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the Print Media to the Internet, by Marie Lebert

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*** START OF THIS PROJECT GUTENBERG EBOOK FROM PRINT MEDIA TO INTERNET ***

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FROM THE PRINT MEDIA TO THE INTERNET

MARIE LEBERT

How does the world of the print media approach this new means of communication that is the Internet? How does the Internet take into account the various parts of the print media? A study written in March 1999 and based on many interviews. With many thanks to Laurie Chamberlain, who kindly edited this paper. The French version of this paper - De l'imprimé à Internet - is not a translation, but a different text. The original versions are available on the NEF, University of Toronto: http://www.etudes-francaises.net/entretiens/print.htm

TABLE

1. INTRODUCTION

The world of the print media is big: it includes everything related to books, periodicals and pictures. The world of the Internet is much bigger. It is that tremendous network which is leading to the upheaval of communications and working methods we are hearing so much about.

Are these two worlds antagonistic or complementary? What is the influence of one world on the other, and vice versa? How does the world of the print media accept this tremendous means of communication which is the Internet? How does the Internet take into account this centuries-old tool which is the print media? Do they work together? Do they compete? What is their common future? Will the world of the Internet completely swallow up the world of the print media, or, to the contrary, will the print media domesticate the Internet as an additional means of communication?

We are not even aware yet of the many interconnections and transformations the Internet is going to bring if the Internet changes the world as much as writing or printing did in the past, as we are constantly being told it

will.

What are the implications for all the professionals of the print media: authors, booksellers, journalists, librarians, printers, publishers, translators, etc.? How do they see the breaker which is beating down on them, and the storm that the Internet is bringing into their professional life? These are the questions I will try to answer in the following pages.

More and more publications have both an electronic version and a paper version and, in some cases, both can be ordered on-line. Numerous texts are available on-line in digital libraries. Many of these texts also have a paper version the cybernaut can buy if he prefers reading 500 pages lying on his sofa instead of reading them on the screen of his computer. Some texts or magazines are available on-line only.

More and more newspapers and magazines have a website on which their readers can find the full text or abstracts of the latest issue, archives giving access to the previous issues, dossiers on various topics, etc. More and more library catalogs are available on-line. And most sites offer hyperlinks to other websites or documents on related subjects. In short, the Internet has become an essential tool for getting information, having access to documents and broadening our knowledge.

I will examine the interaction of the print media and the Internet in the following areas: bookstores, publishers, press, libraries, digital libraries and catalogs. I shall also include the contributions of the media professionals who answered my inquiry about: (1) the way they see the relationship between the print media and the Internet; (2) what the use of the Internet has brought in their professional life and/or the life of their company/organization; and (3) how they see their professional future or the future in general with the Internet. I express here my warmest thanks to all those who replied to my inquiry.

I will also comment on the future trends regarding intellectual property, digitization, multimedia convergence and the information society. A selection of websites is also available. Some of the information included here is probably already obsolete. Never mind. The world of the Internet is fast-moving and evolves constantly - that is one of its many assets.

This study follows a Ph.D. I completed in 1998-99 at the University of the Sorbonne (Ecole pratique des hautes études), Paris, France. Although the key ideas are the same, it is not the translation of the French study, which was Francophone-oriented. New websites and new contributions from people belonging to the English-speaking and the international community have been included here.

Originally, I worked as a librarian in Europe and in the Middle East, under contract to set up libraries and/or computerize catalogs. More recently, I have been contributing to the preparation of publications as a writer, translator, editor or indexor. Since 1996 I have been working mainly for the International Labour Office (ILO), Geneva, Switzerland. As I am fascinated by languages, I also wrote a study about Multilingualism on the Web.

2. THE INTERNET

[In this chapter:]

[2.1. The Internet and the Other Media / 2.2. The "Info-Rich" and the "Info-Poor" / 2.3. The Web: First English, then Multilingual]

2.1. The Internet and the Other Media

Since a few years ago, the Internet has become integrated into our daily life, and people have gotten connected at home, at work or in their university. At the end of 1997, the number of Internet users was estimated at 90 or

100 million, with one million new users every month. In the year 2000, the number of Internet users will be over 300 million.

Does the Internet compete directly with television and reading? In Quebec, where 30.7% of the population is connected, a poll taken in March 1998 for the cybermagazine Branchez-vous! showed that 28.8% of connected Quebeckers were watching television less than before. Only 12.1% were reading less. As stated by the French Canadian magazine Multimédium in its article of April 2, 1998, it was "rather encouraging for the Ministry of Culture and Communications which has the double task of furthering the development of information highways... and reading!"

The Internet has become the medium of choice for many news consumers, in many cases matching and occasionally surpassing traditional forms of media, according to a survey conducted in February 1998 for MSNBC on the Internet by Market Facts.

In an article of Internet Wire, February, 1998, Merrill Brown, editor-in-chief of on-line MSNBC, wrote:

"The Internet news usage behavior pattern is shaping up similar to broadcast television in terms of weekday use, and is used more than cable television, newspapers and magazines during that same period of time. Additionally, on Saturdays, the Internet is used more than broadcast television, radio or newspapers, and on a weekly basis has nearly the same hours of use as newspapers."

The corresponding number of hours per week are: 2.4 hours for magazines; 3.5 hours for the Internet; 3.6 hours for newspapers; 4.5 hours for radio; 5 hours for cable TV; and 5.7 hours for broadcast TV.

When interviewed in Autumn 1997 by François Lemelin, chief editor of L'Album, the official publication of the Club Macintosh de Québec, Jean-Pierre Cloutier, editor of the Chroniques de Cybérie, explained:

"I think the medium [the Internet] is going to continue being essential, and then give birth to original, precise, specific services, bywhich time we will have found an economic model of viability. For information cybermedias like the Chroniques de Cybérie as well as for info-services, community and on-line public services, electronic commerce, distance learning, the post-modern policy which is going to change the elected representatives/principals, in fact, everything is coming around. [...]

Concerning the relationship with other media, I think we need to look backwards. Contrary to the words of alarmists in previous times, radio didn't kill music or the entertainment industry any more than the cinema did. Television didn't kill radio or cinema. Nor did home videos. When a new medium arrives, it makes some room for itself, the others adjust, there is a transition period, then a 'convergence'.

What is different with the Internet is the interactive dimension of the medium and its possible impact. We are still thinking about that, we are watching to see what happens.

Also, as a medium, the Net allows the emergence of new concepts in the field of communication, and on the human level, too - even for non-connected people. I remember (yes, I am that old) when McLuhan arrived, at the end of the sixties, with his concept of 'global village' basing itself on television and telephone, and he was predicting data exchange between computers. There were people, in Africa, without television and telephone, who read and understood McLuhan. And McLuhan changed things in their vision of the world. The Internet has the same effect. It gives rise to some thinking on communication, private life, freedom of expression, the values we are attached to and those we are ready to get rid of, and it is this effect which makes it such a powerful, important medium."

The Web must not only give the necessary space to all languages but it must also respect all cultures. During the Symposium on Multimedia Convergence organized by the International Labour Organization (ILO),

Geneva, Switzerland, in January 1997, Shinji Matsumoto, General Secretary of the Musicians' Union of Japan (MUJ), declared:

"It is not only in developing countries, but in advanced countries as well that we need to maintain our traditions. Japan is quite receptive to foreign culture and foreign technology. [...] Foreign culture is pouring into Japan and, in fact, the domestic market is being dominated by foreign products. Despite this, when it comes to preserving and further developing Japanese culture, there has been insufficient support from the Government. [...] With the development of information networks, the earth is getting smaller and it is wonderful to be able to make cultural exchanges across vast distances and to deepen mutual understanding among people. We have to remember to respect national cultures and social systems."

The Technorealism website first appeared on the Web on March 12, 1998. According to the website, technorealism is "an attempt to assess the social and political implications of technologies so that we might all have more control over the shape of our future. The heart of the technorealist approach involves a continuous critical examination of how technologies - whether cutting-edge or mundane - might help or hinder us in the struggle to improve the quality of our personal lives, our communities, and our economic, social, and political structures."

The eight principles of Technorealism Overview have been signed by over 1,472 people between March 12 and August 20, 1998. Here are the first three:

"a) Technologies are not neutral.

A great misconception of our time is the idea that technologies are completely free of bias - that because they are inanimate artifacts, they don't promote certain kinds of behaviors over others. In truth, technologies come loaded with both intended and unintended social, political, and economic leanings. Every tool provides its users with a particular manner of seeing the world and specific ways of interacting with others. It is important for each of us to consider the biases of various technologies and to seek out those that reflect our values and aspirations.

b) The Internet is revolutionary, but not Utopian.

The Net is an extraordinary communications tool that provides a range of new opportunities for people, communities, businesses, and government. Yet as cyberspace becomes more populated, it increasingly resembles society at large, in all its complexity. For every empowering or enlightening aspect of the wired life, there will also be dimensions that are malicious, perverse, or rather ordinary.

c) Government has an important role to play on the electronic frontier.

Contrary to some claims, cyberspace is not formally a place or jurisdiction separate from Earth. While governments should respect the rules and customs that have arisen in cyberspace, and should not stifle this new world with inefficient regulation or censorship, it is foolish to say that the public has no sovereignty over what an errant citizen or fraudulent corporation does on-line. As the representative of the people and the guardian of democratic values, the state has the right and responsibility to help integrate cyberspace and conventional society.

Technology standards and privacy issues, for example, are too important to be entrusted to the marketplace alone. Competing software firms have little interest in preserving the open standards that are essential to a fully functioning interactive network. Markets encourage innovation, but they do not necessarily insure the public interest."

2.2. The "Info-Rich" and the "Info-Poor"

There is a close correlation between economic and social development and access to telecommunications. Access to new communication technologies expands much more rapidly in the North than in the South, and there are many more web servers in North America and in Europe than on the other continents. Two-thirds of the Internet users live in the United States, where 40% of households are equipped with a computer, a percentage that we also find in Denmark, Switzerland and Netherlands. The percentage is 30% in Germany, 25% in United Kingdom, and 20% for most industrialized countries.

The statistics of March 1998 on the percentage of connections per number of inhabitants, available in the Computer Industry Almanach (CIA), a reference document on the evolution of cyberspace, show that Finland is the most connected country in the world with 25% of its population connected, followed by Norway (23%) and Iceland (22.7%). The United States is in fourth place with 20%. Eleven countries in the world have a proportion of Internet users above 10%, and Switzerland is eleventh, with 10.7%.

Regarding the global percentage, the statistics of end 1997 of the Computer Industry Almanach - which take into consideration the connections at home, at work and in academic institutions - show that the United States is still considerably ahead with 54.68% of the global percentage, followed by Japan (7.97%), the United Kingdom (5.83%) and Canada (4.33%). The survey also shows that the US lead is constantly decreasing - it went from 80% in 1991 to less than 65% in 1994, with prospects of 50% in 1998 and less than 40% in 2000.

Nevertheless, if we consider the whole planet, universal access to information highways is far from the reality. Regarding basic telephony, teledensity varies from more than 60 phone lines per 100 inhabitants in the richest countries to less than one in the poorest countries. Fifty per cent of phone lines in the world are in northern America and western Europe. Half of the world's population has never used a phone.

In the developing countries, it is unlikely that Internet connections will use traditional phone lines, as there are other technological solutions. The developing countries' equipment rate for digital lines is equivalent to the rate of industrialized countries. The growth in mobile telephony is also spectacular. The solution could be brought by cellular radiotelephony and satellite connection.

However, the demarcation between the "info-rich" and the "info-poor" does not systematically follow the demarcation between the so-called developed and developing countries. Access to information technology in the so-called rich countries is also rather uneven. Some developing countries, such as Malaysia or a number of countries in Latin America, have a very dynamic telecommunication policy. In the documents prepared for the second Conference on the Development of Telecommunications in the World, organized by the International Telecommunication Union (ITU) from March 23 to April 1, 1998 in Valletta, Malta, it was stated that several developing countries, such as Botswana, China, Chile, Thailand, Hungary, Ghana and Mauritius, succeeded in extending the density and the quality of their phone services during the last three years. On the other hand, the situation was getting worse for the poorest countries.

During the ILO Symposium on Multimedia Convergence held in January 1997, Wilfred Kiboro, Managing Director and Chief Executive of Nation Printers and Publishers Ltd., Kenya, stated:

"Information technology needs to be brought to affordable levels. I have a dream that perhaps in our lifetime in Africa, we will see villagers being able to access [the] Internet from their rural villages where today there is no water and no electricity. We hope they will be able to watch Sky News on their portable televisions, but maybe this is just a dream."

For the media particularly, there is an abyss between the 'info-rich' and the 'info-poor'. In many African countries, the circulation of newspapers is very low compared to the population figures, and each copy is read by at least twenty people. According to Wilfred Kiboro, who noticed in his company a drop in the newspapers' price thanks to multimedia convergence, distribution costs could drop with the use of a printing system by satellite which could do away with the need for transporting newspapers by truck throughout the

country.

Nevertheless, multimedia convergence in particular and the globalization of the economy in general has put the developing countries in a position of inferiority because the printing and radio-television broadcasting means are in the hands of a few main western groups. Cultural problems exist alongside economic problems. Paradoxically, information relating to Africa and broadcast for Africans doesn't come from the African continent, but is broadcast by westerners who transmit their own vision of Africa, without any real perception of its economic and social situation.

Some developing countries - such as Mauritania - rely on the Web to regain prestige, as explained by Emmanuel Genty and Jean-Pierre Turquoi in the daily French newspaper Le Monde of March 30, 1998. Mauritania presented its Government Official Site at the headquarters of the World Bank during the Days of the Consultative Group for Mauritania (Journées du Groupe consultatif pour la Mauritanie) on March 25-27, 1998. This event took place following the media focus on the continued existence of slavery in this country, despite the fact that it has been officially abolished for years. The website is intended to be the country's shop window for tourists and foreign investors. On the other hand, the use of the Internet inside the country is heavily regulated by the Post and Telecommunication Office (Office des postes et des télécommunications - OPT), which is the national operator. And things are made even more difficult because of prohibitive connection costs - three times the cost of a local phone call.

China is also discovering digital information through the China Wide Web, which is the country's national Internet. The number of its subscribers jumped from 100,000 in 1996 to 600,000 in 1997. Set up by the China Internet Corporation (CIC), a company based in Hong Kong, the China Wide Web is a business and information network more or less cut off from the rest of the world, and screened and controlled by the Chinese authorities.

The abyss between the "info-rich" and the "info-poor" is not only the one dividing developed and developing countries. In any country, there are gaps between the rich and the poor, the employed and the unemployed, the people who belong to society and the people who are rejected by it. As a new communication medium, the Internet can be a way out of the abyss. Anyone can have an e-mail address on the Net. Anyone can use the Web in the public library or in the premises of some association, to find information or look for a job.

2.3. The Web: First English, Then Multilingual

In the beginning, the Web was nearly 100% English, which can be easily explained by the fact that the Internet was created in the United States as a network set up by the Pentagon (in 1969) before spreading to US governmental agencies and to universities. After the creation of the World Wide Web in 1989-90 by Tim Berners-Lee at the CERN (European Laboratory for Particle Physics), Geneva, Switzerland, and the distribution of the first browser Mosaic (the ancestor of Netscape) from November 1993 onwards, the Web, too, began to spread, first in the US thanks to considerable investments made by the government, then around North America, and then to the rest of the world.

The fact that there are many more Internet surfers in the US and Canada than in any other country is due to different factors - these countries are among the leaders in the latest computing and communication technologies, and hardware and software, as well as local phone communications, are much cheaper there than in the rest of the world.

In Hugues Henry's article, La francophonie en quête d'identité sur le Web (Francophony in search of identity on the Web), published in the Dossiers of the daily cybermagazine Multimédium, Jean-Pierre Cloutier, author of Chroniques de Cybérie, a weekly cybermagazine widely read in the French-speaking Internet community, explained:

"In Quebec I am spending about 120 hours per month on-line. My Internet access is $30 [Canadian]; if I add my all-inclusive phone bill which is about $40 (with various optional services), the total cost of my connection is $70 per month. I leave you to guess what the price would be in France, in Belgium or in Switzerland, where the local communications are billed by the minute, for the same number of hours on-line."

It follows that many European surfers spend much less time on the Web than they would like, or choose to surf at night to cut their expenses. At the end of 1998, in several countries (Italy, Germany, France, etc.), surfers began to boycott the Internet for one day to make phone companies aware of their needs and give them a special monthly rate.

In 1997, Babel - a joint initiative from Alis Technologies and the Internet Society, ran the first major study of the actual distribution of languages on the Internet. The results are published in the Web Languages Hit Parade, dated June 1997, and the languages, listed in order of usage, are: English 82.3%, German 4.0%, Japanese 1.6%, French 1.5%, Spanish 1.1%, Swedish 1.1%, and Italian 1.0%.

To reach as large an audience as possible, the solution is to create bilingual, trilingual, even multilingual sites. The website of the Belgian daily newspaper Le Soir presents the newspaper in six languages: French, English, Dutch, German, Italian and Spanish. The French Club des poètes (Club of Poets), a French site dedicated to poetry, presents its site in English, Spanish and Portuguese. E-Mail-Planet, a free e-mail address provider, provides a menu in six languages (English, Finnish, French, Italian, Portuguese, and Spanish).

As the Web quickly spreads worldwide, more and more operators of English-language sites which are concerned by the internationalization of the Web recognize that, although English may be the main international language for exchanges of all kinds, not everyone in the world reads English.

Since December 1997 any Internet surfer can use AltaVista Translation, which translates English web pages (up to three pages at the same time) into French, German, Italian, Portuguese, and Spanish, and vice versa. The Internet surfer can also buy and use Web translation software. In both cases he will get a usable but imperfect machine-translated result which may be very helpful, but will never have the same quality as a translation prepared by a human translator with special knowledge of the subject and the contents of the site.

The increase in multilingual sites will make it possible to include more diverse languages on the Internet. And more free translation software will improve communication among everyone in the international Internet community.

In Web embraces language translation, an article published in ZDNN (ZD Network News) of July 21, 1998, Martha L. Stone explained:

"This year, the number of new non-English websites is expected to outpace the growth of new sites in English, as the cyber world truly becomes a 'World Wide Web'. [...] According to Global Reach, the fastest growing groups of Web newbies are non-English-speaking: Spanish, 22.4 percent; Japanese, 12.3 percent; German, 14 percent; and French, 10 percent. An estimated 55.7 million people access the Web whose native language is not English. [...] Only 6 percent of the world population speaks English as a native language (16 percent speak Spanish), while about 80 percent of all web pages are in English."

Robert Ware is the creator of OneLook Dictionaries, a fast finder for 2,061,220 words in 432 dictionaries (as of December 10, 1998) in various fields: business; computer/Internet; medical; miscellaneous; religion; science; sports; technology; general; and slang. In his e-mail to me of September 2, 1998, he wrote:

"An interesting thing happened earlier in the history of the Internet and I think I learned something from it.

In 1994, I was working for a college and trying to install a software package on a particular type of computer.

I located a person who was working on the same problem and we began exchanging email. Suddenly, it hit me... the software was written only 30 miles away but I was getting help from a person half way around the world. Distance and geography no longer mattered!

