago I was browsing soc.culture.australia and I noticed a message from an Australian composer studying in the US about an alternative tune to “Waltzing Matilda.” I was curious, so I responded in e-mail, requesting the tune and just sort of shooting the breeze. We began an e-mail correspondence that soon incorporated voice calls as well. One thing led inexorably to another and we fell in love (before we met face to face, actually). We did eventually meet face to face. Last month he proposed over the Internet (in soc.culture.australia) and I accepted. Congratulatory messages came in from all over the United States, Australia, and New Zealand. Houston (that's his name) and I keep our phone bills from resembling the national debt by sending 10 or 12 e-mails a day (we're well over 1400 for eight months now), and chatting using IRC. A long-distance relationship is hellish, but the pain is eased somewhat by the Internet.”

From: Chuq Von Rospach

“(oh, and in the “how the Net made my non-net life better” category, I met my wife via the net. Does that count?)”

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## I. WORK

The fluid connections and the rapidly changing nature of the networks make the Net a welcome Media for job hunters and job placers. The Networks have a large turnover of people who are looking for jobs. The advertising is free and can be perpetuated as long as the job is offered. E-mail allows for the quick and easy applications by sending resumes in the e-mail. Companies can respond quickly and easy to such submissions, also by e-mail.

Besides finding work, the Net helps people who are currently working preform their job in the best manner. Many people utilize the Net to assist them with their

jobs. Several examples of both follow:

From: Laura Goodin

“My division successfully recruited a highly-qualified consultant (a Finn living in Tasmania) to do some work for us; the initial announcement was over Usenet; subsequent negotiations were through e-mail.”

From: jj

“I've hired people off the net, and from meeting them in muds, when I find somebody who can THINK. People who can think are hard to find anywhere.”

From: Diana Gregory

“I have learned to use UNIX, and as a result may be able to keep/advance in my job due to the 'net.’”

From: Neil Galarneau

“It helps me do my job (MS Windows programming) and it helps me learn new things (like C++).”

From: Kieran Clulow

“The Internet access provided me by the university has greatly facilitated my ability to both use and program computers and this has had the direct result of improving my grades as well as gaining me a good job in the computer field. Long live the Internet (and make it possible for private citizens to get access!)”

From: Mark Gooley

“I got my job by answering a posting to a newsgroup.”

From: Anthony Berno

“I develop for NEXTSTEP, and the Net is very useful in getting useful programming hints, info on product releases, rumors, etc.”

From: Greg “Wolves” Woodbury

“Due to contacts made via Usenet and e-mail, I got a job as a consultant at BTL in 1981 after I lost my job at Duke. Part of the qualifications that got me in the door was experience with Usenet.”

From: Carole E. Mah

“Lastly, the network helped my best friend get a job, helped me find an apartment one year.”

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## J. IMPROVED COMMUNICATIONS WITH FRIENDS

Another way of improving daily life is by making communications with friends easier. The penning of a computer letter is making the art of letter writing no longer a thing of the past. However, the immediacy of e-mail means less care is made in the process of writing. E-mail, IRC and netnews allows keeping in touch with friends outside one's local area much easier.

From: Carole E. Mah

“It also facilitates great friendships (most of my friends, even in my own town, I met on the network. This can often alleviate feelings of loneliness and “I'm the only one, I must be a pervert” feelings among queer people just coming out of the closet — they have a whole world of like-minded people to turn to — on Usenet, on BITNET lists, on IRC, in personal e-mail, on BBSs and AOL type conferences, etc.”

From: Bill Walker

“I also have an old and dear friend (from high school) who lives in the San Francisco area. After I moved to San Diego, we didn't do very well at keeping in touch. She and I talked on the phone a couple of times a year. After we discovered we were both on the net, we started corresponding via e-mail, and we now exchange mail several times a week. So, the Net has allowed me to keep in much closer touch with a good friend. It's nothing that couldn't be done by phone, or snail mail, but somehow we never got around to doing those things. E-mail is quick, easy and fun enough that we don't put it off.”

