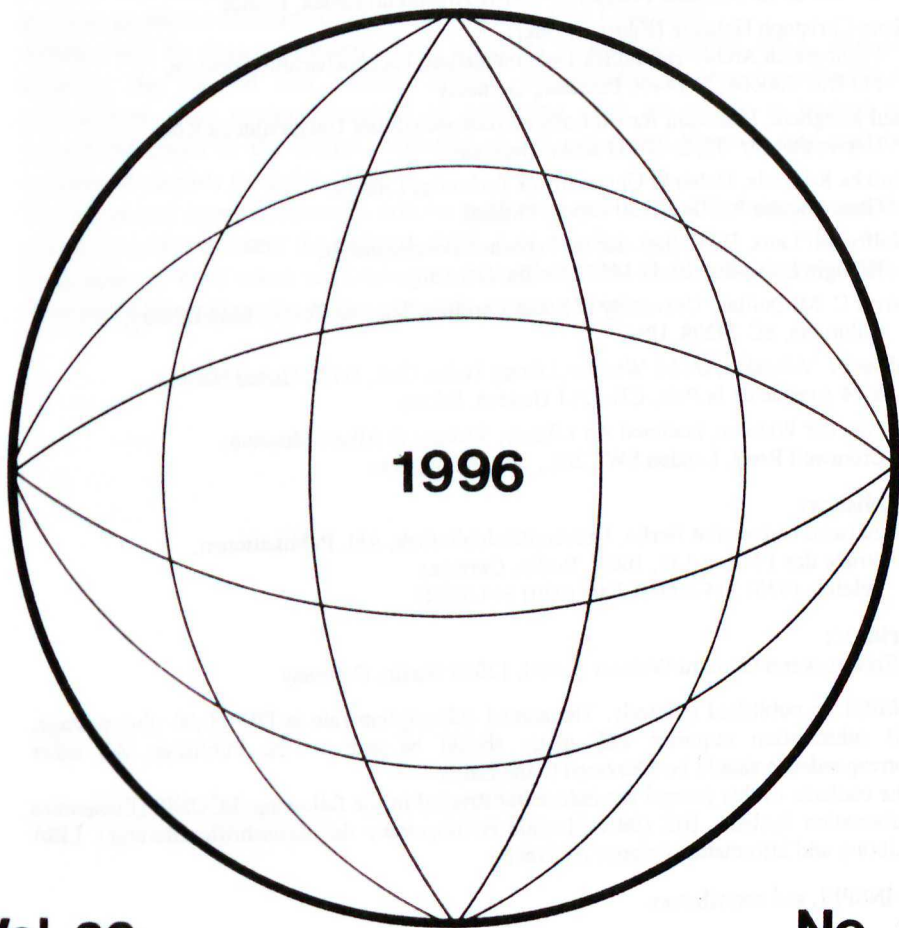


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Contents:

Editorial	5
Edward J. Valauskas: ✓ The Internet: Information for Government Libraries.	6
Judith R. Bernstein: The Internet: Information for Government Libraries Selected Sources in the Americas and Europe.	21
Hasan Işin Dener, Serhat Çakır, Aytaç Yildizeli, Tayfun Gülle, ✓ Hatice Kübra Bahşişoğlu, Nesrin İnce, Ayla Anadolu, Gülsema Aydemir, Neslihan Kocabay: The Use of Internet in Government Libraries: The Case of Turkey.	36
Repke de Vries: ✓ No time to WAIS, bringing local library friendliness to the Internet.	52
Pierre-Yves Duchemin: ✓ La numérisation des documents cartographiques: problèmes techniques et juridiques; L'expérience de la Bibliothèque nationale de France.	57
Nazli Alkan: ✓ Literature Searches in Medicine: A Comparative Evaluation of Manual and CD-ROM Search Modes.	71
András Riedlmayer: ✓ Libraries Are Not for Burning: International Librarianship and the Recovery of the Destroyed Heritage of Bosnia and Herzegovina.	82
Instructions to authors	95

Editorial

In the life of a journal there are prosperous and difficult moments. After a long fruitful period INSPEL was facing a hard time because Ekkehard Seusing had to leave as editor-in-chief for health reasons. Recognising the extraordinary work he has done for the journal the IFLA division of Special Libraries and the Editorial Board of INSPEL would like to express their gratitude and wish him all the best for the future.