OK, this is great! But what is it leading to? I am only able to communicate in English but, fortunately, the other person could use English as well as German which was his mother tongue. The Internet has removed one barrier (distance) but with that comes the barrier of language.

It seems that the Internet is moving people in two quite different directions at the same time. The Internet (initially based on English) is connecting people all around the world. This is further promoting a common language for people to use for communication. But it is also creating contact between people of different languages and creates a greater interest in multilingualism. A common language is great but in no way replaces this need.

So the Internet promotes both a common language AND multilingualism. The good news is that it helps provide solutions. The increased interest and need is creating incentives for people around the world to create improved language courses and other assistance and the Internet is providing fast and inexpensive opportunities to make them available."

For more information about the Web and languages, please see my study about Multilingualism on the Web.

3. ON-LINE BOOKSTORES

[In this chapter:]

[3.1. Books: a Good Product to Sell On-line / 3.2. On-line Bookstores: Some Examples / 3.3. Digital Books]

3.1. Books: A Good Product to Sell On-Line

Many "traditional" bookstores - with booksellers, windows, books piled upon display shelves or lined up on shelves around the shop - have created on-line bookstores on the Internet - for example, Barnes & Noble (barnesandnoble.com) in the United States, Chapters (Chaptersglobe) in Canada, Waterstone's in the United Kingdom, etc. Other bookstores have no walls and no windows looking out on the street. They are "only" on-line (for example Amazon.com in the United States, Internet Bookshop in the United Kingdom). Their window is their website, and all the transactions are made through the Internet.

These on-line stores don't sell only books, but also CDs, audiobooks, DVDs, computer games, sheet music, movies on VHS, console and CD-ROM software games, etc. As we are dealing here with the relationship between the print media and the Internet, we shall focus on books only.

The book-lover searches the on-line bookstore's catalog on his screen. In most cases, searches are possible by author, title and subject. The home page of the bookstore often looks like a literary magazine, so the book-lover can be kept informed of the latest current events. For someone who does not like queuing in his favorite library on a Saturday afternoon, the Web can bring a lot of relief. He can "leaf" through short descriptions and extracts of books, order on-line the books he is interested in and pay with his credit card. The only delay encountered is the time necessary for the book to be shipped to his house. Such a person is looking forward to being equipped with a digital book, which will appear in 1999.

Jeff Bezos created Amazon.com in July 1995, after a market study which led him to conclude that books were the best products to sell on the Internet.

In Spring 1994, he drew up a list of 20 products that could be sold on the Net, from clothing to gardening

tools, and then researched his top five: CDs, videos, computer hardware, computer software, and books.

"I used a whole bunch of criteria to evaluate the potential of each product, but among the main criteria was the size of the relative markets. Books, I found out, were an $82 billion market worldwide. The price point was another major criterion: I wanted a low-priced product. I reasoned that since this was the first purchase many people would make on-line, it had to be non-threatening in size. A third criterion was the range of choice: there were 3 million items in the book category and only a tenth of that in CDs, for example. This was important because the wider the choice, the more the organizing and selection capabilities of the computer could be put in good use."

However, Jeff Bezos doesn't think traditional bookstores are going to close any time soon, as quoted by Bruce Knecht in The Wall Street Journal of May 16, 1996:

"He regularly hangs out at the Elliott Bay Book Co., a sprawling, independent bookstore in downtown Seattle which has exposed brick walls, a cafe and lots of friendly salespeople. And he talks about how 'books creak in that nice kind of way'. 'We are trying to make the shopping experience just as fun as going to the book store', he says, 'but there's some things we can't do'."

3.2. On-Line Bookstores: Some Examples

Amazon.com is the largest on-line bookstore, with instant access to 3 million titles, authoritative reviews, author interviews, excerpts, customer reviews, and book recommendations. It is an Internet retailer of books, music, and other information-based products that offers services traditional retailers cannot: lower prices, selection, and a wealth of product information.

Today Amazon.com offers 3 million books, CDs, audiobooks, DVDs, computer games - more than 14 times as many titles as the large chain superstores - to more to 3 million people in more than 160 countries. "Businesses can do things on the Web that simply cannot be done any other way", says Jeff Bezos. "We are changing the way people buy books and music."

Any book-lover can post his own reviews of books and read others. He can read interviews with authors and blurbs and excerpts from books. He can search for books by author, subject, title, ISBN or publication date. Prices are discounted, with savings of 20-40% on 400,000 titles (40% on selected feature books, 30% on hardcovers, and 20% on paperbacks). The client usually receives the books within a week. If he requests it, he will receive an e-mail announcing a new book by an author he likes or on a subject he is particularly interested in. He can also choose from 44 subjects, and he will be sent a monthly e-mail reviewing books Amazon.com's editors consider particularly interesting.

Success magazine of July 1998 wrote "that Amazon.com is the universal model for successful Internet retailing (a.k.a. 'e-tailing')." Computer Weekly of July 24, 1997, defined it as "undoubtedly the most quoted example of go-ahead electronic commerce and still the showcase for Internet trading" and PC World of July 1997 stated: "In the summer of 1995, Jeff Bezos and his wife, MacKenzie, decided to risk it all on the Internet. They opened a cyberstore named Amazon.com [...]. Two years later [...] it's one of the World Wide Web's most successful small businesses. Few who have braved the wilds of the Web have achieved Amazon.com-style success."

Such success is explained by Jeff Bezos in Amazon.com's press kit:

"Our leadership position comes from our obsessive focus on customers. [...] Customers want selection, ease of use, and the lowest prices. These are the elements we work hard to provide. We continued to improve our customer experience during the quarter [the second quarter 1998] with the opening of our music store, our easier-to-navigate store layout, and our expansion into the local U.K. and German book markets. These

initiatives will continue to require aggressive investment and entail significant execution challenges."

Amazon.com's press release of June 8, 1998, gives some information about its Associates Program:

"The Amazon.com Associates Program allows web-site owners to easily participate in hassle-free electronic commerce by recommending books on their site and referring visitors to Amazon.com. In return, participants earn referral fees of up to 15 percent of the sales they generate. Amazon.com handles the secure on-line ordering, customer service, and shipping and sends weekly e-mail sales reports. Enrollment in the program is free, and participants can be up and running the same day.

Associates range from large and small businesses to nonprofits, authors, publishers, personal home pages, and more. The popularity of the program is reflected in the range of additions to the Associates Community in the past few months: Adobe, InfoBeat, Kemper Funds, PR Newswire, Travelocity, Virtual Vineyards, and Xoom."

The program surpassed 60,000 members in June 1998.

Barnes & Noble, the giant U.S. bookseller, is the leading operator of book superstores in America, with 481 stores nationwide, in 48 states. It also operates 520 B.Dalton bookstores in shopping malls. Barnes & Noble stores offer a selection of more than 175,000 titles from more than 20,000 publishers with an emphasis on small, independent publishers and university presses. The company also publishes books under its own imprint for exclusive sale through its retail stores and nationwide mail-order catalogs.

Barnes & Noble entered the world of on-line commerce in early 1997, launching its America Online site in March 1997 - it is the exclusive bookseller to America Online (AOL)'s more than 12 million subscribers - and launching its new website, barnesandnoble.com, in May 1997. The site includes personalized content recommendations from authors and editors, and more than 630,000 titles available for immediate shipping, with deep discounts (30% off all in-stock hardcovers, 20% off all in-stock paperbacks, 40% off select titles and up to 90% off bargain books). It has exclusive partnerships with more than 12,000 websites through its Affiliate Network, including CNN Interactive, Lycos, and ZDNet.

On May 27, 1998, barnesandnoble.com launched a significantly enhanced version of its e-commerce website. The new site features Express Lane one-click ordering, a new design and navigation, improved book search capabilities and expanded product offerings - including an on-line software superstore. In the press release of the same day, Jeff Killeen, chief operating officer, stated:

"Through our first year in business we have listened intently to what our customers have asked for and believe we have delivered a vastly superior product based on those requests. [...] Innovation based on customer-focus has been the hallmark of our success and we see our new site as proof-positive of our commitment to be the leader in on-line bookselling and related products. We're also extremely excited to have Intel, a leader in the technology products category, open its SoftwareForPCs.com site at barnesandnoble.com."

The opening of barnesandnoble.com sparked a fierce price war in a low-margin business. It now competes directly with the main on-line bookstore Amazon.com. Because of this competition, Amazon.com came to be known as "Amazon.toast". Jeff Bezos, CEO of Amazon.com, doesn't fear the competition though. In Success of July 1998, he told journalist Lesley Hazleton:

"The gap has increased rather than decreased. We went from $60 million annualized sales revenue in May to $260 million by the end of the year, and from 340,000 customers to 1.5 million, 58 percent of them repeat customers - all that in the context of 'Amazon.toast'. We're doing more than eight times the sales of Barnes & Noble. And we're not a stationary target. We were blessed with a two-year head start, and our goal is to increase that gap."

Located in United Kingdom, Internet Bookshop (iBS) is the largest on-line bookstore in Europe. The main English bookstore Waterstone's also launched its electronic bookstore, with a catalog of 1.4 million titles.

In Fall 1998, Chapters, the main Canadian bookseller, together with the daily newspaper The Globe and Mail, Toronto, Canada, opened their cyberbookstore

Chaptersglobe.

com, "the on-line destination for Canadian book-lovers". A new on-line bookstore is also expected from Bertelsmann, one of the largest media companies in the world, with headquarters in Germany. The companies of the Bertelsmann Group employ about 60,000 employees in more than 40 different countries. The 300-plus independently operating firms are organized into five divisions within an integrated leadership structure: books, entertainment, Gruner & Jahr (publishing and printing house), industry, and multimedia.

There are also international suppliers of books and periodicals - like the two Anglo-American companies Blackwell and Dawson - who work exclusively for libraries and documentation services. Thanks to them, these organizations can now avoid multiple orders and invoices, and they can also order foreign books and periodicals without the complications related to ordering of documents outside a country.

Based in Oxford (United Kingdom), Portland, Oregon, and New Jersey, Blackwell's Book Services specialize in the supply of books and value added bibliographic products and services to over 15,000 academic, research and special libraries in over 120 countries around the world.

Dawson Information Services Group is Europe's largest journal subscription agent and corporate and academic book supplier. It is also a main information services group, providing resource acquisition and management services to libraries and corporate research centers around the globe.

Old books are now being sold through the Web. For example, Paulus Swaen Old Maps and Prints, run by Pierre Joppen and his wife Joke Vrijenhoek, specializes in maps, atlases and globes from the 16th-18th century. The stock of maps of all parts of the world is produced by renowned cartographers, such as Ortelius, Mercator, Blaeu, Janssonius, Hondius, Visscher, de Wit, etc. The company also sells atlases, globes, travel books, Medieval manuscripts and playing cards. Since November 1996, it offers an on-line Internet auction - twice per year, in March and November - for old maps, prints, globes, travel books and medieval manuscripts.

3.3. Digital Books

When he buys through an on-line bookstore, the customer can almost instantly select, order and pay for the books he is interested in. The only delay is the shipping of the books to his house, which can take anywhere from one week to much longer.

The problem of delay - as well as the problem of weight - should be solved soon with digital books - or eBooks. A digital book is a book-sized electronic reader that can store many texts at once. Some pioneer companies have created digital books which will be available in 1999 - such as the Rocket eBook (created by NuvoMedia), the Everybook (EB) (created by Everybook), the SoftBook (created by SoftBook Press) and the Millennium EBook (created by Librius.com).

Rocket eBook was set up by NuvoMedia, Palo Alto, California, founded in 1997, and is dedicated to becoming *the* electronic book distribution solution by providing a networking infrastructure for publishers, retailers and end users to publish, distribute, purchase and read electronic content securely and efficiently over the Web. Investors of NuvoMedia are Barnes & Noble and Bertelsmann. The connection between the Rocket eBook and the PC or the Macintosh is made through the RocketEbook Cradle, which provides external power through a wall transformer, and connects to the PC with a serial cable.

Everybook is "a living library in a single book". The Everybook (EB)'s mass electronic storage is one removable disk cartridge which can hold 80-100 college textbooks, or 500 to 1,000 novels. The EB uses a hidden modem to dial into the Everybook Store, where it is possible to browse, purchase, and receive entire publications, including cover art. Books, magazines, menus, sheet music all appear as they would in their printed form.

Softbook Press is creating SoftBook®, along with the SoftBook Network(tm), an Internet-based content delivery service, which provided a completely paperless reading system. Professionals and students can easily, quickly and securely download a wide selection of corporate documents, books, and periodicals using its built-in Internet connection. Unlike a computer, the SoftBook is ergonomically designed for reading long documents and books. Its publishing partners are Random House and Simon & Schuster.

Librius is a full-service, e-commerce company. It delivers digital copies of books to consumers via the Internet from its World Bookstore. The digital books are stored and read by the consumer in a small, low-cost reading device, called the Millennium EBook. Librius customers can obtain everything that they need to become "digital readers" directly from the Librius Web site, including EBook devices, thousands of book titles, and full customer support.

Digital books will not replace books, at least not in the very near future. They will be a new support for publishers to deliver the books through the Internet and for readers to store many texts in one digital support to be taken with everywhere.

In our technological society, some people are attached to books whatever happens, like Robert Downs who wrote in Books in My Life: "My lifelong love affair with books and reading continues unaffected by automation, computers, and all other forms of the twentieth-century gadgetry."

For some other people, being convinced about how much can be brought by electronic texts doesn't prevent them from loving books. In an article published in the Swiss magazine Informatique-Informations of February 1996, Pierre Perroud, founder of the digital library Athena, explained that "electronic texts represent an encouragement to reading and a convivial participation to culture dissemination", particularly for textual research and text study. These texts are "a good complement to the paper book, which remains irreplaceable when what we are talking about is reading".

Pierre Perroud is convinced of the necessity to be kept closely informed of the technological developments to adapt print media and education. Nevertheless the book remains "a mysteriously holy companion with profound symbolism for us: we grip it in our hands, we hold it against our bodies, we look at it with admiration; its small size comforts us and its content impresses us; its fragility contains a density we are fascinated by; like man it fears water and fire, but it has the power to shelter man's thoughts from Time."

4. PUBLISHERS ON THE WEB

[In this chapter:]

[4.1. Publishers: Examples and Directories / 4.2. Do Authors Still Need Publishers? / 4.3. Electronic Publishing]

4.1. Publishers: Examples and Directories

A number of publishers chose to put the full text of some of their titles on the Web. There was no drop in the sales of these publications - on the contrary, sales increased.

The National Academy Press (NAP) was created by the National Academy of Sciences to publish the reports issued by the Academy and by the National Academy of Engineering, the Institute of Medicine, and the National Research Council. The NAP publishes over 200 books a year on a wide range of topics in science, engineering, and health, presenting the most authoritative views on important issues in science and health policy.

The NAP Reading Room offers more than a thousand entire books, free for reading, from the first page to the

last, and available in a variety of versions, including scanned pages in image format, hypertext HTML books, and as Adobe Acrobat PDF files.

The MIT Press (MIT: Massachusetts Institute of Technology) is dedicated to science and technology. The MIT Press publishes about 200 new books a year and over 40 journals, and is a major publishing presence in fields as diverse as architecture, social theory, economics, cognitive science, and computational science, with a long-term commitment to the efficient and creative use of new technologies.

In the Project Gutenberg's Newsletter of October 1997, Michael Hart wrote:

"As university publishers struggle to find the right business model for offering scholarly documents on-line, some early innovators are finding that making a monograph available electronically can boost sales of hard copies. The National Academy Press has already put 1,700 of its books on-line, and is finding that the electronic versions of some books have boosted sales of the hard copy monographs - often by two to three times the previous level. It's 'great advertising', says the Press's director. The MIT Press is experiencing similar results: 'For each of our electronic books, we've approximately doubled our sales. The plain fact is that no one is going to sit there and read a whole book on-line. And it costs money and time to download it'."

Some sites maintain a directory of publishers, for example, Publishing Companies Online and Publishers' Catalogues.

Publishing Companies Online is the WWW Virtual Library list of publishing companies, classified in the following categories: academic publishers; computer book publishers; scientific, technical, medical (STM) publishers; electronic publishing companies; on-line publishing projects; and other commercial publishers.

Maintained by Peter Scott of Northern Lights Internet Solutions Ltd. in Saskatoon (Saskatchewan, Canada), Publishers' Catalogues has a very practical geographical index.

4.2. Do Authors Still Need Publishers?

The Internet has considerably reinforced the relations between the authors and their readers. In fact, do authors still need publishers? Thanks to the Web, a writer can now post his work, sell it or discuss with his/her readers without any intermediary.

Murray Suid is a free-lance writer of books (How to be President of the U.S.A., Moviemaking Illustrated, etc.), multimedia products (Oval Office, The Writing Trek), and screenplays (Now, Moving to Mars). He is also vice president of Monday Morning Books, an educational publishing company located in Palo Alto, California. He replied to my questions in his e-mail of September 7, 1998:

ML: "How do you see the relationship between the print media and the Internet?"

MS: "For one thing, the Internet serves other print media. [...] My recently published book, The Kids' How to Do (Almost) Everything Guide, would probably not have been done prior to the invention of e-mail because it would have cost too much in money/time to locate the experts. So the Internet is a powerful research tool for writers of books, articles, etc.

Also, in a time of great change, many 'facts' don't stay factual for long. In other words, many books go quickly out of date. But if a book can be web extended (living partly in cyberspace), then an author can easily update and correct it, whereas otherwise the author would have to wait a long time for the next edition, if indeed a next edition ever came out.

Also, in terms of marketing, the Web seems crucial, especially for small publishers that can't afford to place

ads in major magazines and on the radio. Although large companies continue to have an advantage, in Cyberspace small publishers can put up very competitive marketing efforts.

We think that paper books will be around for a while, because using them is habitual. Many readers like the feel of paper, and the 'heft' of a book held in the hands or carried in a purse or backpack. I haven't yet used a digital book, and I think I might prefer one - because of ease of search, because of color, because of sound, etc. Obviously, multimedia 'books' can be easily downloaded from the Web, and such books probably will dominate publishing in the future. Not yet though."

ML: "What did the Internet bring to your professional and personal life?"

MS: "Professionally, the Internet has become my major research tool, largely - but not entirely - replacing the traditional library and even replacing person-to-person research. Now, instead of phoning people or interviewing them face to face, I do it via e-mail.

Because of speed, it has also enabled me to collaborate with people at a distance, particularly on screenplays. (I've worked with two producers in Germany.)

Also, digital correspondence is so easy to store and organize, I find that I have easy access to information exchanged this way. Thus, e-mailing facilitates keeping track of ideas and materials.

As for personal uses, the Internet has increased my correspondence dramatically. Like most people, I find that e-mail works better than snail mail. My geographic range of correspondents has also increased - extending mainly to Europe. In the old days, I hardly ever did transatlantic pen-palling.

I also find that e-mailing is so easy, I am able to find more time to assist other writers with their work - a kind of a virtual writing group. This isn't merely altruistic. I gain a lot when I give feedback. But before the Internet, doing so was more of an effort."

ML: "How do you see see your future life - professional and personal - in connection with the Internet?"

