The Amateur Computerist

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Spring 2023 | Toward 25 Years of the Netizen Book (Part 6) | Volume 35 No. 6

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Introduction

The year 2022 marked the 25th Anniversary of the 1997 publication of the print edition of *Netizens: On the History and Impact of Usenet and the Internet* by Michael Hauben and Ronda Hauben. This issue is again part of the celebration of that Anniversary. The articles here grew out of Ronda Hauben's efforts in 2022 concerning this anniversary, in particular her contact with the Oral History of the Internet (OHI) Project directed by Dr. Fang Xingdong.

The first article is a translated blog post that tells some of the story of Michael Hauben's life. It resulted from an interview of Ronda and Jay that Dr. Fang and his colleagues did about Michael for the Oral History of the Internet Project. On the blog, Dr. Fang wrote that doing an oral history interview of Ronda and Jay about Michael "fits perfectly with the original intention of the Oral History of the Internet Project." At the bottom of the

blog, Dr. Fang explained about the interviewees that, "Through their stories and their lives, the true meaning of the Internet spirit will be more manifested, and the brilliance of the Internet spirit will be further reflected."

The second article is an announcement by the Chinese think tank Cyberlabs of an Internet history workshop to be held in Fall 2022 in Hangzhou, Zhejiang Province, China. The organizers realize that, "the development and spread of the Internet have been deeply integrated into the daily lives, cultures, and societies of people around the world." They set the goal of the workshop to contribute to the construction of an academic community for research of more aspects than just Internet technology including social changes such as those foreseen in the *Netizens* book over 25 years ago. The organizers emphasize "the urgent need to look back at the way we came, revisit the original intention, … and mission [to] let the Internet back on the right track of the road for the benefit of mankind." Included in this article is an appendix about the OHI Project, its process, significance and guidelines for its interviews.

The next two articles are presentations made for the First International Internet History Workshop that resulted from the announcement described above. The first, "Then, Now and Into the Future – Thoughts on the 25th Anniversary of the Print Edition of *Netizens: On the History and Impact of Usenet and the Internet*" summarizes online experiences, questions and research out of which the book emerged. In particular, Usenet was a system where the communication was interactive and dynamic. Also, when asking users of Usenet what the net meant for them, Michael Hauben realized many were citizens of the net. He contracted the two words 'net' and 'citizens' into netizens.

That article traces the theory of interactive communication and community building back to JCR Licklider who saw a choice, "It's either mere access to information or interaction with information. And for mankind it implies either an enmeshment in the silent gears of the great electronic machine or mastery of a marvelous new and truly plastic medium for formulating ideas and for exploring, expressing, and communicating them." The article then demonstrates that the wrong choice may have been made when the U.S. government privatized and commercialized the U.S. Internet backbone in the mid 1990s. But the

future is not lost. The author points to *Ancient Society* by Lewis Morgan for examples how new technologies have in the past led to major social changes. She writes, “Even as old forms of citizenship continue, new forms like netizens and netizenship are developing side by side.”

The next article was another keynote speech at the workshop. It traced the tradition of international computer and networking cooperation and sharing as the historical context of the collaboration in 1983 to 1987 which led to the first email message from China to the world over the CSNET. The speech began with John Von Neumann in the 1940s, who saw a potential conflict between scientific and commercial development of computers. Van Neumann put all his computer connected work into the public domain. The speech presented many examples of an international or world spirit in the early and later computer science and informatics communities. Collaboration and sharing drove computer and then later network development. International conferences and organizations ignored cold war boundaries and rivalries. Interestingly, the technology was also based on sharing and facilitated collaboration. The role of CSNET is emphasized as preparing for the wide spreading of the Internet in the 1990s. The German-Chinese collaboration in the 1980s was a fine example of this tradition. As Madam Hu Qiheng wrote in 2007, “The international collaboration in science and technology is the driving force for computer networking across the country borders and facilitating the early Internet development in China.”

The last article is an excerpt from Chapter 14 of the *Netizens* book. It is testimony given at a national virtual conference in 1994. Some of the participants in the conference were active in defining their interest in keeping the Internet protected from dominance by commercial interests. Much of the testimony quoted in the excerpt argued for maintaining the internet as a “two way street for all Americans. Not only should they be able to receive from the net, but they also must be able to provide their unique information.” This was part of an argument that the Internet makes available an alternative to the corporate owned mass media and allows a grass-roots communication from the many to the many. The policy implication was that for Internet communication to be interactive the bandwidth must be balanced, as much for going out from a user as coming in.

[Editor's Note: On March 14, 2022, Dr. Fang Xingdong, head of the OHI (Oral History of the Internet) project in China posted about Michael Hauben and his family on the blog-china website in Chinese. Earlier that day, Ronda and Jay Hauben had a zoom session with Dr. Fang and his colleagues introducing themselves and answering questions about Michael. The following is a machine translation into English of Dr. Fang's blog post. The original can be seen at: https://fxd.blogchina.com/794986680 .html.]

Oral History of the Internet A Special Interview: "Netizen" Michael Hauben

On February 27, I received an email from Ronda Hauben, saying that she had seen books published of Internet oral history interviews and that she had learned about the Oral History of the Internet project during a WeChat video with Academician Hu Qiheng. Later, I also received an email from Academician Hu Qiheng. Of course I am no stranger to them. I knew about them since the 1990s. Ronda Hauben's son, Michael Hauben, coined the term "Netizen," and in 1997 the two co-authored a splendid Internet history book, *Netizens: On the History and Impact of Usenet and the Internet.*

Michael, who was born on May 1, 1973, proposed to study computing at the age of 5; in the first grade of primary school took his work to participate in the science exhibition only for senior students, and became the only junior student to participate in the exhibition. At the age of 10, he used a TV as a monitor and a Timex Sinclair computer with 3K memory, and wrote games on this computer together with his father Jay Hauben. He became active in major BBSs in the early 1980s and was in one of the earliest computer user groups. In 1993, the term "Netizen" was coined during his undergraduate studies. The term was coined in his article titled "The Net and Netizens: The Impact the Net has on People's Lives," which quickly spread. He was not yet 20 years old then.

At the university level, although Michael Hauben was a computer major, he preferred courses such as philosophy and ethics, and was a music lover, rather than courses such as economics. In the late 1990s, with the rise of the Internet wave, the whole world was in a frenzy for the

commercialization of the Internet. As an important capital market, New York is undoubtedly the center of the myth that the Internet benefits. However, Michael Hauben has always focused on the spirit of openness and sharing of the Internet, rather than the commercialization opportunities brought by the Internet. His speeches and writings adhere to the pure Internet spirit. The evolution of his mother, Ronda Hauben, also reflects this rare purity. In an article titled "What the Net Means to Me," Michael firmly believes that the Internet will remain public, open, and non-commercial. "The Internet means personal power in a world where there is little or no personal power." "The Internet is, by its very nature, communication between individuals … a vehicle for the dissemination of people's ideas and aspirations."