It was not an easy task to find a successor for such an editor. By choosing the new chairman of the section on Social Science Libraries (a function which Ekkehard Seusing had also held in the past) we feel that we have found the right person. Hans-Christoph Hobohm, former marketing director of the German Social Science Information Centre, teaches library science at the Archive, Library, and Information School of Fachhochschule Potsdam near Berlin. His institution generously supports his work for INSPEL.

This issue is based on papers delivered at *the 61st IFLA General Conference held in Istanbul, August 20 - 25, 1995*. Some of the papers delivered in the workshops and open sessions of the division of Special Libraries were published in IFLA Journal and other places. The articles the reader will find here are the those initiated by members of the division for that conference and not published elsewhere. A focus of the selection was „Internet“ although obviously publishing on this topic in a printed medium is an anachronism in itself.

It should be considered that the papers mainly reflect the state of the art at the time of the conference as most of the authors were not able to update their texts due to reasons of the publishing process.

The Editorial Board

THE INTERNET: INFORMATION FOR GOVERNMENT LIBRARIES *

By Edward J. Valauskas

Abstract: Government agencies are utilizing the Internet as a means to promote tourism and economic development, provide diplomatic documents and foreign policies, describe legislative and bureaucratic activities, and make statistical, technical, and scientific results available. The Internet presents both citizens and their governments with a paradox: can a computing environment which transcends state boundaries actually improve day to day operations, reduce costs, and minimize red tape? Successful implementations of the Internet prove the value of Internet based services and information, in reaching larger audiences and making a bureaucracy more responsive with less expenditures.

What is Government?

Information is crucial to the operation of any government. Without the rapid flow of information between government agencies and citizens, government would cease to function. Indeed, the control, manipulation, and distribution of information defines government and its relationship to its public. If we accept the principle that "the legitimate object of government is to do for a community of people whatever they need to have done, but cannot do at all, or cannot, so well do, for themselves in their separate and individual capacities," then the Internet gives government agencies the opportunity to do more for its communities at less cost and with greater speed than ever before¹.

Why is information so important? Without information, communities served by their governments are ill-informed and unable to influence decision makers. Without information, government servants, elected officials, and bureaucrats risk making costly and even dangerous decisions. Without information, government becomes increasingly isolated and remote, distant from its communities. Information allows communities to work in concert with public officials and

* Paper submitted at the beginning of 1996 and presented at the 61st IFLA General Conference - August 20-25, 1995 - in Istanbul, Turkey.

¹ Abraham Lincoln. Speeches and Writings 1832-1858. New York, N.Y.: Library of America, 1989, p. 301.

elected representatives. As Thomas Jefferson wrote, "Enlighten the people and tyranny and oppressions of body and mind will vanish like evil spirits at the dawn of day ²." How does the Internet make government work more efficiently? Let's examine the Internet in general, and look at specific ways in which the Internet is helping local, regional, state, and national governments, as well as international organizations, carry out their missions.

What is the Internet?

The Internet is a vast global network of computers connected together by virtue of the cooperation of a number of national and international agencies, the acceptance of several communications and computing standards, and the efforts of millions of daily users. As of May, 1995, at least 93 countries were connected to the Internet, linking 50,766 separate networks together ³. A majority, or 56%, of the networks connected to the Internet are found in the United States. If you examine networking in the most thirty developed national states, you will find another 19,362 networks as part of the Internet. These thirty countries and the United States account for 94% of all of the networks included in the Internet ⁴. Nevertheless, the most rapid growth of the Internet has occurred outside of Europe, North America, and the Pacific Rim, in developing countries. As telecommunications improves, computing equipment and software becomes more affordable, Internet access expands into developing countries rapidly.

The 50,000 networks around the world that make up the Internet link, in turn, nearly 5,000,000 computers. If we accept one rule of measure that every computer on the Internet represents ten users, then some 50,000,000 individuals are members of the Internet community ⁵.

How does the Internet alter our definition of government?

The Internet barely recognizes national boundaries. To those looking for information on Internet servers, it doesn't matter if a document is on a computer

² Letter to P. S. Dupont de Nemours, dated April 24 1816, In: Thomas Jefferson. Writings. New York, N.Y.: Library of America, 1984, p. 1385.

³ From gopher://nic.merit.edu:7043/00/nsfnet/statistics/nets.by.country

⁴ These thirty countries and states include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, South Korea, Liechtenstein, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Puerto Rico, Spain, Sweden, Switzerland, Taiwan, Thailand, the United Kingdom, and the Virgin Islands.