MS: "I'm not very state-of-the-art so I'm not sure. I would like to have direct access to text - digitally read books in the Library of Congress, for example, just as now I can read back issues of many newspapers. Currently, while I can find out about books on-line, I need to get the books into my hands to use them. I would rather access them on-line and copy sections that I need for my work, whereas today I either have to photocopy relevant pages, or scan them in, etc.

I expect that soon I will use the Internet for video telephoning, and that will be a happy development.

I do not know if I will publish 'books' on the Web - as opposed to publishing paper books. Probably that will happen when books become multimedia. (I currently am helping develop multimedia learning materials, and it's a form of teaching that I like a lot - blending text, movies, audio, graphics, and - when possible - interactivity)."

Esther Dyson is the president and owner of EDventure Holdings, a company focused on emerging information technology worldwide, and on the emerging markets of Central and Eastern Europe. The company produces the annual PC Forum and High-Tech Forum conferences. Since 1982 she has been the editor of Release 1.0, a monthly information newsletter which is considered the computer industry's most intellectual letter.

In 1997, her first book Release 2.0: A Design for Living in the Digital Age was published at the same time by several publishers in the world (Broadway in the United States, Viking/Penguin in the United Kingdom, Droemer Knaur in Germany, Shueisha in Japan, etc.). In this book, she explores the impact and implications

of cyberspace: its effect on our daily lives, the responsibilities that come with our new powers, and the global issues the Internet creates. She also addresses the fundamental conflicts in the spread of digital communication: conflicts between personal privacy and society's interest in openness; between security and freedom; between commerce and community. At the same time, Esther Dyson opened a website to converse with her eaders. She will take her readers' comments into consideration in a paperback version, Release 2.1.

Jean-Paul, a musician and writer living in Paris, sent his comments in his e-mail of June 21, 1998:

"My future on the Web is more personal than professional. The Internet will allow me to do without any intermediaries: record companies, publishers, distributors... Above all it will allow me to formalize what I have in my head (and elsewhere), for which the print medium (micro-publishing, in fact) only allowed me to give something approximate. Then the intermediaries will take over, and I'll have to look somewhere else, a place where the grass is greener..."

4.3. Electronic Publishing

Since the seventies, the traditional publishing chain has been drastically disrupted.

The printing work traditionally done by pre-press shops was first weakened by the introduction of photocomposition machines. The text and image processing work began to be executed by advertising agencies and graphic art studies. The impression costs went on decreasing with the spread of desktop publishing, copiers, color copiers and digital printing equipment.The text and image processing work is now provided at low price by desktop publishing shops and graphic art studios.

Furthermore, digitization accelerated the preparation process of a publication, because the sub-editor, the artistic designer and the staff responsible for the make-up can now work at the same time on the same book.

During the ILO Symposium on Multimedia Convergence held in January 1997, Peter Leisink, Associate Professor of Labour Studies at the Utrecht University, Netherlands, explained:

"A survey of the United Kingdom book publishing industry showed that proofreaders and editors have been externalized and now work as home-based teleworkers. The vast majority of them had entered self-employment, not as a first-choice option, but as a result of industry mergers, relocations and redundancies. These people should actually be regarded as casualized workers, rather than as self-employed, since they have little autonomy and tend to depend on only one publishing house for their work."

Digitization makes possible the on-line publishing of educational and scientific publications, for which the latest information is essential. Some U.S. universities distribute specific textbooks gathering a selection of chapters selected in an extensive database and some professors' articles and commentaries. For a seminar, a very small print run can be prepared upon request with electronic scientific texts sent to a printer. Electronic publishing could also keep alive some academic publishers, and publishers issuing documents relating to very specific and specialized research, for which the printing of a document in a small number of copies has become more and more difficult for budgetary reasons.

At present, electronic publishing and "traditional" publishing - such as on-line bookstores and "traditional" bookstores, or cyberlibraries and "traditional" libraries - are complementary.

Even if electronic publishing considerably expands over the next few years, people will still find it convenient to have the paper version of a book or a magazine, perhaps until the digital books become really cheap. Nevertheless, the functions of traditional publishing will certainly have to be thoroughly redefined in relation to the development of electronic publishing and its considerable prospects, beginning with the low costs and the quick access to documents.

The Web has developed more and more interaction between the printed document and the electronic document, to such an extent that it becomes difficult to establish a frontier between the two supports, and it will probably no longer be necessary to make a distinction between them in the future. Most of the recent print media already stem from an electronic version on a word processor, a spreadsheet or a database. More and more documents are "only" electronic. Because of the development of digital libraries, there are fewer documents available in print. Those documents existing only in a print version can easily be scanned if necessary.

In his article The Future of Publishing, Kushal Dave, an avid computer and modem user and a high school freshman, stated:

"[...] the fully electronic document is coming into its own, thanks to the many benefits it provides. The cost is a magnitude lower than paper, while the speed is much higher. Michael Hart is the executive director of Project Gutenberg [...]. In an electronic mail dialogue, he cited the example of Lewis Caroll's Alice in Wonderland. Not taking into account the cost of a computer (as little as $1000) since most people have them anyway, a copy of the book on floppy might cost a dollar. There is also no time spent publishing the document, once it's in e-text (electronic text) form it can be gotten almost instantly. On the other hand the cheapest possible paper copy of the book would be $5 because of the cost of printing, and printing would also delay its availability to the public. Electronic documents also have a better availability, since they can be reproduced infinitely and do not require leaving your house, thanks to low-cost modems. Furthermore, it is now possible to read Associated Press Reports as they are released, not in the next morning's paper, and you don't even have to pay the 25 cents. Cost, speed, and availability are just some of the compelling arguments for electronic publishing instead of paper.

Another advantage of electronic publishing is all the new possibilities it provides. Just about anybody can electronically publish anything. [...] Karin L. Trgovac, director of communications for Project Gutenberg, sums it up by saying, 'I think electronic publishing helps to level the field in terms of who can publish. Look at the range of people who have access.'

Fortunately, the increased variety of the documents does nothing to impede searches for particular documents. Services like Gopher on the Internet can lead you in the right direction, and within a document, searching is a snap. Just type in what you want and before you could find the index in a paper document, you'll have found what you want.

Thanks to feedback and other features, electronic documents are an example of the encroachment of interactivity upon the passive activities we hold dear. [...] 'Physical media just can't compete . . . [electronic text] just offers more 'bang for the buck', explains Hart.[...]

There are also many companies attempting to capitalize on the multimedia possibilities of electronic publishing. Sound and pictures are being incorporated in low-cost Internet World Wide Web 'publications', and companies like Medio and Nautilus are producing CD-ROMs that represent the new generation of periodicals - now music reviews include sound clips, movie reviews include trailers, book reviews include excerpts, and how-to articles include demonstrative videos. All this is put together with low costs, high speed, and many advantages."

Kushal answered my questions in his e-mail of September 1, 1998:

ML: "How do you see the relationship between the print media and the Internet?"

KD: "This is still being worked out, of course. So far, all I've been able to see is that electronic media undermines the print form in two ways: a) providing completely alternative presses that draw attention away from the previous strongholds and b) forcing the print publications to spend resources trying to counteract this

trend. Both forms of media critique one another and proclaim their superiority. Print media operates under a self-important sense of credibility. And the electronic media operates under a belief that they are the only purveyors of unbiased truth. Thus, there are issues of niche and finance that need to be resolved. The Internet is certainly a more accessible and convenient medium, and thus it would be better in the long run if the strengths of the print media could be brought on-line without the extensive costs and copyright concerns that are concomitant. As the transition is made, the neat thing is a growing accountability for previously relatively unreproachable edifices. For example, we already see e-mail addresses after articles in publications, allowing readers to pester authors directly. Discussion forums on virtually all major electronic publications show that future is providing not just one person's opinion but interaction with those of others as well. Their primary job is the provision of background information. Also, the detailed statistics can be gleaned about interest in an advertisement or in content itself will force greater adaptability and a questioning of previous beliefs gained from focus groups. This means more finely honed content for the individual, as quantity and customizability grows."

ML: "What did the use of the Internet bring in your professional/personal life?"

KD: "The Internet has certainly been a distraction. ;) But beyond that, an immeasurable amount of both trivial and pertinent information has been gleaned in casual browsing sessions. [...]"

ML: "How do you see your professional/personal future or the future in general with the Internet?"

KD: "In my personal future, I'd like to get a B.S., M.S., and M.Eng, working in the industry for a while before moving on to write about the medium for some reputable publication. The future of the Internet in general I see as becoming more popular and yet more fraught with conflict over the growth of commercialism and the perception that the Net's devolutionary spirit has been undermined. There will also be a need to deal with a glut of information - already we see Internet search engines reinventing themselves to try to provide a more optimal and efficient portal."

Concerning taxation, an outline agreement was concluded between the United States and the European Union in December 1997, and this agreement should be followed by an international convention. Internet is considered as a free trade area, that is to say without any custom duties for software, films and electronic books bought on the Internet. The material goods and other services are subject to the existing regulations, with collection of the VAT for example, without any additional custom duties.

It has not yet been statistically proved that the large-scale use of computers and electronic documents will save paper, and therefore avoid or at least reduce the cutting of trees, as hoped by all those concerned by environmental problems. We are still in a transition period in which many people still need to print to read "better", or to keep track of a document in case the electronic file is accidentally deleted, or to have a paper support for their documentation or their archives.

Apart from its easy access and its low cost, the main quality of the electronic document is that, when it is regularly updated, the Internet user can benefit from the latest version. It is not necessary to wait for a new printed edition linked to commercial constraints and requirements from the publisher.

5. ON-LINE PRESS

[In this chapter:]

[5.1. On-line Press: Examples and Directories / 5.2. Future Trends for the On-line Press]

5.1. On-Line Press: Examples and Directories

Before the Web became widespread, the first electronic versions of newspapers were available through commercial services like America Online or CompuServe. Then the publishers of these newspapers created web servers. Numerous newspapers and magazines now have their sites on which they offer the full version of their latest issue - available freely or through subscription (free or paid) - and some dossiers and archives. Other on-line newspapers and magazines did not originally exist in paper version. They are "only" electronic. Everywhere in the world, the future of the on-line press is provoking an in-depth debate on the job of journalist and on copyright problems.

The New York Times' website can be accessed free of charge around the world. It includes the daily contents of The New York Times newspaper, breaking news updates every ten minutes and original reporting found only on the Web. The site of the Los Angeles Times will soon be equipped with a machine translation software provided by Alis Technologies which will translate the web pages into Spanish and French, and later into Japanese. The Washington Post gives the daily news on-line, and has a full database of articles, with images, sound and video.

In the United Kingdom, the Times and the Sunday Times have a common website, with the possibility to create a personalized edition. The Economist, a respected English economic magazine, is also available on-line, as are the French daily newspapers Le Monde and Libération, the Spanish daily newspaper El Pais or the German weekly magazines Focus or Der Spiegel, among many others.

The computer press on-line includes the monthly Wired, created in 1992 in California, a cult magazine which was the first to be dedicated to cyberculture and now wants to be the magazine of the future at the avant-garde of the 21st century. ZDNet is the site of the main publisher of computer magazines in the world.

Some magazines are "only" electronic, like the Chroniques de Cybérie. In The New York Times of November 25, 1997, Bruno Giussani explained:

"Almost no one in the United States has ever heard of Jean-Pierre Cloutier, yet he is one of the leading figures of the French-speaking Internet community. For the last 30 months Cloutier has written one of the most intelligent, passionate and insightful electronic newsletters available on the Internet [...] an original mix of relevant Internet news, clear political analysis and no-nonsense personal opinions. It was a publication that gave readers the feeling that they were living 'week after week in the intimacy of a planetary revolution'."

Several sites maintain directories of the international press.

AJR/NewsLink is a joint venture between American Journalism Review magazine and NewsLink Associates, an academic and professional research and consulting firm studying electronic publishing and visual journalism worldwide. The site includes features from AJR magazine, the worldwide on-line publication lists of NewsLink - 8,000 links to newspapers, magazines, broadcasters and news services - and original content created especially for on-line readers.

Run by Oxbridge Communications Inc., MediaFinder is a major database of print media and catalogs. It is also a transactional service center, offering the ability to request subscriptions, advertising and list rental rates-for over 95,000 magazines, catalogs, newsletters, newspapers, and more.

Pathfinder is the website of TIME-Warner Group, publisher of TIME Magazine, Sports illustrated, Fortune, People, Southern Living, Money, Sunset, etc., with a free search function of articles by time period (last week, last month, or all).

Several digital libraries have extensive directories of the press on the Web, for example News, Media and Periodicals, maintained by the Michigan Electronic Library (MEL).

"More than 3,600 newspapers now publish on the Internet, but there are signs that the tide of growth may ebb", Eric K. Meyer stated when analyzing the presence of the newspapers on the Web in an article of AJR/NewsLink:

"A full 43% of all on-line newspapers now [end of 1997] are based outside the United States. A year ago, only 29% of on-line newspapers were located abroad. Rapid growth, primarily in Canada, the United Kingdom, Norway, Brazil and Germany, has pushed the total number of non-U.S. on-line newspapers to 1,563. The number of U.S. newspapers on-line also has grown markedly, from 745 a year ago to 1,290 six months ago to 2,059 today.

Outside the United States, the United Kingdom, with 294 on-line newspapers, and Canada, with 230, lead the way. In Canada, every province or territory now has at least one on-line newspaper. Ontario leads the way with 91, Alberta has 44, and British Columbia has 43.

Elsewhere in North America, Mexico has 51 on-line newspapers, 23 newspapers are on-line in Central America and 36 are on-line in the Caribbean. Europe is the next most wired continent for newspapers, with 728 on-line newspaper sites. After the United Kingdom, Norway has the next most - 53 - and Germany has 43. Asia (led by India) has 223 on-line newspapers, South America (led by Bolivia) has 161 and Africa (led by South Africa) has 53. Australia and other islands have 64 on-line newspapers."

The Web is the site of a collaborative effort between several companies in newspaper publishing. Opened between February 1997 and March 1998, NewsWorks was the common site of America's newspapers on-line maintained by New Century Network, a grouping of nine of the largest companies in newspaper publishing (Advance Publications; Cox Newspapers; The Gannett Company; The Hearst Corporation; Knight-Ridder Inc.; The New York Times Company; Times Mirror; The Tribune Company; The Washington Post Company), representing 140 titles. It was closed on March 10, 1998, because of dissension and a lack of cohesion between the partners. Even if this first partnership failed, the Web will probably foster some multinational and multilingual information services, and this will deeply change the habits brought by long-term traditional competition.

The electronic press is listed for example in E.Journal and the E-Zine-List.

E.Journal is the WWW Virtual Library electronic journals list. Provided by E-DOC (Electronic Publishing Solutions), it is the database of electronic journals, with the following categories: academic and reviewed journals; college or university; e-mail newsletters; magazines, newspapers; political; print magazines; publishing topics; business/finance; and other resources.

Updated monthly, the E-Zine-List is John Labovitz's list of electronic 'zines around the world, accessible via the Web, FTP, gopher, e-mail, and other services. 3,045 zines were listed on November 29, 1998. On the website, John Labovitz explains:

"What's an 'e-zine', anyway? For those of you not acquainted with the zine world, 'zine' is short for either 'fanzine' or 'magazine', depending on your point of view. Zines are generally produced by one person or a small group of people, done often for fun or personal reasons, and tend to be irreverent, bizarre, and/or esoteric. Zines are not 'mainstream' publications - they generally do not contain advertisements (except, sometimes, advertisements for other zines), are not targeted towards a mass audience, and are generally not produced to make a profit. An 'e-zine' is a zine that is distributed partially or solely on electronic networks like the Internet. [...]

I started this list in the summer of 1993. I was trying to find some place to publicize Crash, a print zine I'd recently made electronic versions of. All I could find was the alt.zines newsgroup and the archives at The WELL and ETEXT. I felt there was a need for something less ephemeral and more organized, a directory that

kept track of where e-zines could be found. So I summarized the relevant info from a couple dozen e-zines and created the first version of this list.

Initially, I maintained the list by hand in a text editor; eventually, I wrote my own database program (in the Perl language) that automatically generates all the text, links, and files.

In the four years I've been publishing the list, the Net has changed dramatically, in style as well as scale. When I started the list, e-zines were usually a few kilobytes of plain text stored in the depths of an FTP server; high style was having a Gopher menu, and the Web was just a rumor of a myth. The number of living e-zines numbered in the low dozens, and nearly all of them were produced using the classic self-publishing method: scam resources from work when no one's looking.

Now the e-zine world is different. The number of e-zines has increased a hundredfold, crawling out of the FTP and Gopher woodworks to declaring themselves worthy of their own domain name, even of asking for financial support through advertising. Even the term 'e-zine' has been co-opted by the commercial world, and has come to mean nearly any type of publication distributed electronically. Yet there is still the original, independent fringe, who continue to publish from their heart, or push the boundaries of what we call a 'zine'."

5.2. Future Trends for the On-Line Press

A new type of press has been born. In an article of the French daily newspaper Libération of March 21, 1997, Laurent Mauriac underlined the fact that February 28, 1997, was an important date in the history of press, journalism and the Internet. At 3.15 PM, one of the ten U.S. main daily newspapers, the Dallas Morning News, gave an exclusive on its website: Timothy McVeigh, the main suspect in the Oklahoma City bomb attack, just admitted he was guilty of this crime. Suddenly, the relationship between the on-line issue and the paper issue were inverted - for the first time, an exclusive piece of news was not given by a paper issue but by an on-line issue.

Less than one year later, the new mechanism was running fine. Pierre Briançon, another journalist of Libération, explained in an article of January 30, 1998, that the Bill Clinton-Monica Lewinsky scandal (about the sexual relationship between the president of the United States and a White House intern) was "the first main political event all the details of which are instantaneously reproduced on the Web". Most of the main media in the world were running a special web page or report on this matter. "For the first time, the Web appears as a direct and violent competitor, not only of newspapers - handicapped by their periodicity - but also of radios or televisions."

As these two examples show, the introduction of the Web in the press, and vice versa, created a new type of press on-line, which offers almost instantaneous information, or in any case much quicker than that given by TV and radio. The information can also be much more comprehensive thanks to the hyperlinks leading to other information sources and documents.

However, as was made clear particularly during the Clinton-Lewinsky scandal, cyberjournalists need a professional code of ethics. In an interview given to the German multimedia magazine Com! in March 1998, Hermann Meyn, president of the Federation of German Journalists (Deutscher Journalisten Verband - DJV) showed the necessity for such a code because the flood of information is much more rapid on the Internet than in the classic media, and rumors and false news spread much more quickly. National laws would not be enough to fight against this tendency on the Internet which is a worldwide computer network. A professional code of ethics for journalists would be much more effective.

Another important problem is the constant pressure exerted on journalists. During the ILO Symposium on Multimedia Convergence held in January 1997, Bernie Lunzer, Secretary-Treasurer of the Newspaper Guild, United States, stated:

"Our reporters have seen new deadline pressures build as the material is used throughout the day, not just at the end of the day. There is also a huge safety problem in the newsrooms themselves due to repetitive strain injuries. Some people are losing their careers at the age of 34 and 40 due to repetitive strain injuries, a problem that was unheard of in the age of the typewriter. But as people work 8- to 10-hour shifts without ever leaving their terminals, this has become an increasing problem."