From: Anthony Berno

“Incidentally, it is also one of my primary modes of communication with my sister (who lives in N.Z.) It's more meditative than a phone call, faster than a letter, and cheaper than either of them.”

From: Jann VanOver

“Apart from purchases, I have been contacted by:

1) a very good friend from college who I'd lost track of. SHE got married to a man she met in a singles newsgroup (they've been married 2 years+)

2) someone who went to my high school, knew a lot of the same people I did, but we didn't know each other. We are now “mail buddies”

3) an old girlfriend of my brothers. They went out for eight years, but I learned more about her from ONE e-mail letter than I had ever learned when meeting her in person.”

From: Godfrey Nolan

“Above all it helps me keep in touch with friends who I would inevitably lose otherwise. The Net helps those that move around for economic reasons to lessen the worst aspects of leaving your friends in the series of places that you once called home.

It's the best thing since sliced bread.”

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## K. PROBLEMS

With all of the positive uses and advantages of the



Net, it is still not perfect. The blind-view of people on the Net seems to shield everyone, but women. There is a relatively large male to female percentage population on the Net. The women feel the effects of this difference. Women who have easily identifiable user names or IDs are prone to be the center of much attention. While that might be good in itself, much of that attention can be of a hostile or negative nature. This attention might be detrimental to women being active on the Net. Net harassment can spread against other users too. People with unpopular ideas need to be strong to withstand the outlash of abuse they might receive from others.

The worst non-problem seems to be information overflow. Information adds up very quickly and it can be hard to organize it all and sort through. This problem should be able to be solved as the technology is developed to handle what is now possible. As my last quote in this section describes, users can be harassed by other users for whatever purposes, and by the inactivity of the power structure to respond to such problems. This is a problem that will be hard to deal with as it concerns politics and power, but one of the most important.

From: Scott Hatton

“There is a problem with this brave new world in that a lot of people don't appreciate there's another human being at the other keyboard. Flaming is a real problem — especially in comp.misc. This is all a new facet of the technology as well. People rarely trade insults in real life like they do on Internet. There's a tendency to stereotype your opponent into categories. I think this is because you're not around to witness the results. I find this more on Internet newsgroups than on CompuServe. I think this is down to maturity — a lot of folk on the Internet are students who aren't paying for their time on the system. Those on CompuServe are normally slightly older, not so hot-headed and are paying for their time. Damn. Now I'm at stereotyping now. It just goes to show...”

From: Joe Farrenkopf

“There is something else I've discovered that is really rather fascinating. People can be incredibly rude when communicating through this medium. For example, some time ago, I posted a question to lots of different newsgroups, and many people felt my question was inappropriate to their particular group. They wrote to me and told me so, using amazingly nasty words. I guess it's easier to be rude if you don't have to face a person, but can say whatever you want over a computer.”

From: Brad Kepley

“I get a little irritated with people always claiming someone else is ‘wasting bandwidth’ because they disagree with them. About half the time it turns out that the person being told to shut up was right after all. Then again, when you look at things like alt.binaries.pictures.erotica and other ‘non-bandwidth-wasting’ activities, it seems almost comical to me when someone says this. There is nothing more wasteful than 95% of what Usenet is used for. It's a joke to say that a particular person is ‘wasting’ it. To say that they are off-topic makes more sense.

I guess this is just a gripe rather than what you are looking for. Wasting bandwidth again. :)”

From: Patt Leonard

“In response to your request for examples of harassment on the net, I would point you to some of the older (four months? five months?) discussion on the Usenet newsgroup soc.culture.soviet. To generalize grossly, some of the male Russians and Russian emigres are really savage toward women on the net, and willing to gleefully hound them off with obscenities and hostile messages. There was an American woman (signed her name Patricia Schwartz, I think, though her mail header said Margaret — or maybe I have that backwards) — there was this American woman, staying in Moscow, posting her impressions of the city, and some poetry, and whatever else she felt like. I didn't care for her poetry, but some of her observations were interesting. The Russian men (not all of them — some of them defended her) were merciless to her. She posted a note saying she had had a miscarriage, and some man wrote back, saying he wished that she had bled to death. Their harassment was not of me \*directly\*, but these messages created an environment so hostile, that I am reluctant to post anything on that group. It is a very male-dominated discussion, and that is due, in part, to the fact that some men posting on it are so unrestrained in their misogyny.”