⁵ According to Tony Rutkowski, Executive Director of the Internet Society and quoted in gopher://nic.merit.edu:7043/00/nsfnet/statistics/history.hosts

next door, in a neighboring city, or half way around the globe. The Internet dissolves traditional boundaries between entities known as countries, states, and cities. This network has been viewed with increasing alarm on two fronts piracy and privacy.

The nature of the Internet has been viewed by some as a threat to the economic well being of certain countries. The ease in which information can be transferred across national borders means, to some, a loss of intellectual property. Intellectual property in turn has become increasingly valuable in this digital age, on the order of the hundreds of billions of dollars per year in royalties and other fees⁶. It is not surprising that there is a major investment by many organizations in software and hardware solutions to protect electronic properties.

Privacy has also become a concern as more and more confidential information is transmitted digitally. Banking records, credit statements, electronic mail, and other online transactions have made the Internet the preferred pipeline for much personal information. Layers of secured communications lines, protected by firewalls composed of hardware and software, assure the security of these messages to all but the most dedicated and sophisticated programmers.

In spite of these concerns over privacy and piracy, does the Internet make the operation of government easier? If the true role of the government is both information acquisition and dissemination, then the Internet provides ample opportunities for government agencies to acquire information, edit and (re-) publish it, and finally distribute it to a global community.

Internet kinds of government information

The presence of government agencies on the Internet falls into several general categories. Government organizations use the Internet to promote a particular perspective with documents and files to attract investment and tourism while encouraging good will. In other cases, agencies view the Internet as another way to supply propaganda supporting a particular philosophy or world view. The Internet in turn gives agencies the most rapid means to respond diplomatically to a given event, by making available documents and supporting files for other states and their diplomatic corps that answer specific questions, reply to new situations, or fill a need. Histories are created by documents and other files made available

6. "The U. S. International Trade Commission estimates that U.S. companies stand to gain \$61 billion a year from the Third World if "intellectual property" rights are protected in accord with U.S. demands, a cost ... somewhere between \$100-300 billion when extrapolated to other industrial countries" Noam Chomsky, Year 501: The Conquest Continues. Boston, Mass.: South End Press, 1993, p. 115.

via different kinds of government bodies; access to historical records over the Internet allows for new interpretations and new histories to be created by researchers, without the necessity of examining records in situ.

Many departments and branches see the Internet as a vehicle to provide statutes and regulations. Politicians and their staffs have recognized the advantage of providing legislative information on the Internet, a means to keep their citizens informed and also a way of promoting themselves for future elections. For libraries, thanks to the wide acceptance of standards for data, a great deal of bibliographic information is available over the Internet from national and other governmental libraries. Given that the Internet was initially conceived as a way to exchange technical data, many agencies make technical data available on the Internet, targeting specific researchers economically with digital results. These results include much scientific information that under normal conditions would not appear in print, or appear in altered form long after experimentation has concluded. Let's examine a few sites as examples of each of these government applications of the Internet.

Promotional uses of the Internet

Thanks to the global reach of the Internet, government agencies can encourage tourism and promote economic development on scale unprecedented with more traditional media. For example, the city of Copenhagen is advertising, on the Internet, its selection as the twelfth cultural capital of Europe in 1996. A home page on the World Wide Web (<http://info.denet.dk/cph96/>) provides information on the city, a detailed program of events, and organizational notes. With some 100 million ECU for activities and 250 million ECU for development and rebuilding, a flurry of activities and projects will keep Copenhagen occupied. The Internet provides one way for the Danes, fellow Europeans, and the world to watch Copenhagen prepare for its role as the cultural capital. Projects are described on the Internet in music, the visual arts, theater, literature, film, and other areas.

For the state of Washington in the United States, the Public Information Clearinghouse provides a central Internet location for information from a large number of public agencies (<http://olympus.dis.wa.gov/www/wainfo.html>). Twenty two separate agencies, from the Governor, the chief executive of the state, to the State Library provide electronic resources for citizens of Washington and Internet users. Eight colleges and universities also provide data via the Clearinghouse. Nearly fifteen different local government groups give details about Seattle, Spokane, and other cities and counties on this server. The Seattle Chamber of

Commerce, for example, describes the Urban Enterprise Center and makes a directory available on local businesses. Another server will graphically describe traffic patterns on Seattle's expressways over the Internet, thanks to special sensors embedded in the highway. The same home page provides pointers to information on weather across the state, recent earthquakes, volcanoes, and other environmental data. Bicycling, sailing, and other forms of recreation and entertainment are also treated.