Carlos Alberto de Almeida, president of the Federación Nacional de Periodistas (FENAJ) (National Federation of Professional Journalists), also denounced the exploitation of journalists:

"Technology offers the opportunity to rationalize work, to reduce working time and to encourage intellectual pursuits and even entertainment. But so far none of this has happened. On the contrary, media professionals - whether executives, journalists or others - are working longer and longer hours. If one were to rigorously observe the labour legislation and the rights of professionals, then the extraordinary positive aspects of these new technologies would emerge. This has not been the case in Brazil. Journalists can be easily phoned on weekends to do extra work without extra pay."

While it speeds up the production process, the automation of working methods, beginning with digitization, leads to a decrease in human intervention and consequently an increase in unemployment. Whereas previously, the production staff had to retype the texts of the editorial staff, computerized typesetting led to the combination of the two tasks of editing and composing. In advertising services too, graphic design and commercial tasks are now integrated.

As Etienne Reichel, Acting Director of VISCOM (Visual Communication), Switzerland, said:

"The work of 20 typesetters is now carried out by six qualified workers. There has also been a concentration of centres of production, thus placing enormous pressure on the small and medium-sized enterprises which are traditional sources of employment. [...] Computer science makes it possible for experts to become independent producers. Approximately 30 per cent of employees have set up independently and have been able to carve out part of the market."

Although on-line services create some new jobs, as directors of organizations of newspaper publishers often claim, the unions have also stated that the number of job creations is much lower than the number of dismissals.

Even if the Internet is a huge information tank, the press will always need journalists, as explained by Jean-Pierre Cloutier, editor of the Chroniques de Cybérie, in an article of WebdoMag of July 1998:

"Some people predicted the short-term disappearance of the traditional media and their creators. 'We won't need journalists any more when a good browser for News groups is available', Michael Hauben of Columbia University warned two years ago. 'The more people there are on-line, the more marginalized the professional information media will be.' This is rubbish.

The spirit of discovery and the taste for exploration and technical experimentation of those who were early in adopting the Internet (the ones that the sociologists of the Net call the early doers) are not shared by the second wave of users who now make up the largest part of this 'critical mass'.

And that is the challenge for the specialized press - to accompany the public in its discovery of the new medium and in its appropriation of cyberspace, help people to analyze, facilitate their understanding, add value to raw information."

Moreover, with the Internet, it is possible to read on-line titles which are difficult to find in newsstands, like the Algerian daily newspaper El Watan, on-line since October 1997. When interviewed by the French daily

newspaper Le Monde of March 23, 1998, Redha Belkhat, chief editor, told: "For the Algerian diaspora, to find in a newsstand of London, New York, or Ottawa an issue of El Watan less than a week old is an achievement. Now the newspaper is here at 6 AM, and at noon it is on the Internet."

Forbidden newspapers can also continue on-line thanks to the Internet, such as the independent Algerian daily La Nation (The Nation). Because it was denouncing the violation of human rights in Algeria, it had to stop its activities in December 1996. One year later, a special issue was available on the site of Reporters sans frontières (Reporters Without Borders) for the first anniversary of its disappearance. Malti Djallan, who is at the origin of this Reporters sans frontières initiative, explained: "By putting La Nation on-line, our goal was to say: it no longer makes sense to censor the newspapers in Algeria, because thanks to the Internet people can retrieve the articles, print them, and spread them out around."

Nouvelles du bled (News of the Village) is an electronic newspaper created in December 1997 by Christian Debraisne, who is French, and Mohamed Zaoui, an Algerian journalist in exile. The team includes about twelve persons who meet on Thursday evenings in a Parisian café. When interviewed in Le Monde of March 23, 1998, Christian Debraisne, who is responsible for the composition, explained:

"With the Internet, we found a space for free expression and, as a bonus, there were no printing and distribution problems. I get all the articles and I put them on-line during the night from my house."

The press review is prepared using the newspapers of Algiers, Algeria. In the same article, Mohamed Zaoui explained:

"The editorial staff of El Watan, for example, sends us articles which cannot be published there. It is a way to confound censorship. I wanted to be useful and I thought that my role as a journalist was to seize the opportunity the Internet was offering to air opinions other than the Algerian government's and the fundamentalists'."

The press now has to confront all the Internet's resources:

- instant access to many information servers;

- speed in information dissemination;

- development of main photographic archives;

- gigantic documentation capacity (geographical maps, biographical notes, official texts, political and economic documents, audiovisual and video documents, etc.) going from the general to the specialized and vice versa;

- links to all these information sources and other articles on the same topic; and

- archives equipped with a search engine allowing the retrieval of articles by date, author, title, subject, etc.

Because of these resources, the Internet brings in-depth information that no other media could bring so easily. Daily information is supported by a whole encyclopedia which helps to understand it.

Even if audiovisual and video techniques are more and more present in the on-line press, the most important thing is still its content, as Jean-Pierre Cloutier, the editor of the Chroniques de Cybérie, reminded us in his e-mail of June 8, 1998:

"For the Chroniques de Cybérie, we could launch and maintain a formula because of the relatively low entry

costs in this medium. However, everything will depend on the scope of the phenomenon called media 'convergence' and a possible rise of production costs if we need to offer audio and video products to stay competitive. If that is the case, we will have to think over strategic partnerships, a little like the one linking us to the group Ringier which permitted the re-launching of the Chroniques after six months of inactivity. But whatever the degree of convergence is, I think there will always be room for written work, and also for in-depth analysis on the main questions."

6. LIBRARIES ON THE WEB

[In this chapter:]

[6.1. European and World Directories for Libraries / 6.2. The Internet in Libraries]

This chapter focuses on traditional libraries, with librarians, walls, books and periodicals lined up on shelves, and tables and chairs for the readers. The next chapter will focus on digital libraries.

6.1. European and World Directories for Libraries

The first library website was that of the Helsinki City Library, Finland, which opened in February 1994.

A trilingual English-French-German site, Gabriel (acronym for Gateway and Bridge to Europe's National Libraries) is the World Wide Web service for Europe's National Libraries represented in the Conference of European National Librarians (CENL).

"Gabriel also recalls Gabriel Naudé, whose Advis pour dresser une bibliothèque (Paris, 1627) is one of the earliest theoretical works about libraries in any European language and provides a blueprint for the great modern research library. The name Gabriel is common to many European languages and is derived from the Old Testament, where Gabriel appears as one of the archangels or heavenly messengers. He also appears in a similar role in the New Testament and the Qu'ran."

There are currently 38 national libraries from the member states of the Council of Europe participating in CENL and Gabriel (Albania, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, (Former Yugoslav) Republic of Macedonia, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Russia, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and Vatican City).

During the 1994 Oslo meeting of the Conference of European National Libraries, it was suggested that national libraries should have an electronic noticeboard available to one another as a means of keeping up-to-date with current activities. An ad hoc meeting was held in The Hague, Netherlands, on March 27, 1995, at which representatives of the Koninklijke Bibliotheek, British Library and Helsinki University Library met to discuss the proposed CENL WWW. Objectives were set out at the meeting and an action schedule agreed. These three libraries set up the pilot Gabriel project. Three other national libraries agreed to participate in the pilot project: Die Deutsche Bibliothek (Germany), the Bibliothèque Nationale de France and the Biblioteka Narodowa (Poland). Working together, these libraries created a functional pilot service based on entries describing their own services and collections between March and September 1995. The pilot service was endorsed by the CENL annual meeting at Bern in Switzerland in September 1995 and launched on the Internet. The service was then mounted and maintained in London by British Library Network Services and was mirrored in The Hague, Netherlands, and Helsinki, Finland.

A second stage in the project was initiated on behalf of CENL in October 1995. The project was hosted by the British Library in London. In November 1995, national libraries that had not participated in the Gabriel pilot

project were invited to submit their entries. Using the pilot as a basis, this development project aimed to achieve comprehensive coverage of European national libraries within Gabriel. During the life of the project, the numbers of CENL member libraries with their own WWW servers had increased quite rapidly. Every participating library assigned staff members to act as contact persons for Gabriel. This project ended in September 1996. As content and publicity built up, and the numbers of linking sites expanded, measurable usage of the Gabriel service had increased rapidly.

During the CENL meeting in September 1996 in Lisbon, the CENL members decided that Gabriel should be launched as an official service of CENL on behalf of Europe's national libraries on January 1, 1997. The editorial maintenance of Gabriel was taken over by the Koninklijke Bibliotheek, the National Library of the Netherlands. The site is now mirrored from the websites of five national libraries in The Hague (The Netherlands), London (United Kingdom), Helsinki (Finland), Frankfort (Germany), and Ljubljana (Slovenia).

Updated in December 11, 1998, the introduction of Internet and the Library Sphere: Further progress for European Libraries specifies:

"Public libraries have now established a presence on the Web which compares well with the networked services which have been available for some time from academic libraries and national libraries. Services include sophisticated catalogue access for their users as well as links to other items of interest (local services, general reference, distance education, external resources). While it is difficult to keep track of developments, there are now probably some 1,000 public libraries from at least 26 European countries on the Web. This trend can be expected to continue as most countries now have firm plans in support of libraries in the Information Society.

There is, of course, a vast amount of networked information on libraries, initially from North American sources but now increasingly from Europe and the rest of the world. Not only have sites been created for most of our 99 EU projects, but the eLib projects in the UK and some of the Autoroutes de l'Information [information highways] projects in France have contributed significantly. And last but not least, concerted efforts in the area of public libraries, have added a wealth of accessible resources in a wide variety of languages."

As for the 1,000 public libraries in 26 European countries, the leaders are Finland (247), Sweden (132), the United Kingdom (112), Denmark (107), Germany (102), the Netherlands (72), Lithuania (51), Spain (56), and Norway (45). Newcomers are the Czech Republic (29) and Portugal (3). Russia maintains on the Web a list of public reference libraries with 26 names. Sites vary significantly between rudimentary information on addresses and opening hours to full access to OPACs (on-line public access catalogs) and/or to a variety of local and external services.

Compiled by Sheila and Robert Harden, Public Libraries of Europe is a country-by-country listing of European public libraries on the Web.

I'm Europe, the site of the European Union, has a section General Library Resources on the Web, with the following contents: library indexes; general library resources; public library information; individual public libraries; publishers and the book trade; other EU projects; and other sites of interest.

Library and Related Resources is maintained by Ian Tilsed on the site of the Library and Information Service of the University of Exeter, United Kingdom. It comprises: library information servers; library catalogues; library and information science resources; library and related organizations; library projects, reports, bibliographies and documentation; library related e-mail lists and e-journals; LIS (library and information science) training & professional development; museums; publishers and newspapers; scholarly societies; indexes and bibliographic information sources; frequently asked questions (FAQ) files; and web indexes and lists.

The Library of Congress's section Library and Information Science Resources provides links to: general resources; national libraries; state libraries; school library resources; library home pages; on-line catalogs; research and reference; technical services; special collections; digital libraries; professional organizations; library and information science schools; professional journals; library vendors; and library conferences.

Compiled by the Berkeley Digital Library (California, USA), LibWeb: Library Servers via WWW currently lists 2,500 web pages from libraries over 70 countries (as of December 10, 1998), with a daily update. The search is available by location, library type or library name.

6.2. The Internet in Libraries

The Libraries Programme of the European Union "aims to help increase the ready availability of library resources across Europe and to facilitate their interconnection with the information and communications infrastructure. Its two main orientations will be the development of advanced systems to facilitate user access to library resources, and the interconnection of libraries with other libraries and the developing "information highway". Validation tests will be accompanied by measures to promote standards, disseminate results and raise the awareness of library staff about the possibilities afforded by telematics systems."

Many libraries are developing a digital library alongside their other collections. Digital libraries gather mainly texts, and sometimes images and sounds as well. They allow a large audience to have access to documents belonging to specialized, old, local or regional collections, which were previously difficult to access for various reasons, including: concern for preservation of rare and fragile documents, reduced opening hours, forms to fill out, long waiting period to get the document, and shortage of staff. All these reasons were hurdles to get over and required of the researcher an unfailing patience and an out-of-the-ordinary determination to finally get to the document.

Beowulf, the first great English literary masterpiece, is a treasure of the British Library. It is known only from a single 11th century manuscript, which was badly damaged by fire in 1731. Transcriptions made in the late 18th century show that many hundreds of words and letters then visible along the charred edges subsequently crumbled away. To halt this process each leaf was mounted in a paper frame in 1845. Scholarly discussion of the date, provenance and creation of the poem continue around the world, and researchers regularly require access to the manuscript. Taking Beowulf out of its display case for study not only raises conservation issues, it also makes it unavailable for the many visitors who come to the Library expecting to see this most fundamental of literary treasures on display. Digitization of the whole manuscript offered a solution to these problems, as well as providing new opportunities for insight.

The Electronic Beowulf Project has assembled a huge database of digital images of the Beowulf manuscript and related manuscripts and printed texts. The archive already includes fiber-optic readings of hidden letters and ultraviolet readings of erased text in the early 11th-century manuscript; full electronic facsimiles of the 18th-century transcripts of the manuscript; and selections from important 19th-century collations, editions, and translations. Major additions will include images of contemporary manuscript illuminations and material culture, and links with the Toronto Dictionary of Old English project and with the comprehensive Anglo-Saxon bibliographies of the Old English Newsletter.

The project has been developed by the British Library with two leading American Anglo-Saxon experts, Kevin Kiernan of the University of Kentucky and Paul Szarmach of the Medieval Institute, Western Michigan University. Professor Kiernan is editing the electronic archive and is producing a CD-ROM electronic facsimile that will bring together in an easy-to-use package all the different types of images being collected.

As Brian Lang, Chief Executive of the British Library, explains on the website:

"The Beowulf manuscript is a unique treasure and imposes on the Library a responsibility to scholars

throughout the world. Digital photography offered for the first time the possibility of recording text concealed by early repairs, and a less expensive and safer way of recording readings under special light conditions. It also offers the prospect of using image enhancement technology to settle doubtful readings in the text. Network technology has facilitated direct collaboration with American scholars and makes it possible for scholars around the world to share in these discoveries. Curatorial and computing staff learned a great deal which will inform any future programmes of digitisation and network service provision the Library may undertake, and our publishing department is considering the publication of an electronic scholarly edition of Beowulf. This work has not only advanced scholarship; it has also captured the imagination of a wider public, engaging people (through press reports and the availability over computer networks of selected images and text) in the appreciation of one of the primary artefacts of our shared cultural heritage."

Thanks to the digital library, the "traditional" library can finally join two goals which used to be in contradiction - document preservation and document communication. On the one hand, the documents are taken out of their shelves only once to be scanned. On the other, the public can access them from the screen, and easily go from one document to another, without a long waiting period or the need to fill out forms.

The UNOG (United Nations of Geneva) Library, a leading European center for the study of world affairs, is open to UN staff, scholars, researchers, diplomats, journalists, and students. Its outstanding collections are especially strong on disarmament, economics, human rights, international law and current events. On July 3, 1997, the UNOG Library inaugurated its new Cyberspace. Initiated by Pierre Pelou, the Head of the Library, this electronic forum is primarily intended to benefit representatives of the Permanent Missions, conference delegations and international civil servants. It is also open to specialized researchers, students, engineers and other interested professionals.

Designed and planned by Antonio Bustamante, architect and Head of the Buildings, Parks and Gardens Unit, the cyberspace is comprised of 24 computerized workstations that have been installed on the redesigned first floor of the UNOG Library to provide the following services:

a) Access to a broad range of electronic resources, such as: the Internet; the United Nations Optical Disk System; an infoserver with about 50 networked CD-ROMs; the United Nations Bibliographical Information System (UNBIS), the shared database of the Headquarters Dag Hammarskjöld Library and the UNOG Library; the UNOG Library's automated catalogue; Profound, a collection of databases in the business and economics field; and the catalogue of RERO (Réseau des bibliothèques romandes et tessinoises), a network of Swiss libraries with which the UNOG Library is affiliated;

b) Consultation of a selection of multimedia CD-ROMs composed of intertwined audio, textual, photographic and video segments (e.g. Encarta 97, dictionaries and encyclopedias, l'État du monde, Élysée 2, Nuklear);

Viewing of multistandard videocassettes and DVDs (digital versatile disks) of documentaries and films on topics of international relevance (e.g. humanitarian affairs, Nelson Mandela, Gandhi);

Usage of computerized working tools for text-processing (WordPerfect) and electronic mail (e-mail, cc:mail); and

Access to the Internet, particularly the UNOG homepages in English and French, the homepages of Permanent Missions and other international organizations, and a selection of links provided by the managers of the UNOG Cyberspace.

A second cyberspace with six computers opened in April 1998 on the second floor of the library, with the same facilities and a fantastic view on the Lake of Geneva and the surrounding Alps.

The Organisation of Economic Co-operation and Development (OECD), an international organization based

in Paris, has been quick to put the Internet at its staff's disposal, and to create on extensive Intranet. Peter Raggett, Deputy-Head of the OECD Main Library, made the following comments in his e-mail of June 18, 1998:

"The Internet has provided researchers with a vast database of information. The problem for them is to find what they are seeking. Never has the 'information overload' been so obvious as when one tries to find information on a topic by searching the Internet. Information managers have a large role to play in searching and arranging the information on the Internet.

When one uses a search engine like Lycos or AltaVista or a directory like Yahoo!, it soon becomes clear that it can be very difficult to find valuable sites on a given topic. These search mechanisms work well if one is searching for something very precise, such as information on a person who has an unusual name, but they produce a confusing number of references if one is searching for a topic which can be quite broad. Try and search the Web for Russia AND transport to find statistics on the use of trains, planes and buses in Russia. The first references you will find are freight-forwarding firms who have business connections with Russia.

At the OECD Library we have collected together several hundred World Wide Web sites and have put links to them on the OECD Intranet. They are sorted by subject and each site has a short annotation giving some information about it. The researcher can then see if it is possible that the site contains the desired information. This is adding value to the site references and in this way the Central Library has built up a virtual reference desk on the OECD network. As well as the annotated links, this virtual reference desk contains pages of references to articles, monographs and websites relevant to several projects currently being researched at the OECD, network access to CD-ROMs, and a monthly list of new acquisitions. The Library catalogue will soon be available for searching on the Intranet.

The reference staff at the OECD Library uses the Internet for a good deal of their work. Often an academic working paper will be on the Web and will be available for full-text downloading. We are currently investigating supplementing our subscriptions to certain of our periodicals with access to the electronic versions on the Internet.

The Internet is impinging on many peoples' lives and Information Managers are the best people to help researchers around the labyrinth. The Internet is just in its infancy and we are all going to be witnesses to its growth and refinement."

The Internet in libraries is a research topic dealt with by numerous organizations, for example the Internet Public Library (IPL) or the International Federation of Library Institutions and Associations (IFLA).

Opened in March 1995, the Internet Public Library (IPL) is the first digital public library of and for the Internet community. Its different sections are: reference; exhibits; especially for librarians; magazines and serials; newspapers; on-line texts; and Web searching. There are also sections for Teen and Youth. All the items of the collections (20,166 as of December 8, 1998) are carefully selected, catalogued and described by the IPL staff. As an experimental library, IPL also tries to discover and promote the most effective roles and contributions of librarians to the Internet and vice versa.