He entered Columbia University in 1991, majoring in computer science, graduating in 1995. He obtained his master's degree in 1997, and also published the book "Netizen" in the same year. Michael Hauben, or his family of three, is not only the creator of the word "netizen," but also endows the word with a soul, which is the best embodiment of the Internet spirit of openness, sharing, freedom and equality or the spirit of "netizen." Their love for the Internet, their enthusiasm and passion for spreading the Internet to the world, is very contagious. However, it is very deplorable that in 1999 Michael Hauben was involved in a car accident and passed away in June 2001 at the age of 28. After the tragic loss of their only child, Ronda Hauben and Jay Hauben took up the unfinished mission of their son and continued to work hard to promote the spirit of "Netizen" around the world.

The story of Ronda Hauben's family of three fits perfectly with the original intention of the Oral History of the Internet Project. Therefore, this video interview is of special significance. Zhong Bu said that our project will publish a book for the story of their family of three. Today's interview is the first, Ronda Hauben and Jay Hauben share the story of the three of them. This interview method is also the first time. When they talked about the story of their beloved son, the two complemented each other, and many vivid stories emerged, which made us deeply infected. Their parent-child relationship is so harmonious, the parents are willing to give Mike all the assistance they can.

Doing the oral history of the Internet is indeed a very hard job, but at this time, our inner harvest is unparalleled. I hope that our work is for the Internet and the world, and we can dig out more wonderful people and things. Through their stories and their lives, the true meaning of the Internet spirit will be more manifested, and the brilliance of the Internet spirit will be further reflected.

This year, the Internet Oral History Project turns 15 years old, and this harvest is undoubtedly our greatest motivation. The first interview, was in the morning in China, an hour and a half passed quickly, and it was already late at night in New York. It can't be too late, so, we look forward to the second time for further in-depth chat.

[At the bottom of the blog post was this statement about Internet Oral History by Dr. Fang Xingdong.]

Whether history is created by the masses or heroes of the times, it is always created by people. Whether it is the times that create heroes, or the heroes who create the times, create history and change the course of history, it is often a part of individuals who stand out. At an important juncture in the historical process, they did not miss the critical moment entrusted by the times, relying on their own personal characteristics and unique effort and made unique contributions and impossible miracles. They are the representatives of the historical process, and they are the models that condense the changes of the times. Focusing on and deeply penetrating them can better restore the splendor of history and show the unique creativity of human beings. It is no exaggeration to say that these people are the instigators and leaders who pushed China from a semi-agricultural and semi-industrial society into an information society. It is the hero and heroine who promotes the entire human race from industrial civilization to higher information civilization. Their personal achievements and significance of the times will continue to be highlighted and recognized over time.

Editor's Note: The following is an announcement by CyberLabs (http://cyberlabs.org/), a think tank in China specifically focusing on cyber affairs. It appeared online on Sept. 24, 2022 at: http://www.cyberlabs.org/articles/8Kkx8The internet history workshop it announced took place on Nov. 7 and Nov. 8, 2022 in Hangzhou China and online via Zoom. Also, the announcement here is followed by an Appendix in which Cyberlabs describes its Oral History of the Internet (OHI) project.]

The First Internet History Workshop "The Latest History, the Farthest Future"

by Cyberlabs

Background

The development and spread of the Internet have been deeply integrated into the daily lives, cultures, and societies of people around the world. It is necessary to learn more about the Internet to make a better world. Understanding the innovations and changes involved in the evolution of the Internet from technological, social, scientific, political, and economic, is prompting the history of the Internet to become an interdisciplinary and cross-disciplinary emerging field is a good way to go.

The Internet, born in 1969,* has entered a historic turning point. Several important collections of essays, special issues of journals, scholarly papers, and monographs have been published, marking significant progress in the discipline of Internet history. At the same time, the growing number of digital resources, Internet history websites, and databases marked progress in the field of Internet history studies. However, in general, apart from the history of the Internet industry and business, the truly in-depth research on the history of Internet technologies, ideas, social changes, and global history remains relatively barren, which greatly affects our understanding and judgment of the current situation and future trends of the Internet. The in-depth study of the history of the Internet and the construction of an academic community have become a matter of urgency.

The Internet and digital technology will continue to play an increasingly important role in the future, but due to the lag in digital

governance and digital legislation, the Internet and digital technology have produced different degrees of negative impacts and deviations in the process of social application, causing a certain degree of shock to social progress. There are also problems in cyberspace such as over-reliance of government digital governance on the convenience of governance brought by digital technology, excessive pursuit of commercial interests by Internet enterprises in social applications, as well as digital legislation, digital security, digital civilization, digital divide, and digital barriers, etc. There is an urgent need to look back at the way we came, revisit the original intention, stand at the height of the community of destiny of human cyberspace and the construction of digital civilization to study the law of Internet development in depth and thoroughly, and summarize the painful lessons that have occurred in infrastructure construction, R&D, and social applications. Remembering the original intention and mission, let the Internet back on the right track of the road for the benefit of mankind.

"We observe the present through the rear-view mirror, we walk back towards the future." Standing in the "present" node of Internet development, sorting out and analyzing its development, looking at the past and present through the "rear-view mirror," exploring those laws and trends that have sustained influence in the profound changes of Internet development, it is important to know the past and guide the present.

The workshop will be held in Hangzhou, Zhejiang Province, on the 24th and 25th [the workshop was postponed and actually happened on Nov 7-8, 2022] before the opening of the World Internet Conference in Wuzhen. The annual conference will bring together representative Internet pioneers from Europe, America, Asia, Africa, and Latin America, important experts in Internet history research, and interdisciplinary experts and scholars in Internet history research to deliver keynote speeches, publish research results, share research experiences, and work together to build a globally linked Internet history academic community.

The outstanding papers and speeches delivered at the annual conference will be published and recommended to partner academic journals.

Time: September 24-25, 2022

Venue: Wuzhen, Zhejiang Province, China
Organizers:
College of Media and International Culture,
Zhejiang University
Public Diplomacy and Strategic Communication Research Center, Zhejiang University
Co-organizers:
Digital Civilization Research Center, Tsinghua Yangtze River Delta Research Institute
Consortium of Internet and Society, Communication University of Zhejiang
CyberLabs
Research Committee on the History of Internet Communication, Chinese Association for the History of Journalism and Communication

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* 1969 was the year that the ARPANET experiments started. The ARPANET was a single network not an inter network or internet. A better year to cite for the birth of the Internet would be 1972 when the International Networking Working Group was formed at the International Conference on Computer Communications. See the article in this issue by Jay Hauben.

Appendix

The OHI Project
50 Years of the Internet

Introduction

To celebrate the first 50 years of the Internet, CyberLabs has launched the Oral History of the Internet (OHI), recording and preserving the personal narratives of global Internet Pioneers' extraordinary contribution to the internet development. By 2019, OHI should have interviewed 500 Internet Pioneers around the world. A 50-episode TV series, documentaries and books will be produced based on the video interviews. The OHI, which started first in China in 2007, has interviewed

nearly 200 Internet Pioneers who mostly come from Asia, Europe and the United States. The OHI will also go to interview those from Africa, Mid-East and Oceania.

The mission of OHI is "Recording the first 50 years of the internet so to embrace its next 50 years."