Thingvellir, Gullfoss, and Skaftafell are all features of Iceland's home page devoted to tourism (<http://www.primenet.com/~peetah/iceland/Tour-Main.html>). These natural features make Iceland a popular country for those interested in geysers, waterfalls, and unusual national parks [Figure 1]. Another portion of the home page discusses weather while another part provides a list of common and helpful phrases. Tourism brought over 175,000 visitors to Iceland in 1994, ready to watch puffins, hike over glaciers or former lava flows, fish for salmon or trout, travel on a raft down rivers, or take part in many other activities, described in this home page. Thanks to this form of advertising, Iceland expects its amount of tourism to grow by over 14% in 1995, with nearly a hundred visitors a day to its home page at several sites (on a server in the United States or on another server in Iceland (<http://rvik.ismennt.is/~gummihe/Islandia.html>)).

News

Another function for the Internet is as a outlet for press releases, packets of statistical reports and other data, and news. Hundreds of online newspapers provide information from cities and countries around the world via the Internet. Government agencies recognize the value of using the Internet as distribution point to journalists, citizens, and the merely curious.

Daily News from the Baltic Online gives four "editions" every weekday at 12:00, 15:00, 18:00, and 21:00 (<http://www.viabalt.ee/News/BNSday/index.html>). News is provided on anyone of the Baltic states, Lithuania, Latvia, or Estonia, and its neighbors. A typical issue may feature stories on the foreign ministry of one of the states, economic relations with European states, trade and exports, construction, or the budget. For many former citizens living abroad, relatives, and other interested parties, this electronic newspaper provides insight into the activities of the Baltic governments, a level of detail not found in any of press.

Ukens statistikk is a weekly statistical report from Statistics Norway. Press releases, new publications, and other reports are available via the home page (http://www.ssb.no/www-open/nyheter/top_en.html). Statistics Norway also organizes its data by subject into thirteen categories, including public finances,

health, education, and labor [Figure 2]. Need to track the price of a barrel of Norwegian North Sea crude, check the number of guests staying overnight in Norway, or the simple unemployment rate? You can find all of these numbers in this home page or in a weekly news report.

Diplomatic uses of the Internet

Foreign policy finds its most congenial setting on the Internet, where the very nature of this international network of networks lends itself to a common interest in position papers, speeches, and reports. Much of the every day studies and analyses are appropriate to the Internet audience, traveling from one server to another around the globe without a passport, visa, or other travel document.

The Virtual Embassy of the Finnish Foreign Ministry gives readers press releases, speeches, election details, and news in both English and Finnish (<http://www.mofile.fi/fennia/um/>). News bulletins are arranged chronologically, and a given issue may discuss agriculture, economics, the value of paper, or national security. Speeches by Prime Minister Paavo Lipponen or the Under Secretary of State Jaakko Blomberg may appear on relations to the European Union. The results of the Finnish Parliamentary elections with profiles of all of the political leaders are also included in this server.

One of the most popular servers is operated by the United States Department of State (<http://dosfan.lib.uic.edu>). Containing hundreds of documents and files, The State Department server is visited by thousands over the Internet each month [Figure 3]. To facilitate access to information, the State Department server uses AppleSearch, a program that allows users to actually search the text of each document for specific words or phrases. These searches can examine speeches, treaties, economic and trade documents, or any other materials on the server. Visitors also can take a tour of the Department of State or examine an organization chart.

A Legislative Internet

In democracies, elected officials represent their public, discussing issues, debating legislation, and eventually enacting new laws. The Internet gives citizens the opportunity to watch their politicians in action from any connected computer. It also provides a new stage for elected representatives to demonstrate their talents and sensitivities.

Several houses of elected officials exist in their virtual form on the Internet, but none are as realistic as Stortinget, the Norwegian Parliament (<http://mice.uio.no/Stortinget/English.html>). Thanks to the cooperation of UNINETT and the University of Oslo, Internet connected Norwegians can hear speeches from Stortinget as they are presented [Figure 4]. Three or four sessions of the Norwegian Parliament occur each week, with individual sessions lasting a few hours to most of the day. Agendas for Parliament are available on the Stortinget server along with a local timer, so listeners can "tune in" over the Internet at the appropriate time. Speeches are not stored, given the amount of space that they use. The server has only two saved vocal recordings; a 13-minute session requires over 6,000,000 bytes of storage.