The International Federation of Library Associations and Institutions (IFLA)is a worldwide, independent organization created to provide librarians around the world with a forum for exchanging ideas, promoting international cooperation, research and development in all fields of library activity. IFLA's objectives are: to represent librarianship in matters of international interest; to promote the continuing education of library personnel; and to develop, maintain and promote guidelines for library services. The part relating to Electronic Collections and Services includes four sections: library and information science; digital libraries; information policy; and Internet and networking.

A number of professional magazines are available on the Web.

Library Journal Digital (LJ Digital) is an electronic offshoot of Library Journal (LJ), founded in 1876 and the oldest U.S. independent national library publication. LJ is read by over 100,000 library directors, administrators, and others in public, academic, and special (e.g., business) libraries. Published 20 times a year, LJ combines news, features, and commentary with analyses of public policy, technology, and management developments. In addition, some 7,500 evaluative reviews (of books, audio and video, CD-ROMs, websites, and magazines) written by librarians help readers make their purchasing decisions. Each issue reviews 250 to 350 adult books, mostly prior to publication, making it a source for librarians and publishers' early evaluations.

Published by the University of Houston Libraries, Texas, the Public-Access Computer Systems Review (PACS Review) is an electronic journal about end-user computer systems in libraries. It is distributed at no charge on the Internet and other computer networks to 8,000 persons in 60 countries. The journal publishes papers on topics such as digital libraries, document delivery systems, electronic publishing, expert systems, hypermedia and multimedia systems, locally mounted databases, network-based information resources and tools, and on-line catalogs.

The librarian's job has significantly changed with computers, and continues to change with the Internet. Computers made the catalogs much easier to handle. In place of all these paper cards to be classified into wood or metal drawers, the computer could sort out the bibliographic records itself. The loan of documents and the processing of orders became computerized too. Then networking computers allowed the creation of union catalogs for a region, a country, or a specific topic, furthering interlibrary loan.

What does the Internet bring to librarians, libraries and library users? It brings:

- the use of electronic mail for internal and external communications, and as a means of communication with the public;

- the participation in newsgroups and discussion forums;

- the use of the library website to give additional information, open a digital library, and offer a selection of sites relating to the public's topics;

- free access to the library's catalogues;

- a gigantic information provider; and

- a simpler way to look for another job.

With the Internet as a main information provider and the quick development of digital libraries, what is the future of librarians? Will they become cyberlibrarians, or will they disappear because the public will not need them any more when all the information and documents they need will be available on-line?

As for journalists, the librarians will probably continue being useful, as stated by Peter Raggett, Deputy-Head of the OECD Library, in his e-mail of September 18, 1998:

"I have to filter the information for my clients. This means that I must be familiar with the sites which contain useful links. In addition I expect that there will be an expansion in Internet use for education and research. This means that libraries will have to create Virtual Libraries where students can follow a course offered by an institution at the other side of the world. Personally, I see myself becoming more and more a 'Virtual Librarian'. My clients may not meet me face-to-face but instead will contact me by e-mail, telephone or fax

and I will do the research and send them the results electronically."

7. DIGITAL LIBRARIES

[In this chapter:]

[7.1. The Digital Library: A Definition / 7.2. Digital Libraries: Some Examples / 7.3. Digital Image Collections / 7.4. Future Trends for Digital Libraries]

7.1. The Digital Library: A Definition

Digital libraries may be the major contribution from the print media to the Internet, and vice versa.

Thanks to the Internet, hundreds of public works, literary and scientific documents, articles, academic and research works, pictures and sound tracks are available on the screen for free. The collections of existing digital libraries increase regularly, and new digital libraries come up constantly.

Some digital libraries are created by "traditional" libraries who want to put their documents at the disposal of Internet users. Other digital libraries are "only" digital - their life is 100% on the Web.

Hosted by the Carnegie Mellon University, in Pittsburgh, Pennsylvania, the Universal Library defines the digital library as "a digital library of digital documents, artifacts, and records. The advantage of having library material available in digital form is threefold: (1) the content occupies less space and can be replicated and made secure electronically, (2) the content can be made immediately available over the Internet to anyone, anywhere, and (3) search for content can be automated. The promise of the digital library is the promise of great cost reductions while providing great increases in archive availability and accessibility. [...]

There are literally thousands of digital library initiatives of a great many varieties going on in the world today. Digital libraries are being formed of scholarly works, archives of historical figures and events, corporate and governmental records, museum collections and religious collections. Some take the form of scanning and putting documents to the World Wide Web. Still other digital libraries are formed of digitizing paintings, films and music. Work even exists in 3D reconstructive digitization that permits a digital deconstruction, storage, transmission, and reconstruction of solid object."

The British Library is a pioneer in Europe for research relating to digital libraries. Some treasures of the library are already on-line: Beowulf, the first great English masterpiece dated 11th century; Magna Carta, one example from 1215 issued over the Great Seal of King John; the Lindisfarne Gospels, dated 698; the Diamond Sutra, dated 868, which is the world's earliest printed book; the Sforza Hours, dated 1490-1520, which is an outstanding Renaissance treasure; the Codex Arundel, a notebook of Leonardo Da Vinci (1452-1519), and the Tyndale New Testament, which was the first printed New Testament in English, from the press of Peter Schoeffer in Worms.

Brian Lang, Chief Executive of the British Library, states on the British Library website:

"We do not envisage an exclusively digital library. We are aware that some people feel that digital materials will predominate in libraries of the future. Others anticipate that the impact will be slight. In the context of the British Library, printed books, manuscripts, maps, music, sound recordings and all the other existing materials in the collection will always retain their central importance, and we are committed to continuing to provide, and to improve, access to these in our reading rooms. The importance of digital materials will, however, increase. We recognize that network infrastructure is at present most strongly developed in the higher education sector, but there are signs that similar facilities will also be available elsewhere, particularly in the industrial and commercial sector, and for public libraries. Our vision of network access encompasses all

these."

The Digital Library Programme will begin in February 1999. The two potential partners are: Dawson-IBM-The Stationery Office Consortium, and the Digital Library Consortium (Blackwell, Chadwyck-Healey, MicroPatent, Unisys). The confirmation of the preferred bidder is planned for February 1999, and the contract will be awarded in Spring 1999.

"The development of the Digital Library will enable the British Library to embrace the digital information age. Digital technology will be used to preserve and extend the Library's unparalleled collection. Access to the collection will become boundless with users from all over the world, at any time, having simple, fast access to digitized materials using computer networks, particularly the Internet."

What exactly is digitization? Digitization is the conversion of text, sound or images to digital form, that is, in the form of numerical digits (bits and bytes) for handling by computer. Digitization has made it possible to create, record, manipulate, combine, store, retrieve and transmit information and information-based products in ways which magnetic tape, celluloid and paper did not permit. Digitization thus allows music, cinema and the written word to be recorded and transformed through similar processes and without separate material supports. Previously dissimilar industries, such as publishing and sound recording, now both produce CD-ROMs, rather than simply books and records.

7.2. Digital Libraries: Some Examples

Created by Michael S. Hart in 1971, the Project Gutenberg was the first information provider on the Internet. It is now the oldest digital library on the Web, and the biggest in terms of the number of works (1,500) which have been digitized for it, with around 45 new titles per month. Michael Hart's purpose is to put on the Web as many literary texts as possible for a minimal price.

In his e-mail of August 23, 1998, Michael Hart explained:

"We consider Etext to be a new medium, with no real relationship to paper, other than presenting the same material, but I don't see how paper can possibly compete once people each find their own comfortable way to Etexts, especially in schools. [...] My own personal goal is to put 10,000 Etexts on the Net, and if I can get some major support, I would like to expand that to 1,000,000 and to also expand our potential audience for the average Etext from 1.x% of the world population to over 10%... thus changing our goal from giving away 1,000,000,000,000 Etexts to 1,000 time as many... a trillion and a quadrillion in US terminology."

The Etext number 1000 was Dante's Divine Comedy, in both English and Italian, and Michael Hart dreams about Etext number 2000 for January 1st, 2000. In the Project Gutenberg Newsletter of February 1998, he wrote: "If we do 36 per month for the next 23 month period, we should be able to reach 2,000 Etexts by January 1 of the year 2000. . . [...] I think it would be kind of nice to do our 2,000th Etext during the big celebration..."

An average of 50 hours is necessary to get any Etext selected, entered, proofread, edited, copyright-searched, analyzed, etc.

How did Project Gutenberg begin?

Project Gutenberg began in 1971 when Michael Hart was given an operator's account with $100,000,000 of computer time in it by the operators of the Xerox Sigma V mainframe at the Materials Research Lab at the University of Illinois. Michael decided there was nothing he could do, in the way of "normal computing", that would repay the huge value of the computer time he had been given... so he had to create $100,000,000 worth of value in some other manner. He immediately announced that the greatest value created by computers would

not be computing, but would be the storage, retrieval, and searching of what was stored in our libraries. He then proceeded to type in the Declaration of Independence and tried to send it to everyone on the networks. Project Gutenberg was born.

There are three sections in the Project Gutenberg, basically described as:

- Light Literature; such as Alice in Wonderland, Through the Looking-Glass, Peter Pan, Aesop's Fables, etc.;

- Heavy Literature; such as the Bible or other religious documents, Shakespeare, Moby Dick, Paradise Lost, etc.; and

- References; such as Roget's Thesaurus, almanacs, and a set of encyclopedia, dictionaries, etc.

"The Light Literature Collection is designed to get persons to the computer in the first place, whether the person may be a pre-schooler or a great-grandparent. We love it when we hear about kids or grandparents taking each other to an Etext to Peter Pan when they come back from watching Hook at the movies, or when they read Alice in Wonderland after seeing it on TV. We have also been told that nearly every Star Trek movie has quoted current Project Gutenberg Etext releases (from Moby Dick in The Wrath of Kahn; a Peter Pan quote finishing up the most recent, etc.) not to mention a reference to Through the Looking-Glass in JFK. This was a primary concern when we chose the books for our libraries.

We want people to be able to look up quotations they heard in conversation, movies, music, other books, easily with a library containing all these quotations in an easy to find Etext format.

With Plain Vanilla ASCII you will be easily able to search an entire library, without any program more sophisticated than a plain search program. In fact, these Project Gutenberg Etext files are so plain that you can do a search on them without even using an intermediate search program (i.e. a program between you and the disk). Norton's and other direct disk access programs can search every one of your files without you even naming them, pointing to an Etext directory, or whatever. You can simply search a raw output from the disk. . .I do this on a half gigabyte disk partition, containing all our editions."

In this same spirit, Project Gutenberg selects Etexts that large portions of the audience will want and use frequently. It has also avoided requests, demands, and pressures to create authoritative editions.

"We do not write for the reader who cares whether a certain phrase in Shakespeare has a ':' or a ';' between its clauses. We put our sights on a goal to release Etexts that are 99.9% accurate in the eyes of the general reader. Given the preferences our proofreaders have, and the general lack of reading ability the public is currently reported to have, we probably exceed those requirements by a significant amount. However, for the person who wants an 'authoritative edition' we will have to wait some time until this becomes more feasible. We do, however, intend to release many editions of Shakespeare and the other classics for comparative study on a scholarly level, before the end of the year 2001, when we are scheduled to complete our 10,000 book Project Gutenberg Electronic Public Library."

"Anything that can be entered into a computer can be reproduced indefinitely." The Project Gutenberg Philosophy uses this premise to make information, books and other materials available to the general public in forms a vast majority of the computers, programs and people can easily read, use, quote, and search. Project Gutenberg Etexts are made available in what has become known as 'Plain Vanilla ASCII', meaning the low set of the American Standard Code for Information Interchange (ASCII). The reason for this is that 99% of the hardware and software a person is likely to run into can read and search these files." Plain Vanilla ASCII thus addresses the audience with Apples and Ataris all the way to the old homebrew Z80 computers, not to mention the audience of Mac, UNIX and mainframers. Michael Hart explains:

"When we started, the files had to be very small .... So doing the U.S. Declaration of Independence (only 5K) seemed the best place to start. This was followed by the Bill of Rights - then the whole U.S. Constitution, as space was getting large (at least by the standards of 1973). Then came the Bible, as individual books of the Bible were not that large, then Shakespeare (a play at a time), and then into general work in the areas of light and heavy literature and references...By the time Project Gutenberg got famous, the standard was 360K disks, so we did books such as Alice in Wonderland or Peter Pan because they could fit on one disk. Now 1.44 is the standard disk and ZIP is the standard compression; the practical file size is about three million characters, more than long enough for the average book.

However, pictures are still so bulky to store on disk that it will still be a while before we include even the lowres Tenniel illustrations in Alice and Looking-Glass. However we are very interested in doing them, and are only waiting for advances in technology to release a test edition. The market will have to establish some standards for graphics, however, before we can attempt to reach general audiences, at least on the graphics level."

The On-Line Books Page is a directory of books that can be freely read right on the Internet. It was founded in 1993 by John Mark Ockerbloom, a graduate student in computer science at Carnegie Mellon University, Pittsburgh, Pennsylvania, who remains the editor of the pages. It includes: an index of more than 7,000 on-line books on the Internet, which can be browsed by author, by title or by subject; pointers to significant directories and archives of on-line texts; and special exhibits. From the main search page, users have options to search for four types of media: books, music, art, and video.

"Along with books, The On-Line Books Page is also now listing major archives of serials (such as magazines, published journals, and newspapers), as of June 1998. Serials can be at least as important as books in library research. Serials are often the first places that new research and scholarship appear. They are sources for firsthand accounts of contemporary events and commentary, They are also often the first (and sometimes the only) place that quality literature appears. (For those who might still quibble about serials being listed on a 'books page', back issues of serials are often bound and reissued as hardbound 'books'.)"

Web space and computing resources are provided by the School of Computer Science at Carnegie Mellon University. The On-Line Books Page participates in the Experimental Search System of the Library of Congress. It works with The Universal Library Project, also hosted at Carnegie Mellon University.

In his e-mail to me of September 2, 1998, John Mark Ockerbloom explained how the site began:

"I was the original Webmaster here at CMU CS, and started our local Web in 1993. The local Web included pages pointing to various locally developed resources, and originally The On-Line Books Page was just one of these pages, containing pointers to some books put on-line by some of the people in our department. (Robert Stockton had made Web versions of some of Project Gutenberg's texts.)

After a while, people started asking about books at other sites, and I noticed that a number of sites (not just Gutenberg, but also Wiretap and some other places) had books on-line, and that it would be useful to have some listing of all of them, so that you could go to one place to download or view books from all over the Net. So that's how my index got started.

I eventually gave up the Webmaster job in 1996, but kept The On-Line Books Page, since by then I'd gotten very interested in the great potential the Net had for making literature available to a wide audience. At this point there are so many books going on-line that I have a hard time keeping up (and in fact have a large backlog of books to list). But I hope to keep up my on-line books works in some form or another."

In his e-mail of September 1, 1998, he explained the way he sees the relationship between the print media and the Internet:

"I certainly find both the print media and the Internet very useful, and am very excited about the potential of the Internet as a mass communication medium in the coming years. I'd also like to stay involved, one way or another, in making books available to a wide audience for free via the Net, whether I make this explicitly part of my professional career, or whether I just do it as a spare-time volunteer."

Created by the Carnegie Mellon University, in Pittsburgh, Pennsylvania, the Universal Library Project is chaired by Raj Raddy. According to the website:

"The mission of the Universal Library Project is to start a worldwide movement to make available on the Internet all the Authored Works of Mankind so that anyone can access these works from any place at any time. This is a major new initiative in digital libraries that will build a technically realistic and economically practical infrastructure for putting and accessing library documents on the World Wide Web. In this regard, access to the Universal Library would be free and have the same stated goal as the Carnegie Library of the last century.

[It] has a vision that goes beyond the scope of most other digital library projects. Simply put, our goal is to spark a lasting movement, in which all of the institutions responsible for the collection of mankind's works will place these works on the Internet to educate and inspire all of the world's people. Our project will, therefore, serve as an umbrella over all of these efforts, with common indices, guidelines, and systems that allow the quickest, simplest access possible."

In summer 1998, The Universal Library was working on the Book Object project:

"The Universal Library Book Object is intended to let you read a book off the web the way you would like to read it, by giving you book presentation options. You can either download the whole book as a single HTML or ASCII MIME object. Download by the screen-full. Download by the section or chapter. You can have the book in HTML, in ASCII, in Postscript, in RTF, or image GIF. In short, you don't have to read the book in the same form in which it is stored on the remote server. Such conversion of original presentation format is already common in printer drivers, although we also provide a means to permission use.

To complement the users' freedom to read the book in the form in which they desire to read it, the Book Object also has complementary provisions by which a book owner can control or restrain the freedoms allowed. This includes not only presentation constraints, but also permission to print or permission that may require monetary payments. The Universal Library Book Object is still a work in progress, but we have now overcome a few of the more fundamental hurdles in establishing the question of its feasibility."

Founded in 1992 by Paul Southworth, The ETEXT Archives are home to electronic texts of all kinds, from the sacred to the profane, and from the political to the personal. Their duty is to provide electronic versions of texts without judging their content.

The contents are:

- E-zines: electronic periodicals from the professional to the personal;

- Politics: political zines, essays, and home pages of political groups;

- Fiction: publications of amateur authors;

- Religion: mainstream and off-beat religious texts;

- Poetry: an eclectic mix of mostly amateur poetry; and

- Quartz: the archive formerly hosted at quartz.rutgers.edu.

The ETEXT Archives were founded in the Summer of 1992 by Paul Southworth, and hosted by the User Services Department of the University of Michigan's Information Technology Division.

"The Web was just a glimmer, gopher was the new hot technology, and FTP was still the standard information retrieval protocol for the vast majority of users. The origin of the project has caused numerous people to associate it with the University of Michigan, although in fact there has never been an official relationship and the project is supported entirely by volunteer labor and contributions. The equipment is wholly owned by the project maintainers.

The project was started in response to the lack of organized archiving of political documents, periodicals and discussions disseminated via Usenet on newsgroups such as alt.activism, misc.activism.progressive, and alt.society.anarchy. The alt.politics.radical-left group came later and was also a substantial source of both materials and regular contributors.

Not long thereafter, electronic 'zines (e-zines) began their rapid proliferation on the Internet, and it was clear that these materials suffered from the same lack of coordinated collection and preservation, not to mention the fact that the lines between e-zines (which at the time were mostly related to hacking, phreaking, and Internet anarchism) and political materials on the Internet were fuzzy enough that most e-zines fit the original mission of The ETEXT Archives. One thing led to another, and e-zines of all kinds -- many on various cultural topics unrelated to politics -- invaded the archives in significant volume."

The Logos Wordtheque is a word-by-word multilingual library with a massive database (325,916,827 words as of December 10, 1998) containing multilingual novels, technical literature and translated texts.

Logos, an international translation company based in Modena, Italy, gives free access to the linguistic tools used by its translators: 200 translators at its headquarters and 2,500 translators on-line all over the world, who process around 200 texts per day. Apart from the Logos Wordtheque, the tools include the Logos Dictionary, a multilingual dictionary with 7,580,560 entry words (as of December 10, 1998); Linguistic Resources, a database of 553 glossaries; and the Universal Conjugator, a database for conjugation of verbs in 17 languages.