The OHI will thus build a virtual monument that is committed to documenting personal narratives from the Internet Pioneers who have made extraordinary contributions to the development of the internet around the world. OHI was launched by CyberLabs, a think tank devoted to recording and preserving the internet history, which has started the project first in China since 2007. As the internet is facilitating unprecedented, multi-faceted interactions around the world, OHI goes global by video recording oral testimonies from the worldwide Internet Pioneers about their extraordinary contributions to the development of the internet in their own countries or fields.

The Process

The Internet Pioneers were selected by the international Academic Board of CyberLabs by consulting its Board of Consultants based on their personal contributions to the internet development at different stages, and in particular, the social impact of their contributions. Each Internet Pioneer's oral testimony starts with a video recording of a first-person account with an interviewer from CyberLabs, who share the conscious intention of creating permanent oral history in the purpose of better understanding the internet's past and future. All the interviews will be posted online so that they are available to the public around the world through the internet. The oral history made out of the due process is then preserved and made available in various forms to internet researchers and members of the public.

The Significance

OHI records and preserves diverse historical perspectives of the internet history from global Internet Pioneers in the hope of advocating the collaborative effort of building up the internet. The oral history produced could be used as a powerful tool for bridging divides, improving engagement, and facilitating historical understanding in terms of internet

governance, policy making, and cybersecurity. OHI thus welcomes individuals and institutions who share the values of creating and preserving the oral history of the internet to join us to in promoting excellence in the collection, preservation, dissemination and uses of the oral testimonies for current and future users. In this sense, OHI should help foster better communication among global communities who increasingly interact on the internet.

Guidelines for OHI Interviews

The OHI interviews seek an in-depth account of Internet Pioneers' personal contribution and reflections on the internet development at different stages. An OHI interview is different from most interviews conducted by news media organizations as the former offers sufficient time to our invited Internet Pioneers to tell their stories the fullness they desire. The content of oral history interviews is grounded in reflections on the past as opposed to commentary on purely contemporary events.

In the OHI interviews, Internet Pioneers are reminded that they must voluntarily give their consent to be interviewed and understand that they can withdraw from the interview or refuse to answer any question at any time. Before the interview, they may choose to give the consent by signing a consent form or recording an oral statement of consent. All interviews are conducted in accord with the stated aims and within the parameters of the consent.

Interviewees hold the copyright to their interviews until and unless they transfer those rights to OHI. This is done by the interviewee signing a release form or recording an oral statement to the same effect. The invited Internet Pioneers also have the right to put restrictions on the use of their interviews. All use and dissemination of the interview content must follow any restrictions they place upon it.

OHI respects its invited Internet Pioneers as well as the integrity of the research. Interviewers are obliged to ask historically significant questions, reflecting careful preparation for the interview and understanding of the issues to be addressed. Interviewers respect the Internet Pioneers' equal authority in the interviews and honor their right to respond to questions in their own style and language. During the OHI interviews, both interviewers and interviewees (Internet Pioneers) should strive for

intellectual honesty and the best application of the skills of their discipline, while avoiding stereotypes, misrepresentations, or manipulations of the narrators' words.

In keeping with the goal of long term preservation and access, OHI should use the best recording equipment available within the limits of their financial resources to reproduce the voice accurately and, if appropriate, other sounds as well as visual images. The OHI interviewers must avoid making any promises that cannot be met, such as guarantees of control over interpretation and presentation of the interviews beyond the scope of restrictions stated in informed consent forms, or suggestions of material benefit outside the control of the interviewer.

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[Editor's Note: The following was the author's prepared keynote speech at the first International Internet History Workshop held in Hangzhou, China. The workshop was sponsored by the Cyberlabs' Oral History of the Internet (OHI) project. It was presented on zoom on Nov 6, 2022 from NYC, which was Nov 7 in China. The actual presentation which differs a bit from this prepared speech can be seen at: http://www.columbia.edu/~jrh29/OHI/R-OHI-Video.mp4. In the video you will see the slides that accompanied the presentation. You can also see the slides at: http://www .colum bia.edu/~jrh29/OHI/R-OHI-Slides.pptx.]

Then, Now and Into the Future – Thoughts on the 25th Anniversary of the Print Edition of *Netizens: On the History and Impact of Usenet and the Internet*

by Ronda Hauben
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The year 2022 marked the 25th Anniversary of the print edition of the book *Netizens: On the History and Impact of Usenet and the Internet.* As a coauthor of this book, I marked this occasion by reviewing some of what was learned in the course of the research and writing of the book. What are the implications of these lessons 25 years later?

This has been a difficult process but an insightful one. Dr. Fang Xingdong and OHI provided an important incentive for a direction with a History of the Internet Conference. In the introduction to the conference they wrote, "There is an urgent need to look back at the way we came, revisit the original intention … . Remembering the original intention and mission, let the Internet back on the right track of the road for the benefit of mankind."

I found this perspective helpful because it brings me back to the original questions raised in the process of writing the book. So I want to share an account of this situation with you today to consider what direction to support for a desirable future for the Internet.

First a bit of a summary.

In January 1992, I was able to get a connection to a grassroots network called Usenet and make my first post.

Usenet was created by graduate students in 1979 using features of the UNIX operating system created by Bell Labs researchers. Usenet was described as a "public access network." Participants included universities, corporations, research centers, etc. The computer users on Usenet were eager to discuss many topics. Also, users helped each other with computers, technology in general, and other problems.

Michael, my coauthor, had gotten on Usenet a bit earlier and he helped me to get on. Probably at that time I was using the Internet via the NSFNET to get access to Usenet.

When I wrote my first Usenet post, which was about the study of the history of economics, I put it in a newsgroup called misc.books.technical, a newsgroup for discussion of technical books.

A number of users of Usenet sent me email complaining about what I had done. A few of the emails I received explained which newsgroup I should have used to put my post on Usenet. A few users even welcomed me and encouraged me to repost it in the appropriate Usenet newsgroup, sci.econ, telling me "Start discussing on sci.econ. We're all ears."

Subsequently I learned how to read Usenet and contribute posts to what we might now describe as an online social network.

Through my experiences on Usenet I became fascinated with the online discussions it made possible. And I began to wonder how it had been created.

Similarly my coauthor Michael Hauben had heard of Usenet and done some study about the online developments that had taken place in the U.S. and elsewhere around the world. He had had seven years of experience on local BBS's and was eager to learn more about the international activity.

Michael was then a sophomore at Columbia University and had access to the Internet and various other online resources available to Columbia students, such as email, Usenet, mailing lists and various programming resources.

At the time, Michael was taking computer science classes. In response to an assignment in one of his classes, he did a post summing up some of the study he was doing about the social impact of the Internet. In the post, he asked for suggestions how to study what was happening in Internet development. This was in the early 1990s. The post was titled:

> 'The Largest Machine': Where it came from and its importance to Society
>
> He explained:
>
> I propose to write a paper concerning the development of 'The Net.' I am interested in exploring the forces behind its development and the fundamental change it represents over previous

communications media. I will consult with people who have been involved with Usenet from its beginnings, and the various networks that comprise the Computer Network around the world. I wish to come to some understanding of where the Net has come from, so as to be helpful in figuring out where it is going to.

