The Fourth World: The Promises and Dangers of the World Wide Web

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EDITORIAL

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THE PROMISE

Over the past 18 months, a new development has swept through the community of users of the worldwide network of computers known as the Internet. This new system for finding and accessing the information contained in the Internet's computers is known as the World Wide Web (WWW). This approach was developed by researchers at the Centre Européen de Recherches Nucléaires (CERN) in Switzerland and the National Center for Supercomputing Applications (NCSA) in the United States. The system was such an improvement over previous systems that, by word of mouth (electronic and verbal), news of the World Wide Web has spread rapidly and the system has been adopted by thousands of people interested in delivering information to others using the Internet. The World Wide Web, to enthusiasts of electronic networks, has become a marketplace of ideas and information, and artists and art scholars are at the vanguard of its use [1].

It is perhaps hard to explain to those who are not frequent users of electronic networks why the World Wide Web has swept our community like a cultural revolution. What the World Wide Web does, with software applications such as NCSA's Mosaic, is make it much easier to

- read or view the information stored in someone else's computer anywhere in the world
- make available to anyone in the world (with Internet access) the information already stored in one's own computer
- make new information available at the speed of electronic communications, so that changes to the data in a computer file are available as soon as one makes the changes to the file
- publish all types information electronically—including text, images, sounds and video clips
- publish material in hypermedia. Based on the fundamental principle of hypertext, the link, the Web allows users to easily set up connections between any type of information in one computer (whether it involves sound, images or text) and information stored in another computer. Thus, all the information linked together on the World Wide Web effectively becomes a single multimedia "text"
- use the same system to access the most technical of information and software, as well as games and educational material [2]
- "browse" online. One can currently browse through multimedia information stored in computers all over the world—this is now as easy as walking into a library on a rainy day and browsing through printed books.

None of these capabilities are, in themselves, new—they have been available for some time to researchers and those with large computers and expensive multimedia conferencing software. What the developers of the World Wide Web have done is make it easy and cheap for a large number of computer network users to be able to share multimedia data, connected through hypertext on a planetary scale. The developers have provided ways for a broad range of users—including those with the most sophisticated computers and those with smaller personal computers—to access information through the World Wide Web.

When the history of the 1990s is written, I believe that historians will conclude that the World Wide Web contributed to a cultural revolution. The advent of WWW can be compared to the introduction of the public library and public schooling during the nineteenth century, which democratized access to printed information and was part and parcel of the development of liberal democracies in the Western world.

In a real sense, the World Wide Web democratizes and internationalizes access to online information and online collaboration within the community of users that has grown with the Web's development.

THE DANGER

Very few people—under 100 million individuals on the planet—have access to the Internet's computer networks. This access is highly concentrated in developed countries and, within those countries, to individuals within companies and organizations or with sufficient personal wealth and access to expertise. The overwhelming majority of the world's population is excluded from the World Wide Web. The development of these new and expensive communication technologies leads to the further concentration of information and resources among those who are already in privileged positions.

The Internet and the World Wide Web are creating a new world, a "Fourth World," that is as distant from other worlds as the Third World is from the First World. This Fourth World is defined by connectivity, not by geographic proximity. There are members of the Fourth World in every country on the planet. We can predict with certainty that new political and social problems will be created by the development of this Fourth World, from which 99% of the world's population is now excluded and which, even according to the most optimistic projections, will not include a majority of the world's population within the next 50 years.

Technological artists, who have wrestled with cultural issues of access to technology and represented these struggles in their work, are well placed to help raise the issues and address the opportunities and dangers posed by the Fourth World of the World Wide Web.

LEONARDO'S SITE ON THE WORLD WIDE WEB

Leonardo/ISAST has launched a World Wide Web site that is open to all users of the Internet. The uniform resource locator (URL), or address, is <http://www-mitpress.mit.edu/Leonardo/home.html>.

The *Leonardo* WWW site has been installed and is in the process of being designed by Mason Wong, Kasey Asberry and others. The managing editor for the site is *Leonardo* Senior Editor Patricia Bentson.

The *Leonardo* World Wide Web provides access to a wide variety of multimedia information, including visual art exhibited in gallery sections as well as sound material illustrating articles in *Leonardo* and *Leonardo Music Journal.* All reviews that have been published in *Leonardo Digital Reviews* are available through the site. There are links to other WWW sites of interest to professionals in the arts, sciences and technology. Craig Harris, executive editor of *Leonardo Electronic Almanac (LEA),* is setting up a linked WWW site for *LEA.*

We have also created an area of the *Leonardo* World Wide Web site that is accessible only to Leonardo members (i.e. all subscribers to *Leonardo* and *Leonardo Electronic Almanac*). *Leonardo* members will find a number of services available to them at the WWW site.

The *Leonardo* WWW site continues our experimentation in publishing through the electronic networks, which began in 1988 with our publication of the electronic newsletter *FineArt Forum,* founded by Ray Lauzzana and now edited by Paul Brown [3], and continued with the 1991 founding of the *Leonardo Electronic Almanac (LEA)* by Craig Harris and the 1994 founding of *Leonardo Digital Reviews,* which is published as a section of *LEA.* The community of professionals associated with *Leonardo* counts on us to be at the forefront of experimentation in online publishing.

We look forward to working with the community to develop the *Leonardo* WWW into a useful resource—not only for information, but also for collaboration. We are particularly interested in working with individuals and groups who do not have access to the Fourth World of the Internet to develop ways of ensuring that the WWW fulfills the promise of the global village, rather than becoming a global suburb or global ghetto of like-minded and locally disconnected communities.

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References

1. For a comprehensive directory of sites in the Internet, see C. Maxwell and C. Grycz, *The New Riders' Official Internet Yellow Pages* (Indianapolis, IN: New Riders Publishing, 1994).

2. An example of a site that offers access to highly technical information as well as educational and general information is the U.S. National Aeronautics and Space Administration (NASA) site for the astronomy satellite the Extreme Ultraviolet Explorer. This site allows interested visitors to analyze the data taken by the satellite and provides access to other NASA data and materials of interest to teachers and students. The URL is <http://www.cea.berkeley.edu/HomePage.html>. NASA has recently announced a project, Science on Line, which will link NASA researchers to science museums around the country to make NASA information readily available to all interested members of the public.

3. Paul Brown, editor of *FineArt Forum,* has established a *FineArt Forum* WWW site. The URL is <http://www.msstate.edu/Fineart_Online/home.html>; in Australia, <http://www.gu.edu.au/gu_special_projects/Fineart_Online/home.html>. *FineArt Forum* is a publication of the Art Science Technology Network, of which Annick Bureaud of Paris is president.