When interviewed by Annie Kahn in the French daily newspaper Le Monde of December 7, 1997, Rodrigo Vergara, the Head of Logos, explained:

"We wanted all our translators to have access to the same translation tools. So we made them available on the Internet, and while we were at it we decided to make the site open to the public. This made us extremely popular, and also gave us a lot of exposure. The operation has in fact attracted a great number of customers, but also allowed us to widen our network of translators, thanks to the contacts made in the wake of the initiative."

In the same article, Annie Kahn wrote:

"The Logos site is much more than a mere dictionary or a collection of links to other on-line dictionaries. A system cornerstone is the document search software, which processes a corpus of literary texts available free of charge on the Web. If you search for the definition or the translation of a word ('didactique', for example), you get not only the answer sought, but also a quote from one of the literary works containing the word (in our case, an essay by Voltaire). All it takes is a click on the mouse button to access the whole text or even to order the book, thanks to a partnership agreement with Amazon.com, the famous on-line book shop. Foreign translations are also available. If however no text containing the required word is found, the system acts as a search engine, sending the user to other websites concerning the term in question. In the case of certain words, you can even hear the pronunciation. If there is no translation currently available, the system calls on the

public to contribute. Everyone can make their own suggestion, after which Logos translators and the company verify the translations forwarded."

Begun in 1997, Gallica is a massive undertaking by the Bibliothèque nationale de France to digitize thousands of texts and images relating to French history, life and culture. The first step of the program - the pictures and the texts of French 19th century - is now available on the Web.

Many organizations have a digital library organized around a subject. For example, the Electronic Frontier Foundation (EFF), a non-profit civil liberties organization working in the public interest to protect privacy, free expression, and access to public resources and information on-line, as well as to promote responsibility in new media, run the EFF Archives, with documents on civil liberties.

Are there only English texts on the Web? Not any longer - what was true at the beginning of the Internet, when it was a network created in the US before becoming worldwide, is not true any more. More and more digital libraries are offering texts in languages other than English.

Project Gutenberg is now developing its foreign collections, as announced in the Project Gutenberg Newsletter of October 1997. In the Newsletter of March 1998, Michael Hart, its founder and executive director, mentioned that Project Gutenberg's volunteers were now working on Etexts in French, German, Portuguese and Spanish, and he was also expecting to have some coming in the following languages: Arabic, Chinese, Danish, Dutch, Esperanto, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Latin, Lithuanian, Polish, Romanian, Russian, Slovak, Slovene, and Valencian (Catalan).

Founded in 1993, the ABU: la bibliothèque universelle (ABU: The Universal Library) offers a collection of French-language texts of public domain. It gives free access to 223 texts and 76 authors (as of November 1998).

Located on the site of the University of Geneva, Switzerland, Athena is a digital library of documents in several languages about philosophy, science, classics, literature, history, economics, etc. It also focuses on putting French texts at the disposal of the Internet community. The Helvetia section gathers documents about Switzerland. The site offers links to other digital libraries.

The Bielefeld University Library (Bibliothek der Universität Bielefeld), Germany, is a collection of German digitized texts. Michael Behrens, responsible for the digital library, answered to my questions in his e-mail of September 25, 1998.

ML: "When did you begin your digital library?"

MB: "[It] depends on what the term would be understood to mean. To some here, 'digital library' seems to be everything that, even remotely, has to do with the Internet. The library started its own web server some time in summer 1995. There's no exact date to give because it took some time until we got it to work in a reasonably reliable way. Before that, it had been offering most of its services via Telnet, which wasn't used much by patrons, although in theory they could have accessed a lot of material from home. But in those days almost nobody really had Internet access at home... We started digitizing rare prints from our own library, and some that were sent in via library loan, in November 1996."

ML: "How many digitized texts do you have?"

MB: "In that first phase of our attempts at digitization, starting Nov. 1997 and ending June 1997, 38 rare prints were scanned as image files and made available via the Web. During the same time, there were also a few digital materials prepared as accompanying material for lectures held at the university (image files as excerpts from printed works). These are, for copyright reasons, not available outside of campus. The next

step, which is just being completed, is the digitization of the Berlinische Monatsschrift, a German periodical from the Enlightenment, comprising 58 volumes, 2,574 articles on 30,626 pages.

A somewhat bigger digitization project of German periodicals from the 18th and early 19th century is planned. The size will be about 1,000,000 pages. These periodicals will be not just from the holdings of this library, but the project would be coordinated here, and some of the technical would be done here, also."

Projekt Gutenberg-DE is a German digital library created in 1994 because there were very few German texts on the Web. Texts are organized for reading on-line with longer works divided into chapters. There is an alphabetic list of authors, with for each a biography and a list of works, and a full text search for titles.

In Italy, Liber Liber, whose maxim is: "Nullus amicus magis liber quam liber", is a non-profit cultural association whose aim is the promotion of any kind of artistic and intellectual expression. In particular, it is an attempt to draw humanistic and scientific culture together thanks to the qualified use of computer technologies in the humanistic field.

Liber Liber promotes the Manuzio project (projetto Manuzio), a collection of electronic texts in Italian which was renamed after the famous publisher from Venice who in the 16th century improved the printing techniques created by Gutenberg.

The Manuzio project has the ambition to make a noble idea real: the idea of making culture available to everybody. How? By making books, graduation theses, articles, tales or any other document which can be memorized by a computer available all over the world, at any minute and free-of-charge. Via modem, or using floppy disks (in which case there is only the cost of the disk and the delivery), it is already possible to get hundreds of books. And Projetto Manuzio needs only a few people to make such a masterpiece as Dante Alighieri's Divina Commedia available to millions of people.

Created by the University of Virginia and the University of Pittsburgh, the Japanese Text Initiative (JTI) is a collaborative effort to make texts of classical Japanese literature available on the World Wide Web. The goal of the Japanese Text Initiative (JTI) is "to put on-line on the Web texts of classical Japanese literature in Japanese characters. Our primary audience is English-speaking scholars and students. Where possible, the Japanese texts will be accompanied by English translations. All JTI texts will be tagged in Standard Generalized Markup Language (SGML), according to Text Encoding Initiative (TEI) standards, and converted to HTML for display on the Web. An important purpose is to make JTI texts in both Japanese and English searchable, both individually and as a group." Venezuela Analítica, an electronic magazine, conceived as a public forum to exchange ideas on politics, economics, culture, science and technology, created in May 1997 BitBlioteca, a digital library which comprises about 700 texts mainly in Spanish, and also in French, English and Portuguese.

In his e-mail of September 3, 1998, Roberto Hernández Montoya, Head of BitBlioteca, explains the way he sees the relationship between the print media and the Internet:

"The printed text can't be replaced, at least not for the foreseeable future. The paper book is a tremendous 'machine'. We can't leaf through an electronic book in the same way as a paper book. On the other hand electronic use allows us to locate text chains more quickly. In a certain way we can more intensively read the electronic text, even with the inconvenience of reading on the screen. The electronic book is less expensive and can be more easily distributed worldwide (if we don't count the cost of the computer and the Internet connection).

[The use of the Internet] has been very important for me personally. It became my main way of life. As an organization it gave us the possibility to communicate with thousands of people, which would have been economically impossible if we had published a paper magazine. I think the Internet is going to become the

essential means of communication and of information exchange in the coming years."

Projekt Runeberg is a digital library initiated in December 1992 by Lysator, a students' computer club, in cooperation with the Linköping University, Sweden. It is an open and voluntary initiative to create and collect free electronic editions of classic Nordic literature and art. Around 200 titles are available in full text, and there is also data on more than 6,000 Nordic authors.

Some digital libraries are organized around an author, for example The Complete Works of William Shakespeare, The Dante Project or The Marx/Engels Internet Archive (MEIA).

Begun in 1996, The Marx/Engels Internet Archive (MEIA) "is continually expanding, as one work after another is brought on-line [...] Pictures/photos now adorn the site, with many more to come". The Marx & Engels WWW Library gives a chronology of the collected works of Karl Marx and Frederick Engels, and access to a number of them. The Photo Gallery presents the Marx and Engels clan from 1839 to 1894, and their dwellings from 1818 to 1895.

The MEIA Search allows searching in the entire Marx/Engels Internet Library. "As larger works come on-line, they will also have small search pages made for them alone - for instance, Capital will have a search page for that work alone." The biographical archive gives access to biographies of Marx and Engels, and also short notices and photographs of the members of their family and their friends. The link "Others" gives access to a short biography and the works of Marxist writers, including: James Connolly, Daniel DeLeon, andHal Draper. The MEIA Non-English Archive lists the works of Marx and Engels in other languages (Danish, French, German, Greek, Italian, Japanese, Polish, Portuguese, Spanish, and Swedish), with links to them. The following statement is posted on the website:

"There's no way to monetarily profit from this project. 'Tis a labor of love undertaken in the purest communitarian sense. The real 'profit' will hopefully manifest in the form of individual enlightenment through easy access to these classic works. Besides, transcribing them is an education in itself... Let me also add that this is not a sectarian/One-Great-Truth effort. Help from any individual or any group is welcome. We have but one slogan: 'Piping Marx & Engels into cyberspace!'"

7.3. Digital Image Collections

Other digital libraries include pictures, for example the impressive Gallica. Available since 1997, Pictures and Texts of French 19th Century are the first part of the massive project of the French National Library (Bibliothèque nationale de France) which is digitizing thousands of texts and images relating to French history, life and culture.

The digital collections of American Memory are a major component of the Library of Congress's National Digital Library Program. The National Digital Library Program (NDLP) is an effort to digitize and deliver electronically the distinctive, historical Americana holdings at the Library of Congress, including photographs, manuscripts, rare books, maps, recorded sound, and moving pictures.

"The Library of Congress National Digital Library Program (NDLP) is assembling a digital library of reproductions of primary source materials to support the study of the history and culture of the United States. Begun in 1995 after a five-year pilot project, the program began digitizing selected collections of Library of Congress archival materials that chronicle the nation's rich cultural heritage. In order to reproduce collections of books, pamphlets, motion pictures, manuscripts and sound recordings, the Library has created a wide array of digital entities: bitonal document images, grayscale and color pictorial images, digital video and audio, and searchable texts."

There are currently over 30 collections in American Memory, for example:

(a) African American Perspectives: Pamphlets from the Daniel A. P. Murray Collection, 1818-1907: 351 rare pamphlets offering insight into attitudes and ideas of African Americans between Reconstruction and the First World War;

(b) Architecture and Interior Design for 20th Century America: Photographs by Samuel Gottscho and William Schleisner, 1935-1955: Approximately 29,000 photographs of buildings, interiors, and gardens of renowned architects and interior designers.

The New York Public Library Digital Collections provide the public with digital versions of books, manuscripts, photographs, engravings, and other items as well as tools to browse, search, and analyze these materials remotely via the Internet. Four general sections allow the browsing of the collections: Digital Schomburg (Center for Research in Black Culture); Archival finding aids; Cooperative projects; and On-Line Exhibitions.

SPIRO (UC Berkeley Architecture/Slide Library Slide and Photograph Collection) is the visual on-line public access catalog (VOPAC) for the UC (University of California) Berkeley's Architecture Slide Library (ASL) collection of 200,000 35mm slides.

"SPIRO can be accessed using either Image Query, a powerful database retrieval package, or the World Wide Web. ImageQuery2.0 was developed originally by UC Berkeley's Information Systems and Technology, Advanced Technology Planning (ATP) Office under the direction of Barbara Morgan. ImageQuery2.0 is currently maintained by the Museum Informatics Project (MIP). ImageQuery SPIRO permits access to the collection by ten access points: period; place; creator name; object name; view type; subject terms from the Art and Architecture Thesaurus; source of image; creation dates; classification number; image identification number. The vast majority of images in SPIRO are copyrighted."

IMAGES 1 (on-line images of the National Library of Australia's Pictorial Collection) contains over 15,000 historical and contemporary images relating to Australia and its place in the world, including paintings, drawings, rare prints, objects and photographs. The images have been selected from more than 40,000 paintings, drawings and prints and more than 550,000 photographs held in the National Library's Pictorial Collection. Topics covered include first impressions of Australia, convict days, gold mining and Australian towns.

IMAGES 1 offers a number of search options to enhance access to the images including searching by the creator (for example photographer or artist; other names associated with a work or collection; title; subject; the image number in the database; and by format (for example, watercolor or photograph).

Founded in 1989 by Bill Gates, the head of Microsoft, Corbis is a main provider of visual content and services in the digital age, offering more than 20 million photographs and fine-art images (and 1,3 on-line) for access worldwide via the Internet, on CD-ROM disc, and through traditional stock catalogs. The images includes contemporary stock photography, photojournalism, archival photography, and royalty-free images, available to both creative professionals and private consumers.

7.4. Future Trends for Digital Libraries

The quick development of digital libraries leads us to define the role of the digital library, a very recent concept, relating to the much older "traditional" library, and vice versa.

In the same way that the paper document is not going to be "killed" by the electronic document, at least not in the near future, many librarians believe the "traditional" library is not going to be "killed" by the digital library.

When interviewed by Jérôme Strazzulla in Le Figaro of June 3, 1998, Jean-Pierre Angremy, president of the French National Library (Bibliothèque nationale de France) stated: "We cannot, we will not be able to digitize everything. In the long term, a digital library will only be one element of the whole library".

Digital libraries give instant access to many works in the public domain. They also give instant access to old and rare texts and images. The full-screen images are still quite long to download, so many sites were backed up to present small images, so as not to ask too much from the cybernaut's patience. Most of the time a bigger format can be requested by clicking on the selected image. This problem should be solved in the future with improvements in data transmission.

The digital libraries also further the textual research on one or several works at the same time, such as the works of Shakespeare, Dante's Divine Comedy, different versions of The Bible, etc.

The major problem of the cyberlibrary is the fact that recent documents cannot be posted because they don't belong to the public domain. Some projects, like DOI: The Digital Identifier System, an identification system for digital media, will enable automated copyright management systems.

Another problem is format harmonization, to allow the downloading of the texts by any hardware and software. Libraries often choose the ASCII format (ASCII: American standard code for information interchange) or the SGML format (SGML: standard generalized markup language).

Many organizations are involved in research relating to digital libraries.

Sponsored by the The Library of UC Berkeley and Sun Microsystems, SunSITE is the site where the Berkeley Digital Library builds digital collections and services while providing information and support to others doing the same. Its contents are: catalogs and indexes; help/search tools and administrative info; Java corner; teaching and training; text and image collections; information for digital library developers; research and development: where digital libraries are being built; tools: software for building digital libraries.

The Digital Library Technology (DLT) Project supports the development of new technologies to facilitate public access to the data of NASA (National Aeronautics and Space Administration) via computer networks, particularly technologies that develop tools, applications, and software and hardware systems that are able to scale upward to accommodate evolving user requirements and order-of-magnitude increases in user access.

The Stanford Universities Digital Libraries Project deals primarily with computing literature, with a strong focus on networked information sources. It is one participant among five universities of the Digital Library Initiative, supported by the NSF (National Science Foundation), DARPA (Defense Advanced Research Projects Agency), and NASA (National Aeronautics and Space Administration). "The Initiative's focus is to dramatically advance the means to collect, store, and organize information in digital forms, and make it available for searching, retrieval, and processing via communication networks - all in user-friendly ways."

Library 2000 gives the historical record of a project held by the MIT Laboratory for Computer Science (MIT: Massachusetts Institute of Technology) between Fall 1995 and February 1998. Library 2000 was a computer systems research project that explored the implications of large-scale on-line storage using the future electronic library as an example. The project was pragmatic, developing a prototype using the technology and system configurations expected to be economically feasible in the year 2000.

Based at the Corporation for National Research Initiatives (CNRI), the D-Lib Program supports the community of people with research interests in digital libraries and electronic publishing. D-Lib Magazine, the magazine of digital library research, is a monthly compilation of contributed stories, commentary, and briefings.

The International Federation of Library Associations and Institutions (IFLA) provides a very interesting section Electronic Collections and Services.

8. ON-LINE CATALOGS

[In this chapter:]

[8.1. Library Catalogs / 8.2. International Bibliographic Databases / 8.3. Future Trends for On-line Catalogs]

Why a whole chapter on catalogs? Because, even if most of them are not yet user-friendly and are still in the domain of information specialists, they are essential to students, researchers, and anybody who needs a particular document or wants to know more about a specific topic.

Until now, the catalogs could easily be reproached as being complicated to deal with, and above all for giving the references of the documents but never giving access to their contents and full-text. All this is now changing. Catalogs on the Web have become more attractive and user-friendly. And, in an emerging trend, catalogs have begun to give instant access to some documents, for example, the works listed in The Universal Library which can be accessed through the Experimental Search System (ESS) of the Library of Congress.

8.1. Library Catalogs

Two catalogs, those of The British Library and the Library of Congress, are impressive bibliographic tools, freely available to all Internet users. They include many documents published in non-English languages.

In May 1997, The British Library launched OPAC 97, which provides free access via the World Wide Web to the catalogs of the major British Library collections in London and Boston Spa. For a wider range of databases and many additional facilities, the British Library offers Blaise, an on-line bibliographic information service (which you must pay for), and Inside, article title records from 20,000 journals and 16,000 conferences. As explained on the website:

"The Library's services are based on its outstanding collections, developed over 250 years, of over one hundred and fifty million items representing every age of written civilisation, every written language and every aspect of human thought. At present individual collections have their own separate catalogues, often built up around specific subject areas. Many of the Library's plans for its collections, and for meeting its users' needs, require the development of a single catalogue database. This is being pursued in the Library's Corporate Bibliographic Programme which seeks to address this issue."

The reference collections represented on OPAC 97 comprise:

a) Modern books and periodicals from Britain and overseas;

b) Humanities and Social Sciences collection (from 1975), which include: humanities and social sciences information; popular science and psychology holdings; modern oriental holdings; rich resources relating to Africa; Hispanic materials relating to Spain, Portugal, Portuguese North Africa and Latin America; one of Europe's largest collection relating to Slavonic, East European and Soviet studies;

c) Science, Technology and Business collection (from 1975);

d) Music collection (1980-), one of the world's finest collections of printed music;

e) Older books and periodicals from Britain and overseas;

f) Older reference material collection (to 1975 only), incomparable holdings of early printing from Britain and overseas Western and Oriental materials from the beginning of writing, including: archives and materials assembled by the former India Office; rich resources relating to Africa; Hispanic materials relating to Spain, Portugal, Portuguese North Africa and Latin America (one of Europe's largest collections relating to Slavonic, East European and Soviet studies); historical resources for scientific, technological and business information; and musical works.

The Document Supply collections represented on OPAC 97 are comprised of:

a) Books and reports collection (from 1980), which covers millions of British and overseas books, reports and UK theses;

b) Journals/Serials collection (from 1700), including half a million British and overseas periodicals (journals and serials);

c) Conference collection (from 1800), which is the world's largest collection of conference proceedings.

Parts of the current systems are now 20 years old. The basic design of the systems is no longer in line with current business needs and the fact that the British Library's software is out of date is often a hindrance, particularly as concerns cooperation with other organizations. The British Library has therefore decided to replace these systems, and the Corporate Bibliographic Programme is charged with implementing this decision.

The key objectives of the Programme, as summarized on their website, are:

"- To ensure the continuation of essential processes and services, i.e. creating, maintaining and providing access to catalogue data;

- to make these processes and services more efficient and effective; and

- to provide a basis for future developments which will support the Library's strategic objectives and be in line with the Library's information systems strategy."