Michael Hauben

In response he got a number of interesting emails. He summed up the responses online as was the custom at the time. So both Michael and I were beginning to have some very interesting experiences on Usenet.

Subsequently, Michael followed up his post with a post asking how far and what kind of unusual Net connections people had. He wrote:

I want to hear from the four corners of the Net – That means YOU!

Howdy!

I would like to hear from EVERYONE on the Net-Frontier. If you think you are weird or abnormal (or special) in terms of net-connections or usenet connection, please tell me all about it. I am doing research for a paper about the "largest machine" – the Net. So, I'm looking for people on "the fringe," or who are at obscure connections or who believe they are connected to some kind of interesting makeshift connection.

To the further expansion of the Net!:)

– Michael Hauben

He received answers from over 50 people around the world from Japan to France to India and Africa.

One of his responses included someone planning to send email up to the MIR Space Station.

By this time both Michael and I had gotten interested in how these online developments had come about. Michael raised the question in online posts. Some pioneers who had happened to be part of early developments were online and responded to Michael telling him the important person for him to learn about was JCR Licklider who had had the vision for the Net. And one of the pioneers sent me a copy of a journal

article by Licklider and Robert Taylor titled "The Computer As A Communications Device" which had been published in 1968.

The article turned out to be of great importance and I have read it many times and always learn something new when I read it. And Michael quoted from it referring people to it in various posts.

The authors define communication as a creative process differentiating between communication versus the sending and receiving of information. They argue when two tape recorders send or receive information to each other that is not communication. They explain:

> 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.

Subsequently Michael was in a computer ethics class and the professor wanted students to do a research paper. But they were not to use books. Michael was interested in what the impact of the Net was and would be. So he made up several questions and posted them on Usenet and on mailing lists available at the time.

He received many responses which he summarized and which became part of a paper he wrote and posted. A surprising aspect of the responses he received was that many of those who wrote him not only recounted interesting experiences or activities that they had or were having because of their access to the Internet. But also they expressed the desire that everyone who wanted to be online have the ability to do so. They were using the empowerment they were finding possible because of the Internet to help make the Net better in the ways they could.

Michael realized there was significance to the responses he was

receiving as well as the nature of what he was seeing the Net made possible. Online there was a newsgroup naming convention using net.xxx for the names of different newsgroups like net.general, net.news, net.cooks, net.space, net.chess. Also, users who were acting like citizens online were referred to as net.citizen. Michael changed this conventional term net.citizen to netizen to describe the users he found who were doing what they could to contribute to the Net and spread it.

Following up on the recommendation to learn about Licklider, Michael and I began to do research to understand Licklider's contribution.

Until the early 1960s computers were mainly operated in what was called batch mode. Programmers had to type their programs on punch cards, bring the stack of cards to a computer center and then come back later to get the results of their program.

In 1959, Christopher Strachey in a talk at a UNESCO conference and, independently, John McCarthy in a memo at MIT, proposed a form of computing that would give users direct access to the computer. They called this time-sharing because the memory and processing time of the computer could be divided up to make it seem that each individual user had the computer all to his or herself.

In 1962, JCR Licklider was invited to head a research office at the Advanced Research Projects Agency. ARPA agreed to allow him to promote interactive computing, a form of computing where the researchers could interact with the computer, typing their program directly into the computer and receiving the results directly.

Licklider was not an engineer. He was a psychologist. ARPA was a U.S. government effort begun in response to the Soviet Union's successful launch of Sputnik on Oct 4, 1957. ARPA was created as a civilian office within the U.S. Department of Defense.

At ARPA, Licklider began a research program that would fundamentally change the mode of operating computers. As head of the computer research office at ARPA, Licklider funded several different research proposals to develop time-sharing projects at different universities and research sites. Among these were University of California at Berkeley, MIT, UCLA, Stanford Research Institute, and SDC. He changed the name of the office he headed from "Command and Control" to the "Information Processing Techniques Office" (IPTO) to reflect the work being done by

this office.

Not only did the research done under Licklider's leadership make a great impact on the type of computing available in the world, but also he identified the need for computer networking and put forward a vision that would inspire computer scientists to develop interactive computing, time-sharing, packet switching and the ARPANET.

The IPTO funded researchers and encouraged them to develop projects that came to be known as Centers of Excellence. IPTO funded a program at MIT known as Project MAC.

It funded a project at Stanford in Artificial Intelligence. At Carnegie Mellon University, Alan Newell and Herb Simon headed a project also in Artificial Intelligence. Other projects were funded at other universities. Part of the research program was for the researchers to use different computer and software systems but to collaborate and share the problems and work they were doing to find the questions they had in common, so as to identify what were the generic issues of computer science.

The essence of Licklider's quest was to gain an understanding of the computer as a communication device. Along with the effort to form a community of researchers who would collaborate and work together, was the commitment to disseminate widely the results of the research so there was support for the publication of research. Licklider's first term as director of IPTO put the office on a firm foundation.

Robert Taylor was one of the subsequent heads of the IPTO. In a Charles Babbage Institute conducted interview of Taylor, he pointed out the importance of Licklider's vision to future networking development. He explained: "A phrase that J.C.R. Licklider frequently used to express his vision was 'an intergalactic network.'" Licklider used this phrase to describe the potential community he realized would emerge from the interconnection of the local communities of computer users that developed from time-sharing.

At first, Taylor notes, ARPA supported research toward its goal achieving compatibility and resource sharing across different computer systems. However he explains:

> 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 useable, these people begin 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 … .

Licklider's vision was of an 'Intergalactic Network,' a time-sharing utility that 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, ideas – anything that could be typed out. In their article, "The Computer as a Communication Device," Licklider and Taylor predicted the creation of a global computer network they wrote:

> We have seen the beginnings of communication through a console – Communication among people and consoles located in the same room or in the same university campus or even at distantly separate separated laboratories of the same research and development organization. This kind of communication – through a single multi access computer with the aid of telephone lines is beginning to foster cooperation and promote coherence more effectively then do present arrangements for sharing computer programs by exchanging magnetic tape, by messenger or Mail.

They point out how the interconnection of computers leads to a much broader class of connections than might have been expected. A new form of community is generated:

> 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 selected combinations of those resources.

Licklider and Taylor consider more than just hardware and software when they write about the new social dynamics that the connections to diverse computers and people would create. Licklider's vision of an 'intergalactic network' connecting people represented an important conceptual shift in computer science.

When Michael and I got online in 1992 and 1993, Licklider's vision still seemed to be influencing what was happening online.

The experience Michael and I were having on Usenet was made possible by the Internet.

In an article he wrote during this period, Michael notes that much of the activity computer users were able to take part in has to do with discussion related communication. That included the kind of discussion oriented online activity Licklider advocated, electronic mail and discussion lists.

Popular lists included Human-nets, Wine-tasters, and SF-lovers. The ARPA sponsored research had made possible the popular use of the Net by a growing number of people through e-mail, Usenet discussion groups, mailing lists, and Internet relay chats. Also the ARPANET was the product of previous U.S. Government funded research in interactive computing and time-sharing of computers and the Internet.

Though we didn't realize what had led to the capability that we and others found enticing about being online in these early years of the 1990s, we did know that something very special was going on that we could participate in.