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## CONCLUSION

Despite the problems, for people of the world, the Net provides a powerful way of peaceful assembly. Peaceful assembly allows people to take control over their lives, rather than control being in the hands of others. This power has to be honored and protected. Any medium or tool that helps people to hold or gain power is something that is special and has to be protected. (See “The Computer as Democratizer” in *The Amateur*

*Computerist*, Vol. 4 No. 5, Fall 1992)

The Net has made a valuable impact on human society. As my research has demonstrated, people's lives have been substantially improved via their connection to the Net. This sets the basis for providing access to all in society. As J.C.R. Licklider and Robert Taylor wrote: "For the society, the impact will be good or bad depending mainly on the question: Will 'to be on line' be a privilege or a right? If only a favored segment of the population gets a chance to enjoy the advantage of 'intelligence amplification,' the network may exaggerate the discontinuity in the spectrum of intellectual opportunity." (40)

Society will improve if Net access is made available to people as a whole. Only if access is universal will the Net itself advance. The ubiquitous connection is necessary for the Net to encompass all possible resources. One Net visionary responded to my research by calling for universal access. Steve Welch writes: "If we can get to the point where anyone who gets out of high school alive has used computers to communicate on the Net or a reasonable facsimile or successor to it, then we as a society will benefit in ways not currently understandable. When access to information is as ubiquitous as access to the phone system, all Hell will break loose. Bet on it."

Steve is right, "all Hell will break loose" in the most positive of ways imaginable. Thomas Paine, Jean Jacques Rousseau, those responsible for the Bill of Rights and French Declaration of the Rights of Man, and the all fighters for democracy would have been proud.

As Licklider predicted, the Net is fundamentally changing the way people live and work. Summing up the important potential of the Net, Paul Ready observed: "News and transfer of data are revolutionary in their speed and the way they are done. It is likely to change the way things are produced in the future just as other advances in communications in the past did: roads, printing presses, relayed "pony express" mail, railroad, cars, airplanes, tv/radio, and the telephone have all dramatically changed the way things were done, and computers already are too."

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## Proposed Declaration of the Rights of Netizens

[Note: The following is a beginning effort to put together a Declaration of the Rights of Netizens and a request for other Netizens contributions, ideas, and suggestions of what rights should be included.]

In recognition that the Net represents a revolution in human communications that was built by a cooperative non-commercial process, the following Declaration of the Rights of the Netizen is presented for Netizen comment.

As Netizens are those who take responsibility and care for the Net, the following are proposed to be their rights:

- \* Universal access at no or low cost
- \* Freedom of Electronic Expression to promote the exchange of knowledge without fear of reprimand

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- \* Uncensored Expression
- \* Access to Broad Distribution
- \* Universal and Equal access to knowledge and information
- \* Consideration of one's ideas on their merits
- \* No limitation to access to read, to post and to otherwise contribute
- \* Equal quality of connection
- \* Equal time of connection
- \* No Official Spokesperson
- \* Uphold the public grassroots purpose and participation
- \* Volunteer Contribution — no personal profit from the contribution freely given by others
- \* Protection of the public purpose from those who would use it for their private and money making purposes

The Net is not a Privilege but a Right. It is only valuable when it is collective and universal. Volunteer effort protects the intellectual and technological commonwealth that is being created. **DO NOT UNDERESTIMATE THE POWER OF THE NET AND NETIZENS.**

Inspiration from: RFC 3 (1969), Thomas Paine, Declaration of Independence (1776), Declaration of the Rights of Man and of the Citizen (1789), NSF Acceptable Use Policy, Jean Jacques Rousseau, and the current cry for Democracy worldwide.

“...*what's past is prologue; what to come, in yours and my discharge.*”  
William Shakespeare

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