The Library of Congress Catalogs can be searched using four different methods: a) Word Search; b) Browse Search; c) Command Search; and d) Experimental Search System (ESS).

a) The Word Search's Z39.50 Gateway provides a simple search form for authors and title queries and an advanced search form allowing the use of Boolean operators (and, or, and not), with searches for subjects, names, titles, series, notes, and various numbers. Some of these records have direct links to digitized materials.

b) The Browse Search allows the user to browse and then select from alphabetical indexes for the Library's catalogs, including subject cross references. One can browse by subject, author (personal, corporate), conference, title, series, Library of Congress Classification (partial call number), Dewey Decimal Number, and standard numbers like the ISBN (international standard book number), the ISSN (international standard serial number), and the LCCN (Library of Congress control number).

c) The Command Search allows the use of commands which can be typed to search for words and to browse indexes for the Library's catalogs, and for additional non-catalog files. This method provides access to LOCIS (the Library of Congress Information System, which is the original mainframe-based retrieval system), with browsable indexes, word searches, Boolean combinations, various display options, set creation, and advanced features for limiting and refining search results. This method requires the Internet Telnet function (either

Telnet or tn3270) in order to connect to LOCIS. The Telnet capability comes with most WWW browsers, but must be configured.

d) The Experimental Search System (ESS), currently located in the LC Web research and development area, supports relevancy-ranked searching of catalog records, as well as sorting and e-mailing search results. Special search features include analyzing results by subject heading and "browsing" the shelf for items with similar LC call numbers. Some of these records have direct links to digitized materials, including selected full-text, image, video and audio files, at the Library of Congress and elsewhere. This is a test system and results may not be all inclusive.

The catalog records relate to books (9,543,910 as of December 10, 1998), maps (171,756), serials (825,664), prints and photographs (68,135), manuscripts (10,698), music (209,142), visual materials (278,771) and software (6,318). As explained on the website:

"The Experimental Search System (ESS) is one of the Library of Congress' first efforts to make selected cataloging and digital library resources available over the World Wide Web by means of a single, point-and-click interface. The interface consists of several search query pages (Basic, Advanced, Number, and a Browse screen) and several search results pages (an item list of brief displays and an item full display), together with brief help files which link directly from significant words on those pages. By exploiting the powerful synergies of hyperlinking and a relevancy-ranked search engine (InQuery from Sovereign Hill Software), we hope the ESS will provide a new and more intuitive way of searching the traditional OPAC (on-line public access catalog). [...]

Besides the cataloging records for over 4 million books (including JACKPHY records not currently available through SCORPIO); 263,000 motion pictures, videos, filmstrips and other visual work; 200,000 sound recordings and musical scores; more than 150,000 maps; and 4,300 computer files - i.e., LC cataloging records created since 1968 - ESS also contains the cataloging for almost 140,000 photographs and manuscripts in the National Digital Library Program's American Memory, linking to more than 70,000 digital photographs and images available on-line. By indexing the works selected and organized by The On-Line Books Page at Carnegie Mellon University, links are also provided to the full-text of over 2,500 on-line books from sites across the Internet. Even early motion pictures are available for searching and viewing once the proper viewer is installed. (Hint: try searching on the subject heading 'shorts' in the Photographs, Manuscripts, Movies collection.)"

Except for their prohibitive costs, the commercial databases give us an idea of what the catalogs could be in the future: for the past several years the Dialog Corporation, Lexis-Nexis or UnCover have been using their catalogs to provide on-line documents.

Based in London, United Kingdom, with regional headquarters in Mountain View, California, and Hong Kong, the Dialog Corporation is a major on-line information company, with 900 main databases (the most well-known being Dialog and Profound) serving over 20,000 corporate clients in 120 countries. Content areas include: news and media; medicine; pharmaceuticals; chemicals; reference; social sciences; business and finance; food and agriculture; intellectual property; government and regulations; science and technology; and energy and environment.

LEXIS-NEXIS is an international provider of enhanced information services and management tools using on-line, Internet, CD-ROM and hardcopy formats for a variety of professionals. It serves customers in more than 60 countries. The 25-year old company has introduced Web products for business, legal and academic research, current awareness, and both standard and customizable tracking of competitive and business subjects and companies on a daily basis.

A service of CARL Corporation, UnCover is both a fax reprint service and the world's largest database of

magazine and journal articles, with current article information taken from well over 17,000 multidisciplinary journals. UnCover contains brief descriptive information for over 7,000,000 articles which have appeared since Fall 1988. Any Internet surfer can use the free keyword access to article titles and summaries.

8.2. International Bibliographic Databases

Two organizations, the OCLC Online Computer Library Center and the Research Library Information Network (RLIN), run international databases of bibliographic information through the Internet.

The OCLC Online Computer Library Center is a nonprofit, membership, library computer service and research organization dedicated to the public purposes of furthering access to the world's information and reducing information costs. More than 27,000 libraries in 65 countries use OCLC services to manage their collections and to provide on-line reference services. The site is available in English, Chinese, French, German, Portuguese, and Spanish.

OCLC Services include: access services; collections and technical services; reference services; resource sharing; Dewey Decimal Classification (published in OCLC Forest Press); and preservation resources. From its headquarters in Dublin, Ohio, OCLC operates one of the world's largest library information networks. Libraries in the United States join OCLC through their OCLC-affiliated Regional Networks. Libraries outside the United States receive OCLC services through OCLC Asia Pacific, OCLC Canada, OCLC Europe, OCLC Latin America and the Caribbean, or via international distributors.

OCLC also runs WorldCat, name of the OCLC Online Union Catalog, which is a merged electronic catalog of libraries around the world, and probably the world's largest bibliographic database with its 38 million records (at the beginning of 1998) in 400 languages (with transliteration for non-Roman languages), and an annual increase of 2 million bibliographic records.

WorldCat is derived from a concept which is the same for all union catalogs: earn time to avoid the cataloguing of the same document by many catalogers worldwide. When they are about to catalog a publication, the catalogers of the member libraries search the OCLC catalog. If they find the corresponding record, they copy it in their own catalog and add some local information. If they don't find the record, they create it in the OCLC catalog, and this new record will immediately be available to all the catalogers of the member libraries worldwide.

Unlike RLIN, another international bibliographic database (see below) which accepts several records for the same document, the OCLC Online Union Catalog takes into consideration only one record per document, and emphatically requests its members not to create double records for documents which have already been cataloged. The records are created in USMARC format (MARC: machine readable catalog) according to the Anglo-American Cataloguing Rules, 2nd version (AACR2).

What is the history of OCLC? According to the website:

"In 1967, the presidents of the colleges and universities in the state of Ohio founded the Ohio College Library Center (OCLC) to develop a computerized system in which the libraries of Ohio academic institutions could share resources and reduce costs.

OCLC's first offices were in the Main Library on the campus of the Ohio State University (OSU), and its first computer room was housed in the OSU Research Center. It was from these academic roots that Frederick G. Kilgour, OCLC's first president, oversaw the growth of OCLC from a regional computer system for 54 Ohio colleges into an international network. In 1977, the Ohio members of OCLC adopted changes in the governance structure that enabled libraries outside Ohio to become members and participate in the election of the Board of Trustees; the Ohio College Library Center became OCLC, Inc. In 1981, the legal name of the

corporation became OCLC Online Computer Library Center, Inc. Today, OCLC serves more than 27,000 libraries of all types in the U.S. and 64 other countries and territories."

Both complementary and different from the OCLC Online Catalog (WordCat) with its 38 million records (with one record per document), the Research Libraries Information Network (RLIN) includes 88 million records (with several records per document).

RLIN is run by by the Research Libraries Group (RLG). The central RLIN database is a union catalog of nearly 88 million items held in comprehensive research libraries and special libraries in RLG member institutions, plus over 100 additional law, technical, and corporate libraries using RLIN. It includes:

a) Records that describe works cataloged by the Library of Congress, the National Library of Medicine, the U.S. Government Printing Office, CONSER (Conversion of Serials Project), The British Library, the British National Bibliography, the National Union Catalog of Manuscript Collections, and RLG's members and users;

b) Comprehensive representation of books cataloged since 1968 and rapidly expanding coverage for older materials;

c) Information about non-book materials ranging from musical scores, films, videos, serials, maps, and recordings, to archival collections and machine-readable data files;

d) Unique on-line access to special resources, such as the United Nations' DOCFILE and CATFILE records, and the Rigler and Deutsch Index to pre-1950 commercial sound recordings; and

e) International book vendors' in-process records that can be transferred by bibliographers, acquisitions libraries, and catalogers to create citations, order records, and cataloging in their local systems.

In RLIN, particularly valuable sources of processing information are available on-line:

a) A catalog of computer files: Machine-readable data files are of value to a growing number of disciplines. RLIN contains records describing a wide array of such files, from the full-text French literary works in the ARTFL Database to the statistical data collected by the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan;

b) A catalog of archives and special collections: The archival and manuscript collections of research libraries, museums, state archives, and historical societies contain essential primary resources, but information about their contents has often been elusive. Archivists and curators worked with RLG to create an automated format for these collections. There are close to 500,000 records available in RLIN for archival collections located throughout North America. These records analyze many collections by personal name, organization, subject, and format.

Complementing the central bibliographic files of RLIN is the English Short Title Catalogue (ESTC), an invaluable research tool for scholars in English culture, language, and literature. This file provides extensive descriptions and holdings information for letterpress materials printed in Great Britain or any of its dependencies in any language, from the beginnings of print to 1800 - as well as for materials printed in English anywhere else in the world. Produced by the ESTC editorial offices at the University of California, Riverside, and the British Library, in partnership with the American Antiquarian Society and over 1,600 libraries worldwide, the file continues to be updated and expanded daily. ESTC serves as a comprehensive bibliography of the hand-press era and as a census of surviving copies.

ESTC included 420,000 records as of June 1998. It contains records for items of all types published in Great Britain and its dependencies or in English anywhere in the world from the beginnings of print (1473) through

the 18th century - including materials ranging from Shakespeare and Greek New Testaments to anonymous ballads, broadsides, songs, advertisements and other ephemera. Extensive indexing includes imprint word, place, genre, and year as well as copy-specific notes. Searches may also be limited by date, language and country of publication.

8.3. Future Trends for On-Line Catalogs

The future of catalogs is linked to the harmonization of the MARC format. While MARC is an acronym for Machine Readable Catalogue or Cataloguing, this general description is rather misleading as MARC is neither a kind of catalogue nor a method of cataloguing. According to UNIMARC: An Introduction, a document of the Universal Bibliographic Control and International MARC Core Programme, MARC is "a short and convenient term for assigning labels to each part of a catalogue record so that it can be handled by computers. While the MARC format was primarily designed to serve the needs of libraries, the concept has since been embraced by the wider information community as a convenient way of storing and exchanging bibliographic data."

MARC II established certain principles which have been followed consistently over the years. In general terms, the MARC communication format is intended to be:

"- hospitable to all kinds of library materials;

- sufficiently flexible for a variety of applications in addition to catalogue production; and

- usable in a range of automated systems."

Over the years, however, despite cooperation efforts, several versions of MARC emerged, e.g. UKMARC, INTERMARC and USMARC, whose paths diverged because of different national cataloguing practices and requirements. Since the early 1970s an extended family of more than 20 MARC formats has evolved. Differences in data content means that editing is required before records can be exchanged.

One solution to the problem of incompatibility was to create an international MARC format (UNIMARC) which would accept records created in any MARC format. Records in one MARC format could be converted into UNIMARC and then be converted into another MARC format, so that each national agency would need to write only two programs - one to convert into UNIMARC and one to convert from UNIMARC - instead of one program for each other MARC format, (e.g. INTERMARC to UKMARC, USMARC to UKMARC etc.).

In 1977 the International Federation of Library Associations and Institutes (IFLA) published UNIMARC: Universal MARC format, followed by a second edition in 1980 and a UNIMARC Handbook in 1983, all focussed primarily on the cataloguing of monographs and serials, and taking advantage of international progress towards the standardization of bibliographic information reflected in the ISBDs (international standard bibliographic descriptions). In the mid-1980s it was considered necessary to expand UNIMARC to cover documents other than monographs and serials, so a new description of the format - the UNIMARC Manual -was produced in 1987. By this time UNIMARC had been adopted by several bibliographic agencies as their in-house format. But developments did not stop there. Increasingly, a new kind of format - an authorities format - was being used. As described in the website:

"Previously agencies had entered an author's name into the bibliographic format as many times as there were documents associated with him or her. With the new system they created a single authoritative form of the name (with references) in the authorities file; the record control number for this name was the only item included in the bibliographic file. The user would still see the name in the bibliographic record, however, as the computer could import it from the authorities file at a convenient time. So in 1991 UNIMARC/Authorities was published."

The Permanent UNIMARC Committee, charged with regularly supervising the development of the format, came into being that year, as users realized that continuous maintenance - not just the occasional rewriting of manuals - was needed. In maintaining the format, care is taken to make changes upwardly compatible.

In the context of MARC harmonization, The British Library (using UKMARC), the Library of Congress (using USMARC) and the National Library of Canada (using CAN/MARC) are in the process of harmonizing their national MARC formats. A three-year program to achieve a common MARC format was agreed on by the three libraries in December 1995.

Other organizations recommend the use of SGML (standard generalized markup language) as a common format for the bibliographic records and the corresponding hypertextual and multimedia documents.

As most of the publishers use the SGML format to store their documents, a convergence between MARC and SGML is expected to occur. The Library of Congress set up the DTD (definition of type of document, which defines its logical structure) for the USMARC format, because it will probably sell more and more data both in SGML and in USMARC. A DTD for the UNIMARC format has also been developed within the European Union. In his study L'accès aux catalogues des bibliothèques par Internet (The Access to Library Catalogs through the Internet), Thierry Samain specifies that some libraries choose the SGML format to encode their bibliographic data. In the Belgian Union Catalog, for example, the use of SGML allows one first to add descriptive elements stemming from the MARC format and other formats, and second to facilitate the production of the annual CD-ROM.

The libraries also have to adapt their thesauri and their key-word lists. In international bibliographic databases like the OCLC Online Union Catalog, the absence of a universal thesaurus is a real problem when you try to find documents using the search by subjects. In Europe, each country uses thesauri or key-word lists in its own language, whereas multilingual thesauri would be essential.

Another problem is the harmonization of software. From January to December 1997, ONE (OPAC Network in Europe) was a collaborative project involving 15 organizations in eight European countries. This project provided library users with better ways to access library OPACs (online public access catalogs) and national catalogs, and stimulated and facilitated interworking between libraries in Europe.

Because of international rules, catalog records are often much more difficult to establish today than in the past. That is why nowadays libraries often hire full-time catalogers. Because of the knowledge and the training it requires, cataloging has become a specialty in librarianship.

In a few years, catalogs on the Web will no longer be "only" a collection of records, which is often a prelude to a difficult time finding the document itself - because of the forms to fill out and the difficulties of interlibrary loans. Catalogs on the Web will give instant access to the documents on the screen. This is already true in an experimental way for a few thousands documents, but has to be progressively widened to all catalogs.

9. PERSPECTIVES

[In this chapter:]

[9.1. Print Media and the Internet / 9.2. Intellectual Property / 9.3. Multimedia Convergence / 9.4. The Information Society]

9.1. Print Media and the Internet

As shown all throughout this study, the Internet is opening new perspectives in all the sectors of the print

media.

In any field (literature, sciences, technology, etc.), authors can create a website to post their works - they no longer need to wait for a publisher to distribute them. And, thanks to e-mail, communication with their readers has become much easier.

On-line booksellers are able not only to sell books published in their own country, but also sell foreign books or sell abroad, or both. The readers can read on their screen excerpts or full texts of books. Many on-line bookstores offer an extensive literary magazine with an editorial content which changes every day.

The dream of catalog managers to be able to give access to a document through its bibliographic record is no longer totally utopian. It is already the case for a few thousand works belonging to public domain. Organizations are also studying the possibility of posting commercial documents on the Web, in return for a royalty tax corresponding to the copyright rights, which could be paid by credit card.

Libraries have a new tool for letting the public know their collections better, and for developing projects for real or potential users. The Internet is also a gigantic encyclopedia, easily available for consultation by the libraries' staff and readers.

Many newspapers and magazines' latest issues are available on-line, as well as "dossiers" on current events and archives equipped with a search engine to find information from previous issues. We are also witnessing the first steps of an on-line press which would be different from the paper version and would have its own criteria. Some publishers of specialized periodicals, as well as academic and research works, are thinking about becoming "only" electronic to escape the paper publishing crisis, or making only small print runs when necessary.

Besides this gigantic and lively encyclopedia, the people working in these different fields can increase exchanges thanks to electronic mail and discussion forums. For once, a (relatively) cheap new tool permits people to communicate quickly and worldwide with no concern for time and boundaries.

The disruption of the print media by the Internet has led to new perspectives for intellectual property and regulations about cyberspace. The so-called "multimedia convergence" has led to major changes in jobs. We are living the first years of the information society. Will this society provide any changes for the better?

9.2. Intellectual Property

The massive arrival of electronic texts on the Web is a real problem for applying the rules relating to intellectual property. Digital libraries, for example, would like to post commercial documents but can't do so yet, until there is a system allowing the surfer to pay the equivalent royalties. With a few clicks, any text or article posted on the Internet can be very easily retrieved and copied - much more easily than by photocopying - without its author being paid for the use of his text. And what about all the hyperlinks giving access to all kinds of documents from one website?

The World Intellectual Property Organization (WIPO), an intergovernmental organization which is one of the 16 specialized agencies of the United Nations System of Organizations, says on its website:

"As regards the number of literary and artistic works created worldwide, it is difficult to make a precise estimate. However, the information available indicates that at present around 1,000,000 books/titles are published and some 5,000 feature films are produced in a year, and the number of copies of phonograms sold per year presently is more than 3,000 million."

WIPO is responsible for the promotion of the protection of intellectual property throughout the world through

cooperation among States, and for the administration of various multilateral treaties dealing with the legal and administrative aspects of intellectual property. Intellectual property comprises two main branches: (1) industrial property, chiefly in inventions, trademarks, industrial designs, and appellations of origin; and (2) copyright, chiefly in literary, musical, artistic, photographic and audiovisual works.

Copyright protection generally means that certain uses of the work are lawful only if they are done with the authorization of the owner of the copyright. As explained by WIPO in International Protection of Copyright and Neighboring Rights, the most typical are the following:

"the right to copy or otherwise reproduce any kind of work; the right to distribute copies to the public; the right to rent copies of at least certain categories of works (such as computer programs and audiovisual works); the right to make sound recordings of the performances of literary and musical works; the right to perform in public, particularly musical, dramatic or audiovisual works; the right to communicate to the public by cable or otherwise the performances of such works and, particularly, to broadcast, by radio, television or other wireless means, any kind of work; the right to translate literary works; the right to rent, particularly, audiovisual works, works embodied in phonograms and computer programs; the right to adapt any kind of work and particularly the right to make audiovisual works thereof."