Even after Licklider left the IPTO that he had created and set its principles, "the work supported by ARPA/IPTO continued his explicit emphasis on communication."

Demonstrating this understanding of the communications potential of computers, in RFC-1336 David Clark, a senior research scientist at MIT's Laboratory for Computer Science, describes the impact of the Internet in making possible new means of human-human communication.

He wrote:

> It is not proper to think of networks as connecting computers. Rather, they connect people using computers to mediate. The great success of the Internet is not technical, but in human impact. Electronic mail may not be a wonderful advance in Computer Science, but it is a whole new way for people to communicate. The continued growth of the Internet is a technical challenge to all of us, but we must never lose sight of where we came from, the great change we have worked on the larger computer community, and the great potential we have for future change.

Early on, Licklider had recognized the kind of changes Clark was referring to. In 1970, at a conference about information utilities, Licklider gave the keynote. In the keynote he argued that what he called the advent of information utilities would be a turning-point for our civilization. He differentiated between "access to information" versus "interaction with information."

> It's either mere access to information or interaction with information.

Licklider explained:

> And for mankind it implies either an enmeshment in the silent gears of the great electronic machine or mastery of a marvelous new and truly plastic medium for formulating ideas and for exploring, expressing, and communicating them.

Licklider posed this dichotomy as presenting a significant challenge for society.

Part of Licklider's vision was the promise of a more active participatory role for the human made possible by the communication capability of the computer. This vision included recognizing that information utilities would be an institutional form to provide the public with the computer and information utility of the future.

Research however was needed to sort out how to create such an information utility.

In November 1994, the National Telecommunications Information Administration (NTIA), a public agency under the U.S. Dept. of Commerce, organized a national online conference raising the question of what

should be the future of the Internet.

Maintaining a public Internet was a major thread of many of the participants who defended the Internet as a public good. During the discussion the distinction was raised between the Net encouraging interactive forms of communication versus the passive transfer of information and the importance of this distinction to the future of the Net.

There were many valuable ideas raised and discussed during this online conference.

Among views emphasized was the importance of the Internet for making it possible to hear diverse voices and to transform the nature of the communication made possible in our society.

In an analysis that Michael Hauben did of the transcript from this conference, he documented how he and others who spoke, challenged the narrow view of the Internet presented by the U.S. government restricting the meaning of communication to the sharing of information.

In the view presented by Michael and others at the conference, communication meant "universal interconnection rather than universal access. As Michael explains:

> 'access' stresses the status-quo understanding of one-way communication, the user accesses information that other 'authorized' information providers make available. This is the old model. The new model is of the interconnection of many different types of people, information and ideas. The new model stresses the breakdown of old definitions of communication and information. Diversity allows for both the increasing speed in the formation of new ideas and the ability for previously unauthorized ideas to have the airing and consideration they rightly deserve … .

Michael concludes that,

> It would be best to explore and develop the new forms of communication which this new media facilitates, and which was less possible and present in the past.

By the 1990s, however, it was no longer the concept of how to create the computer and an information utility for the intergalactic network that was being explored. Instead a plan had been created and was being implemented to commercialize and privatize the U.S. portion of the

Internet.

While the plan to privatize and commercialize the Internet had been created with various parts being worked on for years, on September 15, 1994 the U.S. government officially announced a plan to privatize the NSF backbone of the Internet. And on May 1, 1995 the privatization decision was implemented.

The implementation of the privatization plan had been set in motion years earlier at a by-invitation-only meeting held on March 1 to March 3, 1990 at Harvard University which discussed how to implement the privatization plan. This meeting is described in RFC 1192, November 1990.

The NTIA held its nation-wide online conference only shortly before the privatization was carried out.

But the discussion of the vision that Licklider and other pioneers had to create and develop interactive computing, time-sharing, and building the ARPANET, Usenet and the Internet, was the kind of discussion needed early on before the decision to privatize and commercialize the Internet was made.

Instead on May 1, 1995, the transfer was made of the NSFNET from a publicly subsidized U.S. Internet backbone to a commercial backbone, just six months after the NTIA online conference.

What then for the future? In the Unix chapter of the *Netizen* book, there are some references to the book *Ancient Society or Researches in the Lines of Human Progress from Savagery through Barbarism to Civilization* by Lewis Henry Morgan. The book explores the role of changes of technology in understanding the transition from savagery to barbarism and then to civilization. One chapter points to the fact that mastering the smelting of iron was a substantial change of technology helping to lead to our current civilization. Also Morgan points to the importance of the invention of writing in making possible documenting the level of development so society can build on the advances made thus far. Understanding the advances in communications that the computer makes possible can help to understand how to build on those advances.

To move to a digital civilization requires studying what advances have been made and learning how to appreciate and recognize new modes of development like the communication advances Usenet and email and the ARPANET and Internet have made possible.

Along with changes in technology, there are also changes in political forms and social customs. Even as old forms of citizenship continue, new forms like netizens and netizenship are developing side by side. Morgan's book helps to demonstrate why recognizing the importance of such developments is needed along with recognizing the importance of changes in technology.

[Editor's Note: The following was one of the keynote speeches given at the first International Internet History Workshop held in Hangzhou China. The workshop was sponsored by the Cyberlabs' Oral History of the Internet (OHI) project. It was presented on zoom on Nov 6, 2022 from NYC, which was Nov 7 in China. The speech was accompanied by slides which can be seen at: http://www.columbia.edu/~jrh29 /OHI/J-OHI-Slides.ppt. A video recording of the presentation can be seen at: http://www.columbia.edu/~jrh29/OHI/J-OHI-Video .mp4.]

Across the Great Wall Historical Context for the China-CSNET Link in the Tradition of International Cooperation and Sharing

by Jay Hauben
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Hello, I feel honored to be a participant in this international workshop. I want to use my talk today to put the collaboration in 1983 to 1987 which led to the first email message from China to the world over the CSNET into an historical context. That context is the tradition of international computer and networking cooperation and sharing.

> A clue to that context is what Madam Hu Qiheng said in 2007:
> The international collaboration in science and technology is the driving force for computer networking across the country borders and facilitating the early Internet development in China.

The first message on the China-Germany link went across a

supposed ideological and many geographic and technical borders. The crude graphic shows the path.

As an historian and a journalist I want to go back in time and trace a tradition of sharing and crossing borders that is a characteristic of computer development and computer science and science in general. I will start with the Hungarian-born scientist and mathematician John von Neumann in the 1940s.

Von Neumann had set a very solid scientific foundation for computer development in his work for the U.S. government during the Second World War. He wrote a report presenting detailed arguments for the axiomatic features that have characterized computers ever since.

When the war ended there began to be a battle over who would get the patent for the basic ideas that were embodied in the ENIAC, one of the first successful electronic digital computers. Von Neumann saw a potential conflict between scientific and commercial development of computers.

Von Neumann argued that the foundation of computing should be scientific and that a prototype computer be built at the Institute for Advanced Study at Princeton University to ensure that a general purpose computer be build by scientists. He wrote: "It is …, very important to be able to plan such a machine without any inhibitions and to run it quite freely and governed by scientific considerations." The computer became known as the Institute for Advanced Studies or IAS computer.