In New Zealand, members of the House of Representatives, the single unit of Parliament, are accessible via a searchable database (<http://www.govt.nz/hor.html>). In keeping with British tradition, any New Zealander may petition the House to seek change in laws or policies, to demand some sort of legislative action. Another portion of the New Zealand government home page describes the petitioning process. Election results from the most recent campaign are included, along with a glossary of terms and a description of the law making process.

Technical and Scientific resources

Given the origins of the Internet as a means to connect scientific and technical communities around the world, it is not surprising that there is an abundance of government sponsored research on the Internet. This information may represent the most arcane results on quarks from high-energy physics laboratories to surveys of bird and fish populations in coastal waterways and rivers. Much of this data may be exclusively the province of researchers and their students, while other files may be specially designed for naturalists and the ecologically minded public. Many scientific and technical government agencies also see the Internet as a way to publicize their work on the behalf of the tax paying public, to earn their support during budget cycles and cost cutting meetings.

In the United Kingdom, the Office of Science and Technology provides online documents and guides to research (<http://www.open.gov.uk/ost/osthome.htm>). The entire 1995-96 science budget, all 959,621 bytes, is available for examination and downloading. Strategies for this Cabinet Office are also available in a series of documents. Parallel organizations in the United States such as the National Academy of Sciences and National Research Council operate their own home page (<http://www.nas.edu/>), visited by tens of thousands of Internet users. Publications of the Academy can be ordered directly from the home page.

Descriptions of United States-funded research efforts can be found on a home page, containing analyses of programs by National Institutes of Health, the National Science Foundation, the Department of Agriculture, and other agencies (<http://medoc.gdb.org/best/fed-fund.html>). I can search a database of National Science Foundation grants, looking for awards to a given institution or researcher, in a specific discipline, or of a certain monetary value. In the National Institutes of Health home page, I can track grants for specific clinical trials, gene targeting, or cancer research. For a scientist or physician preparing documentation for a grant, these databases provide a way to look at other efforts in several disciplines, reducing duplication and overlap.

The Internet paradox for government

Different levels of government can use the Internet to reach different audiences, locally, nationally, and internationally. The Internet makes a governmental agency more open, more visible, and hopefully more responsive. The Internet reduces bureaucracy by making it more visible; it makes paperwork and red tape less complicated by making paperwork and red tape digitally accessible and understandable. Because the Internet transcends boundaries, government is both less important and more important to its citizens. With the Internet, the functions of one agency in one part of the world are readily comparable to other similar agencies. It is no wonder that citizens and their elected officials see the Internet both as a blessing and as a curse.

The Internet makes different levels of agencies accessible to their citizens. In France or Peru, I can learn more about specific states or departments by accessing clickable maps of the country. The digital map of France, for example, gives me the means to use my computer to travel to any of the major regions of the country and their cities (<http://web.urec.fr/france/france.html>). By clicking on the map, I can examine all of the World Wide Web servers in the Loire valley, and directly visit a server in Angers or Nantes. Bordeaux is quite Web server rich in comparison to its Aquitaine neighbors. In Peru, a server set up by a non profit organization makes it possible for Internet users to learn more about any Departamento or Province (http://www.rcp.net.pe/peru/peru_ingles.html). A visit to Loreto, the easternmost section of Peru, via computer gives me a calendar of events in the Departamento for the year, leading attractions for tourists, and a brief history. A return to the Peruvian server from Loreto gives me an opportunity to listen to a few songs over the Internet, study a more detailed map, or examine a number of graphic images of people and places [Figure 5].

On a larger regional and international scale, the Internet can bring together different electronic resources together, under a common and simple interface. For the countries of Europe, the European Commission provides an overview of the continent from the broad political and economic perspective (<http://www.cec.lu/Welcome.html>). For the Baltic states of Estonia, Latvia, and Lithuania, a joint server gives news, economic and business leads, and tourist information (<http://www.viabalt.ee/>). With the Nordic Pages, Denmark, Finland, Sweden, Norway, and Iceland have a common locality to describe their cities, universities, and governments (<http://www.algonet.se/~nikos/nordic.html>). Information is in English, as well as native languages.

Conclusion

The Internet acts as a way to bring countries together, to erase boundaries and minimize language differences. It encourages citizens to participate in this electronic recreation of government and makes it possible to more easily communicate with elected officials and bureaucrats.

In the global community of the Internet, government agencies have a role in making information accessible and in providing a new digital means for communication. In return, agencies win a public more understanding of their role in society, supportive of their survival in these times of budgetary crises and red ink. The Internet makes government work once again for its public, not for itself. Even the harshest critics of computing would find this an admirable objective for all levels of government.