Under some national laws, some of these rights - which together are referred to as 'economic rights' - are not exclusive rights of authorization but, in certain specific cases, merely rights to remuneration. In addition to economic rights, authors (whether or not they own the economic rights) enjoy 'moral rights' on the basis of which authors have the right to claim their authorship and require that their names be indicated on the copies of the work and in connection with other uses thereof, and they have the right to oppose the mutilation or deformation of their works.

Started in July 1993, the International Trade Law (ITL) Monitor was one of the very first law-related WWW sites, and the first dedicated to a particular area of law. The site is run by Ralph Amissah, and hosted by the Law Faculty of the University of Tromso, Norway. The section relating to Protection of Intellectual Property gives access to various documents, including the European Commission Legal Advisory Board (LAB): Intellectual Property.

Until the payment of royalties for copyright is possible on the Web, digital libraries focus on 19th-century texts, or older texts, which belong to public domain. In many countries, a text enters the public domain 50 years after his author's death.

In Clearing an Etext for Copyright, Michael Hart gives Project Gutenberg's volunteers some rules of thumb for them to determine when works enter the public domain. For the United States:

a) Works first published before January 1, 1978 usually enter the public domain 75 years from the date copyright was first secured, which is usually 75 years from the date of first publication. (This is the rule Project Gutenberg uses most often).

b) Works first created on or after January 1, 1978 enter the public domain 50 years after the death of the author if the author is a natural person. (Nothing will enter the public domain under this rule until at least January 1, 2023.)

c) Works first created on or after January 1, 1978 which are created by a corporate author enter the public domain 75 years after publication or 100 years after creation whichever occurs first. (Nothing will enter the public domain under this rule until at least January 1, 2053).

d) Works created before January 1, 1978 but not published before that date are copyrighted under rules 2 and 3 above, except that in no case will the copyright on a work not published prior to January 1, 1978 expire

before December 31, 2002. (This rule copyrights a lot of manuscripts that we would otherwise think of as public domain because of their age.).

e) If a substantial number of copies were printed and distributed in the U.S. without a copyright notice prior to March 1, 1989, the work is in the public domain in the U.S."

When Project Gutenberg distributes in the United States, U.S. law applies. When it distributes to other countries, local law applies.

Project Gutenberg and The On-Line Books Page, among others, are concerned with the new Copyright Extension. On October 28, 1998, John Mark Ockerbloom wrote in the News of The On-Line Books Page:

"The copyright extension bill mentioned in the October 9 news item is now law, having been signed by President Clinton on October 27. This will prevent books published in 1923 and later that are not already in the public domain from entering the public domain in the United States for at least 20 years.

I have started a page to provide access to copyright renewal records, which eventually should make it easier to find books published after 1922 that have entered the public domain due to nonrenewal. I welcome contributions of additional records, in page image, text, or HTML format.

Although the bill has become law, I would encourage readers to speak loudly in support of the public domain. Congressional testimony indicates that some in the entertainment industry favor even longer copyright periods, effectively preventing anything further from ever entering the public domain. Your voice is needed to help stop this from happening."

Journalists, too, are particularly concerned by this problem of intellectual property rights. During the ILO Symposium on Multimedia Convergence held in January 1997, Bernie Lunzer, Secretary-Treasurer of the Newspaper Guild, United States, stated:

"There is a huge battle over intellectual property rights, especially with freelancers, but also with our members who work under collective bargaining agreements. The freelance agreements that writers are asked to sign are shocking. Bear in mind that freelance writers are paid very little. They turn over all their future rights - reuse rights - to the publisher and very little in exchange. Publishers are fighting for control and ownership of product, because they are seeing the future."

Another participant to this Symposium, Heinz-Uwe Rübenach, of the Federal Association of German Newspaper Publishers (Bundesverband Deutscher Zeitungsverleger), said:

"Copyright is one of the keys to the future information society. If a publishing house which offers the journalist work, even on an on-line service, is not able to manage and control the use of the resulting product, then it will not be possible to finance further investments in the necessary technology. Without that financing, the future becomes less positive and jobs can suffer. If, however, publishers see that they are able to make multiple use of their investment, then obviously this is beneficial for all. Otherwise the costs associated with on-line services would increase considerably. As far as the European market is concerned, this would only increase competitive pressures, since United States publishers do not have to pay for multiple uses."

DOI: The Digital Object Identifier System is an identification system for intellectual property in the digital environment. Developed by the DOI Foundation on behalf of the publishing industry, its goals are to provide a framework for managing intellectual content, link customers with publishers, facilitate electronic commerce, and enable automated copyright management.

The Introduction to the Digital Object Identifier specifies:

"The Internet represents a totally new environment for commerce. As such, it requires new enabling technologies to protect both customer and publisher. Systems will have to be developed to authenticate content to insure that what the customer is requesting is what is being delivered. At the same time, the creator of the information must be sure that the copyright in the content is respected and protected.

In considering the new systems required, international book and journal publishers realized that a first step would be the development of a new identification system to be used for all digital content. This Digital Object Identifier (DOI) system not only provides a unique identification for that content, but also a way to link users of the materials to the rights holders themselves to facilitate automated digital commerce in the new digital environment.

Developed and tested over the last year, the DOI system is now being used by more than a dozen U.S. and European publishers in a pilot program that has been running since July. Participation in Phase Two of the Prototype was extended to all publishers at the Frankfurt Book Fair in October 1997."

Penny Pagano, a former Washington correspondent for the Los Angeles Times, is a Washington, D.C.-based freelance writer. In Intellectual Property Rights and the World Wide Web, an article published in AJR/NewsLink, she wrote: "Today, those who create information and those who publish, distribute and repackage it are finding themselves at odds with each other over the control of electronic rights."

Among many comments mentioned by Penny Pagano is the one of Dan Carlinksy, writer and vice president of the American Society of Journalists and Authors, in New York.

"'The electronic explosion has changed the entire nature of the business,' Carlinsky says. In the past, articles sold to a periodical essentially 'turned into a pumpkin with no value' once they were published. 'But the electronic revolution has extended the shelf life of content of periodicals. You can now take individual articles and put them into a virtual bookstore or put them on a virtual newsstand.'

The second major change in recent years, he says, is 'an increasing trend to more and more publications being owned by fewer larger and larger companies that tend to be international media conglomerates. They are connected corporately with an enormous array of enterprises that might be interested in secondary use of materials'."

To get secondary rights, "the National Writers Union has created a new agency called the Publication Rights Clearinghouse (PRC). Based on the music industry's ASCAP [American Society of Composers, Authors, and Publishers], PRC will track individual transactions and pay out royalties to writers for secondary rights for previously used articles. For $20, freelance writers who have secondary rights to previously published articles can enroll in PRC. These articles become part of a PRC file that is licensed to database companies." Several companies participate, including UnCover, both a fax reprint service and the world's largest database of magazine and journal articles.

9.3. Multimedia Convergence

Because of computerization and communication technologies, previously distinct information-based industries, such as printing and publishing, graphic design, the media, sound recording and film-making, are converging into one industry. Information is their common product.

Wilfred Kiboro, Managing Director and Chief Executive of Nation Printers and Publishers Ltd, Kenya, made the following comments during the ILO Symposium on Multimedia Convergence held in January 1997:

"In content creation in the multimedia environment, it is very difficult to know who the journalist is, who the editor is, and who the technologist is that will bring it all together. At what point will telecom workers become

involved as well as the people in television and other entities that come to create new products? Traditionally in the print media, for instance, we had printers, journalists, sales and marketing staff and so on, but now all of them are working on one floor from one desk."

Journalists and editors working on-screen could go directly from text to page make-up, which eliminated the need for rekeying and shifted preliminary typesetting functions from the production to the editorial staff. In book publishing, digitization has speeded up the editorial process, which used to be sequential, by allowing the copy editor, the art editor and the layout staff to work at the same time on the same book.

Employers try to convince us that the use of new information and communication technologies will create new jobs, whereas unions are sure of the contrary.

Heinz-Uwe Rübenach, of the Federal Association of German Newspaper Publishers (Bundesverband Deutscher Zeitungsverleger), carried out an inquiry relating to the on-line services and the staff of European newspaper publishers.

"The responses revealed that in the United Kingdom, Denmark, Sweden, Finland and France there were on average three employees, that is journalists, in each on-line service. These were newly employed people who had not originally come from more conventional newspaper activities. In Germany, an average of six permanent jobs are created per on-line service and roughly five freelance positions as well. There were no jobs lost in publishing houses as a result of the new activities of newspapers in on-line services. These figures, while not totally representative or complete, do indicate a general trend, which is that when newspapers add on-line services to their activities, jobs are created."

However it is difficult to admit that the information society would generate jobs, and it is already stated worldwide that multimedia convergence leads to massive loss of jobs. In the same Symposium, Michel Muller, Secretary-General of the French Federation of Book, Paper and Communication Industry (Fédération des industries du livre, du papier et de la communication), stated that, in France, the graphics industry had lost 20,000 jobs - falling from 110,000 to 90,000 - within the last decade, and that very expensive social plans had been necessary to re-employ those people. He explained:

"If the technological developments really created new jobs, as had been suggested, then it might have been better to invest the money in reliable studies about what jobs were being created and which ones were being lost, rather than in social plans which often created artificial jobs. These studies should highlight the new skills and qualifications in demand as the technological convergence process broke down the barriers between the printing industry, journalism and other vehicles of information. Another problem caused by convergence was the trend towards ownership concentration. A few big groups controlled not only the bulk of the print media, but a wide range of other media, and thus posed a threat to pluralism in expression. Various tax advantages enjoyed by the press today should be re-examined and adapted to the new realities facing the press and multimedia enterprises. Managing all the social and societal issues raised by new technologies required widespread agreement and consensus. Collective agreements were vital, since neither individual negotiations nor the market alone could sufficiently settle these matters."

Quite theoretical compared to the unionists' interventions, the answer of Walter Durling, Director of AT&T Global Information Solutions, was that humanity must not fear technology:

"Technology would not change the core of human relations. More sophisticated means of communicating, new mechanisms for negotiating, and new types of conflicts would all arise, but the relationships between workers and employers themselves would continue to be the same. When film was invented, people had been afraid that it could bring theatre to an end. That has not happened. When television was developed, people had feared that it would do away cinemas, but it had not. One should not be afraid of the future. Fear of the future should not lead us to stifle creativity with regulations. Creativity was needed to generate new employment.

The spirit of enterprise had to be reinforced with the new technology in order to create jobs for those who had been displaced. Problems should not be anticipated, but tackled when they arose."

Is it true? People are not so much afraid of the future as they are afraid of losing their jobs. The problem is more the context of a society with a high rate of unemployment, which was not the case when film was invented and television developed. In the information society, what is, and what will be, the percentage of job creations compared to dismissals?

Unions fight worldwide for job creations through investment and innovation, vocational training in the use of new technologies, retraining of workers whose jobs are abolished, fair conditions for the setting-up of contracts and collective conventions, the defense of copyright, a better protection of workers in the artistic field, and the defense of teleworkers as full workers. According to the estimates of the European Commission, there should be 10 million European teleworkers in the year 2000, which would represent 20% of the number of teleworkers worldwide.

Despite all the unions' efforts, will the situation become as tragic as the one described in a report of the International Labour Organization (ILO) suggesting that "in the information age individuals will be 'forced to struggle for survival in an electronic jungle' with 'survival mechanisms' which have been developed over previous decades 's orely tested by change'..."?

In Cyberplanète: notre vie en temps virtuel (Cyberplanet: our life in virtual time) (Paris, Editions Autrement, 1998), Philip Wade et Didier Falkand stated that the United States, Canada and Japan, which are the countries investing the most in new technologies, are also the ones that create the most jobs. A study carried out in February 1997 by Booz.Allen & Hamilton for European Ministers of Industry showed that the European delay has cost one million jobs in 1995 and 1996, because of a technological growth of 2.4% (compared to 9.3% in the United States). According to another study made in January 1997 for the European Commission, 1.3 million jobs could be maintained or created by the European Union between 1997 and 2005. The 300,000 jobs lost in traditional companies would be compensated by 93,000 jobs created by their competitors and 1.2 million jobs created in the sectors of telecommunications, electric and electronic construction, equipment, and distribution of communication products.

Will the traditional distinction between library, publishing house, press publisher or bookstore still exist in a few years? Any writer can create a website, and any website can already create a digital library. More and more libraries, bookstores and publishing houses have no walls, no windows and no shelves. Their premises are their websites, and all the transactions are made on the Web. As for distribution, it is still possible to buy newspapers and magazines at the newsstand or to receive them in the letterbox, but more and more people read them on the Web, and more and more periodicals are "only" electronic.

Will the traditional professional groups (booksellers, editors, librarians, publishers, journalists, etc.) established many years ago stay the same while being more cyberspace-oriented and become cyberlibrarians, cyberpublishers, cyberjournalists, cyberbooksellers, etc.? Or will all these professional tasks be restructured into new professions? With the explosion of the Internet, some information specialists and others decided to move over to companies specialized in computing and the Internet.

Even if information specialists or journalists, for example, convince us they will always be useful, on a general scale the employment trends for the future are far from exciting. Will all the people working in the print media be able to get training and retraining in new technologies, or will they be violently hit by unemployment?

9.4. The Information Society

Jean-Paul, a French musician and writer, wrote in his e-mail of June 21, 1998:

"[...] surfing on the Web operates in rays (I have a centre of interest and I methodically click on all the links included in home pages) or in hops and jumps (from one click to another, as they appear). Of course, it is possible with the print medium. But the difference is striking. So the Internet didn't change my life, but my writing. You don't write the same way for a site as for a script, a play, etc."

He also notes that all the Internet functionalities could already be found in the first Macintosh, which revolutionized the relationship between the user and the information.

"It is not the Internet which changed the way I write, it is the first Mac that I discovered through the self-learning of Hypercard. I still remember how astonished I was during the month when I was learning about buttons, links, surfing by analogies, objects or images. The idea that a simple click on one area of the screen allowed me to open a range of piles of cards, and each card could offer new buttons and each button opened on to a new range, etc. In brief, the learning of everything on the Web that today seems really banal, for me it was a revelation (it seems Steve Jobs and his team had the same shock when they discovered the ancestor of the Mac in the laboratories of Rank Xerox).

Since then I write directly on the screen: I use the print medium only occasionally, to fix up a text, or to give somebody who is allergic to the screen a kind of photograph, something instantaneous, something approximate. It's only an approximation, because print forces us to have a linear relationship: the text is developing page after page (most of the time), whereas the technique of links allows another relationship to the time and the space of the imagination. And, for me, it is above all the opportunity to put into practice this reading/writing 'cycle', whereas leafing through a book gives only an idea - which is vague because the book is not conceived for that."

A very important factor too is the radical change between the book culture and the digital culture. Moving from one to the other as we are doing now deeply changes our relationship to knowledge, because we move from stable information to moving information. During the September 1996 meeting of the International Federation of Information Processing, Dale Spender explained this phenomenon in a very interesting lecture about Creativity and the Computer Education Industry:

"Throughout print culture, information has been contained in books - and this has helped to shape our notion of information. For the information in books stays the same - it endures.

And this has encouraged us to think of information as stable - as a body of knowledge which can be acquired, taught, passed on, memorised, and tested of course.

The very nature of print itself has fostered a sense of truth; truth too is something which stays the same, which endures. And there is no doubt that this stability, this orderliness, has been a major contributor to the huge successes of the industrial age and the scientific revolution. [...]

But the digital revolution changes all this. Suddenly it is not the oldest information - the longest lasting information that is the most reliable and useful. It is the very latest information that we now put the most faith in - and which we will pay the most for. [...]

Education will be about participating in the production of the latest information. This is why education will have to be ongoing throughout life and work. Every day there will be something new that we will all have to learn. To keep up. To be in the know. To do our jobs. To be members of the digital community. And far from teaching a body of knowledge that will last for life, the new generation of information professionals will be required to search out, add to, critique, 'play with', and daily update information, and to make available the constant changes that are occurring."

The Internet will not do away with the print media, the cinema, the radio or the television. As a new

information and communication medium, it is creating its own space while adapting itself to the other media, and vice versa.

From my point of view, the greatest contribution of the Internet to the print media is that people no longer run after information, but that the information is there, available on their screen, and the quantity of this information is really impressive. While, in the beginning, connecting to the Internet was rather complicated for the average user, it has now become simple (for example, with the iMac). One improvement we are all waiting for, however, is a shorter connection time when accessing any website or individual pages we may wish to consult, especially those with many pictures. Let us hope that is coming soon.

But, once more, we have to remember that, as revolutionary as it can be, Internet is still only a means, as stated in Technorealism Overview: "Regardless of how advanced our computers become, we should never use them as a substitute for our own basic cognitive skills of awareness, perception, reasoning, and judgment."

10. INDEX OF WEBSITES

ABU: la bibliothèque universelle (ABU: Association des bibliophiles universels)

AJR/NewsLink (AJR: American Journalism Review)

Amazon.com

American Memory

Athena

Barnesandnoble.com

Bertelsmann

Bielefeld University Library

BitBlioteca

Blackwell's Book Services

British Library

British Library Catalogue

Chaptersglobe.

com

Computer Industry Almamach (CIA)

Corbis

Dawson

Dialog

Digital Library Technology (DLT)

D-Lib Program

DOI: The Digital Object Identifier System

EDventure Holdings

E.Journal

Electronic Frontier Foundation (EFF)

English Short Title Catalogue (ESTC)

ETEXT Archives (The)

Everybook

E-Zine-List

Gabriel

Gallica

Gutenberg, see: Project Gutenberg

I*m Europe

Images 1

International Federation of Library Associations and Institutions (IFLA)

International Telecommunication Union (ITU)

International Trade Law (ITL) Monitor

Internet Bookshop (iBS)

Internet Public Library (IPL)

Japanese Text Initiative (The) (JTI)

LEXIS-NEXIS

Liber Liber

Libraries Programme / European Union

Library 2000

Library and Information Science Resources / Library of Congress

Library and Related Resources / University of Exeter

Library Journal Digital (LJDigital)

Library of Congress Catalog

Library of Congress Catalog / Experimental Search System (ESS)

Librius

LibWeb: Library Servers via WWW

Logos

Manuzio Project

Marx/Engels Internet Archive (The)

MediaFinder

Michigan Electronic Library (MEL)

MIT Press (MIT: Massachussets Institute of Technology)

National Academy Press (NAP)

New York Public Library Digital Collections

NewsWorks

Nuvomedia

OCLC Online Computer Library Center

On-Line Books Page (The)

OPAC Network in Europe (ONE)

OPAC 97 / British Library

Pathfinder

Paulus Swaen Old Maps and Prints

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Public Libraries of Europe

Public-Access Computer Systems (PACS) Review

Publishers' Catalogues

Publishing Companies Online

Research Libraries Group (RLG)

Research Libraries Information Network (RLIN)

Softbook Press

SPIRO (UC Berkeley Architecture/Slide Library Slide and Photograph Collection)

Stanford Universities Digital Libraries Project

SunSITE of the Berkeley Digital Library

Technorealism

UnCover

Universal Library

UNOG Library (UNOG: United Nations of Geneva)

Waterstone's

Wired

World Intellectual Property Organization (WIPO)

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An asterisk (*) indicates the persons who sent contributions especially for this study. My warmest thanks to all the contributors.

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Didier Falkand (writer)

Bruno Giussani (New York Times)

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Annie Kahn (Le Monde)

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