Von Neumann also set the pattern in the very beginning that the fundamental principles of computing should not be patented but should be put in the public domain. He wrote:

> … [W]e are hardly interested in exclusive patents but rather in seeing that anything that we contributed to the subject, directly or indirectly, remains accessible to the general public … . [O]ur main interest is to see that the government and the scientific public have full rights to the free use of any information connected with this subject.

He was here placing his contributions to computer development into the long tradition of the public nature of science, the norm of sharing scientific results. That norm had been interrupted by the world war.

Von Neumann gathered a team of scientists and engineers at the Institute for Advanced Studies to design and construct the IAS computer.

He and his team documented their theoretical reasoning and logical and design features in a series of reports. They submitted the reports to the U.S. Patent Office and the U.S. Library of Congress with affidavits requesting that the material be put in the public domain. And, they sent out these reports – 175 copies of them by land and sea mail – to institutions and individual colleagues in the U.S. and several other countries. The reports included full details how the computer was to be constructed and how to code the solution to problems.

Aided by the IAS reports, computers were designed and constructed at many institutions in the U.S., and in Russia, Sweden, Germany, Israel, Denmark, and Australia. Also, scientific and technical journals began to contain articles describing computer developments in many of these countries. Visits were exchanged so the researchers could learn from each other's projects. This open collaborative process in the late 1940s laid a solid foundation for computer development. It was upon that scientific foundation that commercial interests were able to begin their computer projects starting by the early 1950s.

The end of the Second World War unleashed a general interest in the scientific and engineering communities for computer development. Many researchers had to be patient while their countries recovered from the devastation of the war before they could fully participate. Still computer development was international from its early days.

Scientific and technical computer advances continued in the 1950s. A new field of study and practice, Information Processing, was emerging. Today the field is called Informatics or Computer Science.

What may have been the first major international electronic digital computer conference was organized in 1955 by Alwin Walther, a German mathematician. It was in Darmstadt Germany. There were 560 attendees. One of the sixty speakers at the meeting was Herman Goldstine, von Neumann's partner in the IAS Computer Project and one of the signatories of the affidavit putting all his work into the public domain. The paper abstracts were all published in both German and English. This conference and others held during the time of the division of Germany were partly the result of efforts by German scientists on both sides of the divide to keep in touch with each other's work.

In China, also computer development was on the agenda. In 1956,

the Twelve-Year Plan for the Development of Sciences and Technology included computer technology as one of the 57 priority fields.

Describing the mid 1950s, Isaac Auerbach, an American engineer active organizing joint conferences, reports that "In those days we were constantly talking about the state of the art of computers … . I suggested then that an international meeting at which computer scientists and engineers from many nations of the world might exchange information about the state of the computer art would be interesting and potentially valuable. I expressed the hope that we could benefit from knowledge of what was happening in other parts of the world … . The idea was strongly endorsed … ." Auerbach projected such a conference would be a "major contribution to a more stable world." This line of thought helped suggest approaching the United Nations Educational, Scientific and Cultural Organization (UNESCO) to sponsor such a conference.

UNESCO was receiving proposals from other countries as well. The result was the first World Computer Conference, held in 1959 in Paris. Nearly 1800 participants from 38 countries and 13 international organizations attended. Auerbach wrote that "by far, the most important success of the conference was the co-mingling of people from all parts of the world, their making new acquaintances, and their willingness to share their knowledge with one another." Computers and computing knowledge was treated at this conference as an international public good. The sharing was in all directions.

During the UNESCO conference many attendees expressed an interest in the holding of such meetings regularly. A charter was proposed. By January 1960 the International Federation for Information Processing (IFIP) was founded. IFIP's mission was to be "an apolitical world organization to encourage and assist in the development, exploitation and application of Information Technology for the benefit of all people." Eventually, IFIP technical and work subgroups annually sponsored hundreds of international conferences on the science, education and impact of computers and information processing.

The success of IFIP in fulfilling its mission is attested to by the fact that all during the Cold War, IFIP conferences helped researchers from East and West meet together as equals to report about their computing research and eventually about their computer networking research and

activities.

The sharing among researchers by postal mail and at conferences was also being built directly into the computer technology itself. The 1960s were ushered in by the beginning of development of the time-sharing mode of computer operations. Before time-sharing, computers were used mostly in batch processing mode. Users punched their programs on cards and left the cards at the computer center which ran them in batches. Sometime later the user received back the results. In contrast to batch processing, computer time-sharing technology made possible the simultaneous real-time use of a single computer by many users, each at a terminal having the illusion he or she was the sole user. In this way each user could interact with the computer directly and see results in real time.

The human-computer interactivity made possible by time-sharing suggested the possibility of human-computer thinking centers. A computer and the people using it forming a collaborative work team. JCR Licklider envisioned the interconnection of these centers "into a network of such centers, connected to one another by wide-band communication lines." All people at terminals everywhere connected via a computer communications system. Licklider also foresaw that all human knowledge would be digitized and somehow made available via computer networks for all possible human uses.

In 1962, Licklider was offered the opportunity to start the Information Processing Techniques Office (IPTO), a civilian office within the U.S. Department of Defense. As its director, he gave leadership insuring the development and spread of time-sharing interactive computing which gave raise to a community of time-sharing researchers across the U.S.

Computer time-sharing on separate computers led to the idea of connecting such computers and even how to connect them.

In 1965, Donald Davies, a British computer scientist, attended a IFIP congress in NYC and visited U.S. time-sharing research sites. Later, he invited time-sharing researchers to give a workshop at his institution in London. Davies reports that after the workshop he realized that the principle of sharing could be applied to data communication. The communication lines could be shared by many users if the messages were broken up into packets and the packets interspersed. This Packet switching technology treated each packet equally. By sharing the communication

system in this way a major efficiency and cost savings was achieved over telephone circuit technology.

By 1968, Licklider foresaw that packet switching networking among geographically separated people would lead to many communities based on common interest rather than restricted to common location.

Licklider and his co-author Robert Taylor also realized that there would be political and social questions to be solved. They raised the question of access, of 'haves' and 'have nots'. They were predicting that the technology would have built into it the capacity to connect everyone. But spreading the connectivity would encounter many obstacles.

Von Neumann's putting his computer design in the public domain was repeated. In 1969, mathematicians at the U.S. telephone company AT&T's Bell Telephone Laboratories started to build a computer time-sharing operating system for their own use. They called it UNIX. It was simple and powerful. As a regulated monopoly, AT&T was forbidden to sell UNIX because computer software was not part of its core business. The developers made UNIX available on tapes for the cost of the tapes. They also made the entire software code available as well. Being inexpensive and powerful and open for change and improvement by its users, UNIX spread around the world. UNIX user organizations united these people into self-help communities.

Also in 1969, the computer time-sharing scientists that IPTO supported began an experiment to connect their time-sharing centers across the U.S. Their project resulted in the first large scale network of dissimilar computers. Its success was based on packet switching technology. That network became known as the ARPANET, named after the parent agency that sponsored the project, the Advanced Research Project Agency (ARPA), a civilian agency within the U.S. Department of Defense. The ARPANET was a scientific experiment among academic researchers not, as is often stated, a military project.

The goal of the ARPANET project was "to facilitate resource sharing." The biggest surprise was that the ARPANET was often used for the exchange of text messages among the researchers about their common work or unrelated to work. Such message exchanges occurred in every time sharing community. The ARPANET only increased the range and number of users who could be reached. Thus was born network email, an

effective and convenient added means of human communication.

The ARPANET started with four nodes in early 1970 and grew monthly. Early technical work on it was reported at the Joint Computer Conferences in the U.S. and in the open technical literature. Similar packet switching experiments took place elsewhere especially France and the U.K. The ARPANET was not an internet. It was a single network, as were the Cyclades network in France and the National Physical Laboratory network in U.K.

The thought of interconnecting such single networks seemed a natural next step. Again the technology itself invited sharing and connecting, all of which requires collaboration.

A seminal step toward what we know today as the Internet emerged in October 1972 at the first International Conference on Computer Communications (ICCC) in Washington, DC. The conference was organized by a committee including representatives from 12 countries; the program included papers reporting the state of computer telecommunication usage from most of these, with 800 computer communication professionals from at least 38 countries attending. At this conference researchers from projects around the world discussed the need to begin work establishing agreed upon standards and protocols so their projects might interconnect. The International Networking Working Group (INWG) was created with the idea to "take the lead in creating an international network of networks" by fostering the exchange of ideas and lessons. Consistent with IFIP purposes, this group became IFIP Working Group 6.1. The Internet was international from its very beginning.

The problem to be solved was how to provide computer communication among technically different computer networks in countries with different political systems and laws. From the very beginning the solution had to be sought via international collaborations. One collaboration that made possible the TCP/IP foundation of the internet included a test bed collaboration by U.S., Norwegian and U.K. researchers.

Throughout the 1970s the ARPANET grew as did computing and computer centers in many countries. Schemes were proposed to connect national computer centers across geographic boundaries. In Europe, a European Informatics Network (EIN) was proposed for Western Europe. A similar networked called IIASANET was proposed for Eastern Europe.

The hope was to connect the two computer networks with Vienna as the East-West connection point. IIASANET got its name from the International Institute for Advanced System Analysis which was an East-West institute started in the early 1970s for joint scientific work. When the researchers met for joint work in the IIASA Computer Project or at IFIP conferences, they were pointed to or had already read the journal articles describing the details of the ARPANET. The literature had crossed the Iron Curtain and now the researchers tried to get networks to cross too. At this they failed. The reason seemed both commercial and political. The networks depended on telephone lines and the telephone companies were reluctant to welcome new technology. Also, with the coming of Ronald Reagan to the U.S. Presidency, hard line politics derailed East-West cooperative projects.

Efforts in the 1970s to exchange visits among computer scientists also included China. In 1972 six substantial U.S. computer scientists on their own initiative were able to arrange a three week visit to tour computer facilities and discuss computer science in Shanghai and Beijing. They reported that the Chinese computer scientists they met were experienced and well read in western technical literature. The discussions and sharing were at a high level. They felt their trip was a useful beginning to reestablish "channels of communication between Chinese and American computer scientists." A few months after their visit, a tour of seven Chinese scientists of the U.S. included Li Fu-sheng, a computer scientist.

In the U.S., the advantage of being on the ARPANET especially network email and file transfer attracted the attention of computer scientists and their graduate students. But most universities could not afford the estimated $100,000 annual cost nor had the influence to get connected. A common feeling was that those not on the ARPANET missed out on the collaboration it made possible.

To remedy the situation some graduate students developed a way to use the Unix to Unix CoPy (UUCP) function built into the UNIX operating system to pass messages on from computer to computer over telephone lines. The messages could be commented on and the comments would then be passed on with the messages. In that way the messages became a discussion. They called the system USENET, short for UNIX Users Network. Since UNIX was wide spread on computers in many

countries, USENET spread around the world. Based at first on telephone connections between computers, the costs could be substantial. Computer tapes containing a set of messages were sometimes mailed or carried across the oceans as a less expensive means of sharing the discussions.

At the same time, Larry Landweber, a computer scientist in the U.S., gathered other computer scientists who lacked ARPANET connectivity. The ARPANET connected universities were pulling ahead of the others in terms of research collaboration and contribution. Landweber and his colleagues made a proposal to the U.S. National Science Foundation (NSF) for funding for a research computer network for the entire computer science community.

In 1981, they received management and financial support from the U.S. NSF for a Computer Science Research Network (CSNET) project which would allow for connection with the ARPANET, telephone dial-up connections and what was called public data transmission over telephone lines. Soon, a gateway was established between CSNET and the ARPANET and CSNET spread throughout U.S. academia.

In the tradition I have been documenting, Landweber created a series of International Academic NetWorkshops throughout the 1980s at which researchers and engineers from many countries shared and learned from one another. Landweber and his co-workers supported researchers in Israel, Germany, Korea, Australia, Canada, France, and Japan to join at least the CSNET email system.

"It was a very exciting time. There were all these lively discussions and debates about technical approaches and implementation strategies," Landweber wrote. "These people were to become the worldwide leaders in the spread of the Internet."

In 1984, computer scientists at Karlsruhe University succeeded in setting up a node for Germany to be on the CSNET system. These scientists wanted to spread this connectivity in Europe and further. It was via that node that they conceived of the possibility that computer scientists in China could have email connectivity with the rest of the international computer science community. By Sept 1987, a collaboration between a team in Germany led by Werner Zorn and one in China led by Wang Yunfeng succeeded in making China part of the international email portion of CSNET.

In the 1980s, CSNET flourished spreading international cooperation and collaboration and functioning internetworking. In many way, in the 1980s, CSNET was the internet. And international computer scientists ensured China was part of it.

To sum up, there is a solid tradition associated with computers and computer networks. The technology and the people involved tend to support sharing and spreading of the advantages computing and networking bring. That tradition has been international from the very beginning. When von Neumann sent out his reports or the UNIX developers sent out the tapes, they were not making a selfish or a local or a national judgment. They acted as citizens of the world. The internet itself serves to give more people the chance to be part of a larger world identity.

We are searching for a framework to see what direction the future should take. There are people who actively contributed towards the development of the internet and the networked society that is emerging. These people understood the value to all of public goods and of collective work. In the 1990s, Michael Hauben realized these peoples were citizens of the networked society. He contracted net.citizen to netizens. The people and events I have described are a small subset of such netizens. The netizen model may scientifically describe the emerging internet-impacted society and thus help society to evolve from the current nation centered society to an interconnected world society.

I feel we today are celebrating and supporting a long tradition of international sharing and collaboration and seeking a better future

Thank you for your attention.

[Editor's Note: The following article is an excerpt from Chapter 14 (pages 253-256) in *Netizens: On the History and Impact of Usenet and the Internet* by Michael Hauben and Ronda Hauben. The title of the full article by Michael Hauben is "The Net and the Future of Politics: The Ascendancy of the Commons." The excerpt is online testimony given at the 1994 Virtual Conference on Universal Service and Open Access to the Telecommunications Network sponsored by the U.S. National Telecommunications Information Administration (NTIA). There were over 800 participants across the U.S. and abroad who contributed a wide spectrum of thoughtful opinions.]

What the Internet Can Do for People

The significance of Internet access for all in society is not obvious because it is a new way to think about communication between people. Before the Internet and Usenet, most broadcast forms of communication were owned and operated by large companies. Other more democratic forms of broadcast which provide one-to-many communication exist for small segments of the population in particular regions: public access cable, various self-produced newsletters or zines, "pirate" radio and so on. The Internet makes available an alternative to the corporate owned mass media and allows a grass-roots communication from the many to the many. As it has taken a struggle for an individual to be seen as an information provider, it is not immediately obvious to all that it is possible to speak out and have your voice heard by many people. It is also important that people could express their views and be in contact with others around the world who are expressing their views. Participants in the virtual conference were active in defining their interest in keeping the Internet protected from dominance by commercial interests. Commercial information and communication is vastly different from personal information and communication. Participants recognized this difference, and voiced their opinion on how it is important to keep the Net as an open channel for non-commercial voices.

The picture of the Internet painted by the U.S. government has been one of an "information superhighway" or "information infrastructure" where people could connect, download some data or purchase some goods and then disconnect. This vision is one that is very different from the current cooperative communications forums on Usenet where everyone can contribute. Even worse has been the description by much of the news media where people's contributions are misportrayed as pornography or otherwise vice-related, such as bomb production or drug-related. The important aspect of the Internet and Usenet is that they provide a place where people can share ideas, observations and questions. The transfer of information is secondary.

FROM: R. M

Overlooked in the current free market vs regulated access debate is any argument convincing me why the average American will want access to the net. Apart from the "information elite" (most already on the net), I don't know too many people interested in communications capability not already available using existing infrastructures. How many people do you know, not associated with research or education, who care about access to government information repositories? Or virtual conferences?[1]

FROM: Dr. Robert LaRose

In response to Woody Dowling's comment that the average American is not interested in advanced communications infrastructure, at least not those who don't already have it.

Not so. We did a national survey a couple of years ago and asked about interest in videotex, ISDN, etc., found interest levels far beyond those of then-current penetration levels. Found the most intense interest among low income homes, in fact, suggesting that it is cost and not interest that holds them back. Want a killer application for low income households? Email. Many can't afford long distance rates, some move too often or have no home, can't keep a phone line … . The applications already exist, but the people who need them most can't afford them – or don't constitute an attractive enough market.[2]

FROM: Curt Howland

While the inverse relation between cost and pervasiveness is certainly true, I must take issue with comparing the Net to TV. Such comparisons allow for the taking of information, but not for the tremendous possibilities involved with ease of *providing* info. There is no reason to think that a future Stephen Hawkings isn't sitting right now in front of a boob-tube sucking down Mighty Morhpin Power Rangers because there is no way for his ideas to be expressed. Without the facility to put ideas out, with each person acting as a information provider assumed from the outset, we are doing ourselves a great disservice.[3]

FROM: Don Evans

A two way street for all Americans. not only should they be able to

receive from the net, but they also must be able to provide their unique information.[4]

FROM: Michael Hauben

I. Universal Access Basic Principles

In order for communications networks to be as useful as possible, it is necessary for it both to:

A) Connect every possible resource and opinion,

B) Make this connection available to all who desire it.

A and B call for Universal Interconnection, rather than Universal Access. The usage of "interconnection" highlights the importance and role of every user also being an information provider. The term "access" stresses the status-quo understanding of one-way communication, the user accesses information that other "authorized" information providers make available. This is the old model. The new model is of interconnection of many different types of people, information, and ideas. The new model stresses the breakdown of old definitions of communication and information. Diversity allows for both the increasing speed in the formation of new ideas, and the ability for previously unauthorized ideas to have the airing and consideration they rightfully deserve.

II. Definition of "Services" to be available on this Universal Interconnection

The new era of interconnection and many-to-many communication afforded by Netnews and Mailing lists (among other technologies) brings to the forefront a model of bottom-up rather than top-down communication and information. It is time to reexamine society and welcome the democratizing trends of many-to-many communication over the one-to-many models as represented by broadcast television, radio, newspapers and other media.

As such, I would say it would be important to highlight, discuss and make available interactive modes of communication instead of the passive transfer of information. Thus I am suggesting emphasizing forms of multiple ways of communication and broadcasting. Forms currently defined by newsgroups, mailing lists, talk sessions, IRC sessions, MOO experiences, and other forms of sharing and collaboration. These types of

forums are where this new technology excels. Plenty of media exist which facilitates the passive transfer of information and goods. (Such as mail-order, stores, telephone orders, etc) It would be best to explore and develop the new forms of communication which this new media facilitates, and which was less possible and present in the past[5]

From: B. Harris
Summary of the Affordability and Availability Conference

The Internet and the Global Computer Network are providing a very important means for the people of our society to have an ability to speak for themselves and to fight their own battles to better the society.[6]

FROM: Eric Rehm

… [C]onception of access, I would posit, demands a much more interactive use of the medium and perhaps the bandwidth needs are more balanced: This example can then be extended to any number of community organizations with members as avid information producers

In other words, basic service based on enabling "many producers" might actually prompt a larger share to be allocated to bandwidth OUT of the home than that envisaged by the Baby Bells and cable companies.

It seems to me, in rural America, there would be even more fear of not having ample "basic" bandwidth to be a producer because the distance to such an "access point" might be enough to effectively deny community production.[7]

Notes

1. From: <MAADR007@SIVM.SI.EDU>
   Date: Thu, 17 Nov 94 14:00:16 EST
   Subject: universal access but not ubiquitous use
   Message-Id: <199411172209.OAA20275@virtconf.digex.net>
2. From: Dr. Robert LaRose <LAROSE@tc.msu.edu>
   Date: Thu, 17 Nov 1994 15:03:37 EST
   Subject: Re: [REDEFUS:123] universal access but not ubiquitous use
   Message-ID: <224FE632CC5@tc.msu.edu>
3. From: howland@nsipo.nasa.gov
   Date: Wed, 16 Nov 1994 19:19:23 -0800

Subject: Re: [REDEFUS:67] Re: Public Access
Message-Id: <199411170319.TAA11501@noc2.arc.nasa.gov>

4. From: Don Evans <don@dcez.com>
   Date: Mon, 14 Nov 1994 13:25:42 -500 (EST)
   Subject: Universal Access...
   Message-ID: <Pine.3.89.9411141352.G26106-0100000@dcez.dcez.com>
5. From: Michael Hauben <hauben@columbia.edu>
   Date: Tue, 22 Nov 1994 01:54:36 -0500
   Subject: Need to stress concept of active communication and interconnection
   Message-Id: <199411220654.AA28036@merhaba.cc.columbia.edu>
6. From: BHARRIS@ntia.doc.gov
   Date: Mon, 21 Nov 1994 16:04:59 -0500
   Subject: Interim Summary for Availability List
7. From: rehm@zso.dec.com
   Date: Mon, 14 Nov 94 13:50:03 -0800
   Subject: Re: [REDEFUS:22] Re: Pilot Projects
   Message-Id: <9411142150.AA09999@slugbt.zso.dec.com>

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