Captions

Figure 1: An Icelandic server (<http://rvik.ismennt.is/~gummihe/Islandia.html> OR <http://www.primenet.com/~peetah/iceland/Tour-Main.html>) encourages tourism with a glimpse at geysers, waterfalls, and unusual national parks.

Figure 2: Statistics Norway provides press releases, publications, and other reports on its home page (http://www.ssb.no/www/open/nyheter/top_en.html).

Figure 3: The United States Department of State server is one of the most popular sources of information on foreign policy, visited by thousands over the Internet each month (<http://dosfan.lib.uic.edu>)

Figure 4: Speeches from Stortinget, the Parliament of Norway, are available over the Internet to Norwegians (<http://mice.uio.no/Stortinget/English.html>). Three or four sessions occur each week.

Figure 5: It's possible to visit any Departamento or Province in Peru over the Internet, listen to songs, learn a little history, and examine images of people and places (http://www.rcp.net.pe/peru/peru_ingles.html).

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Suisse

Figure 1

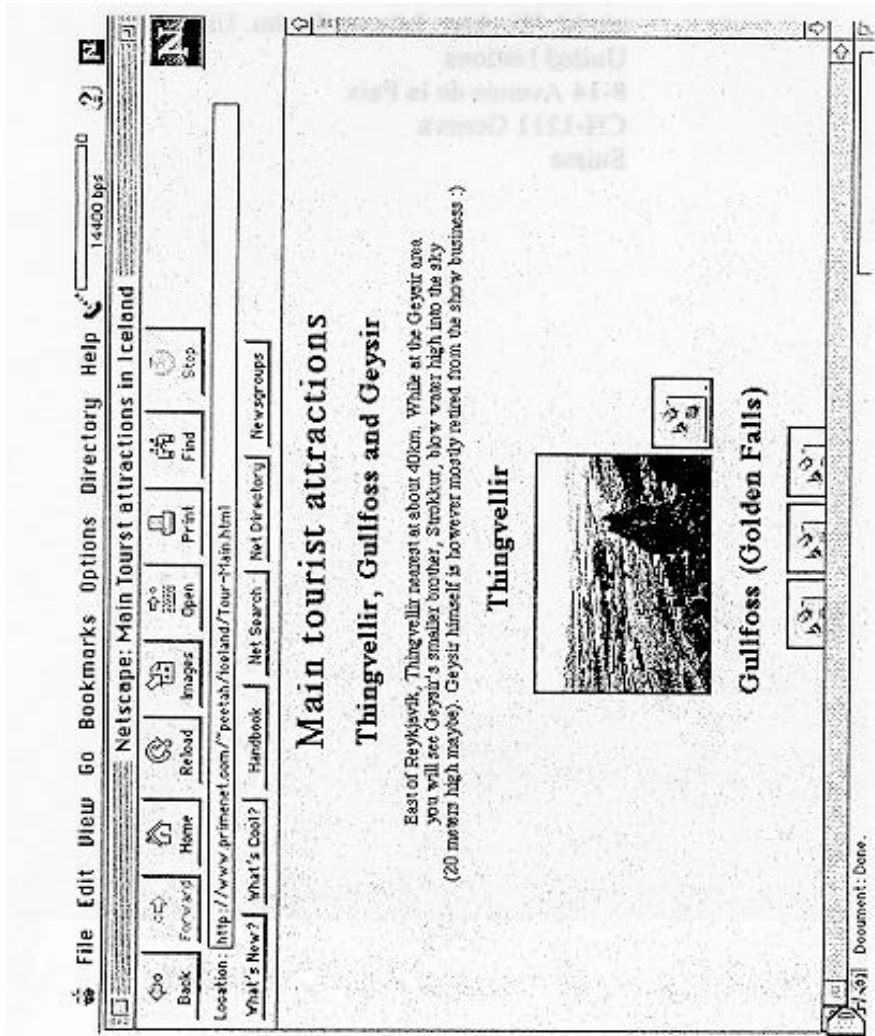


Figure 2

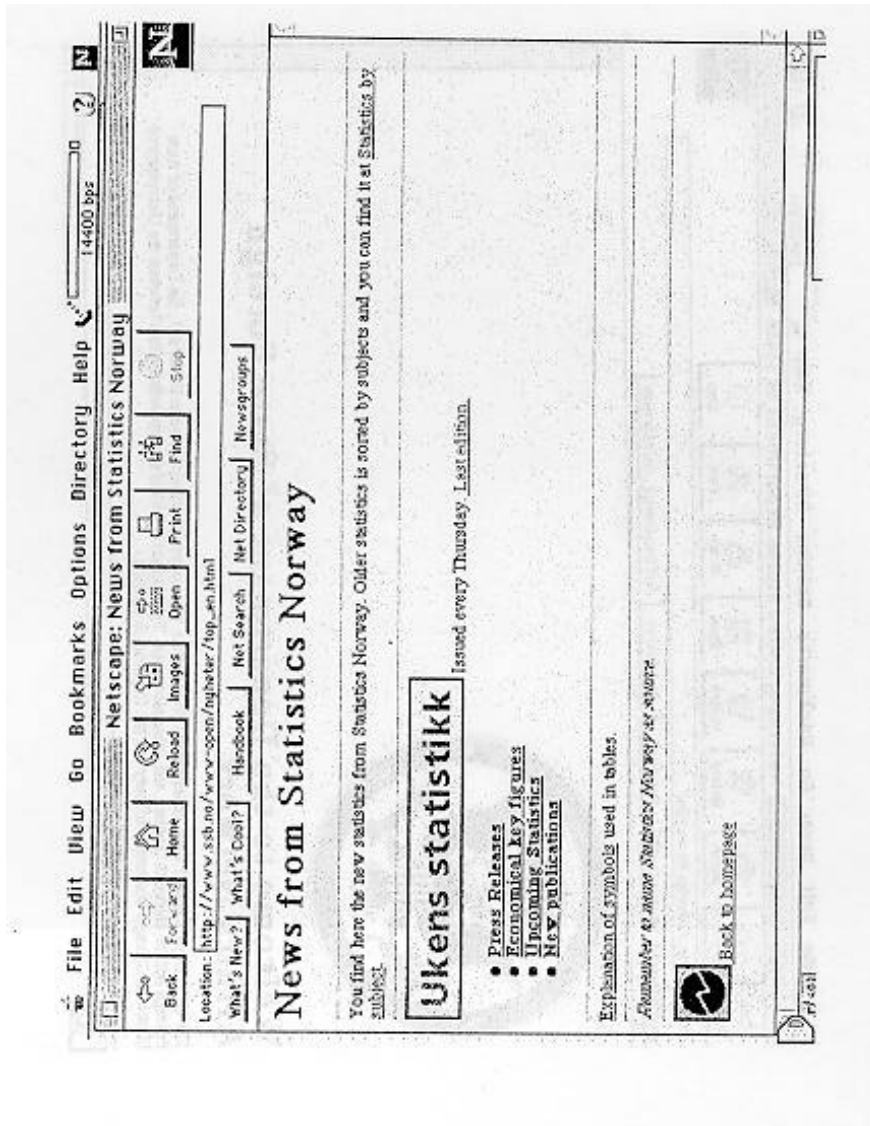


Figure 3

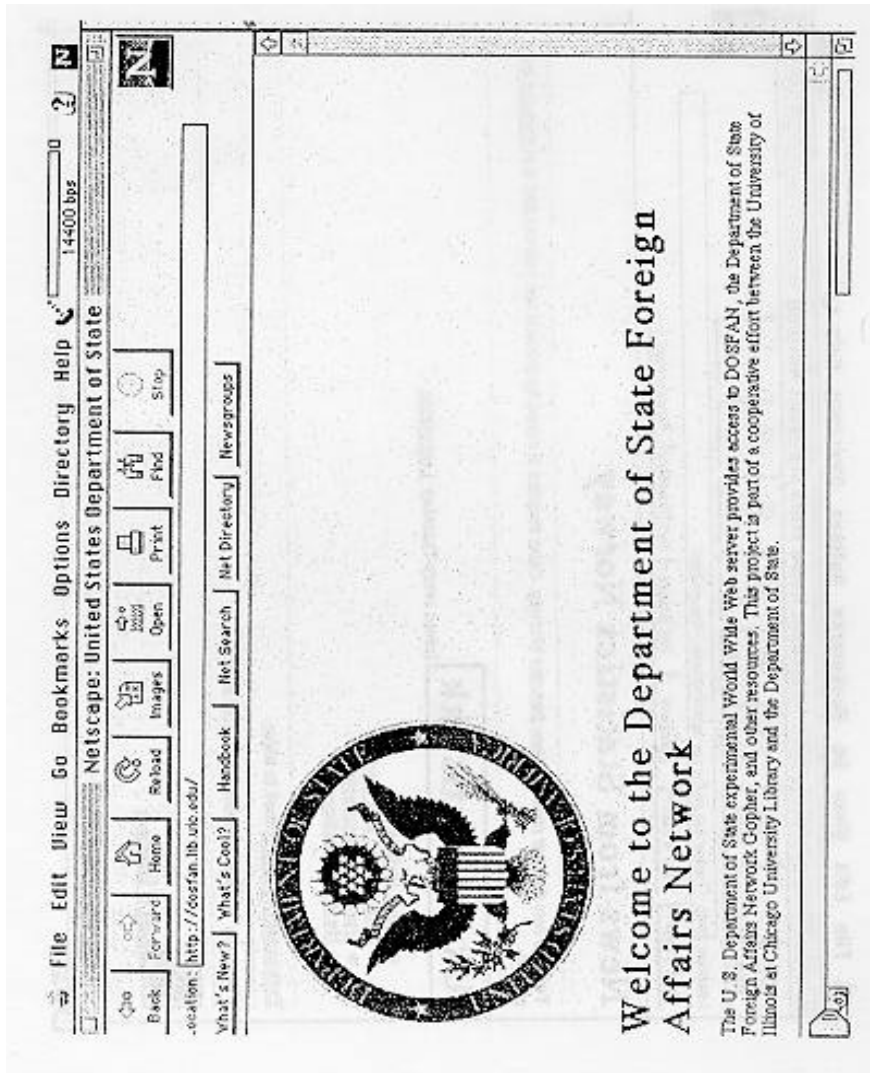


Figure 4

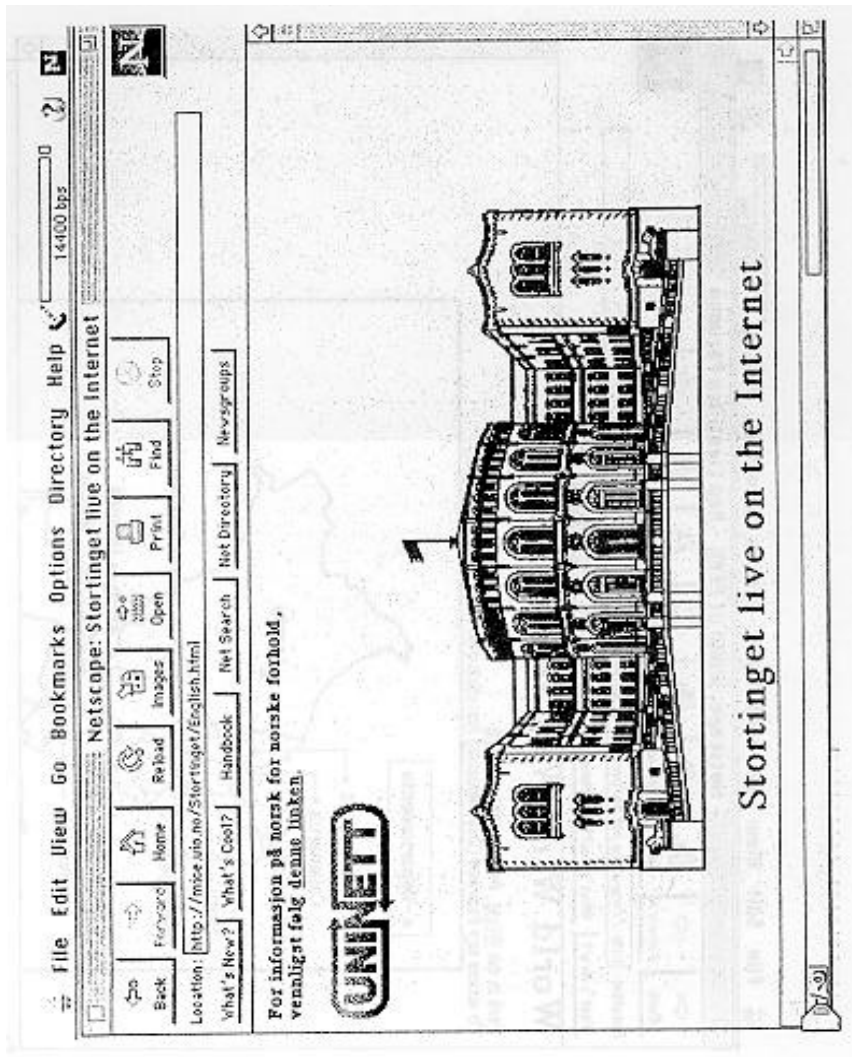
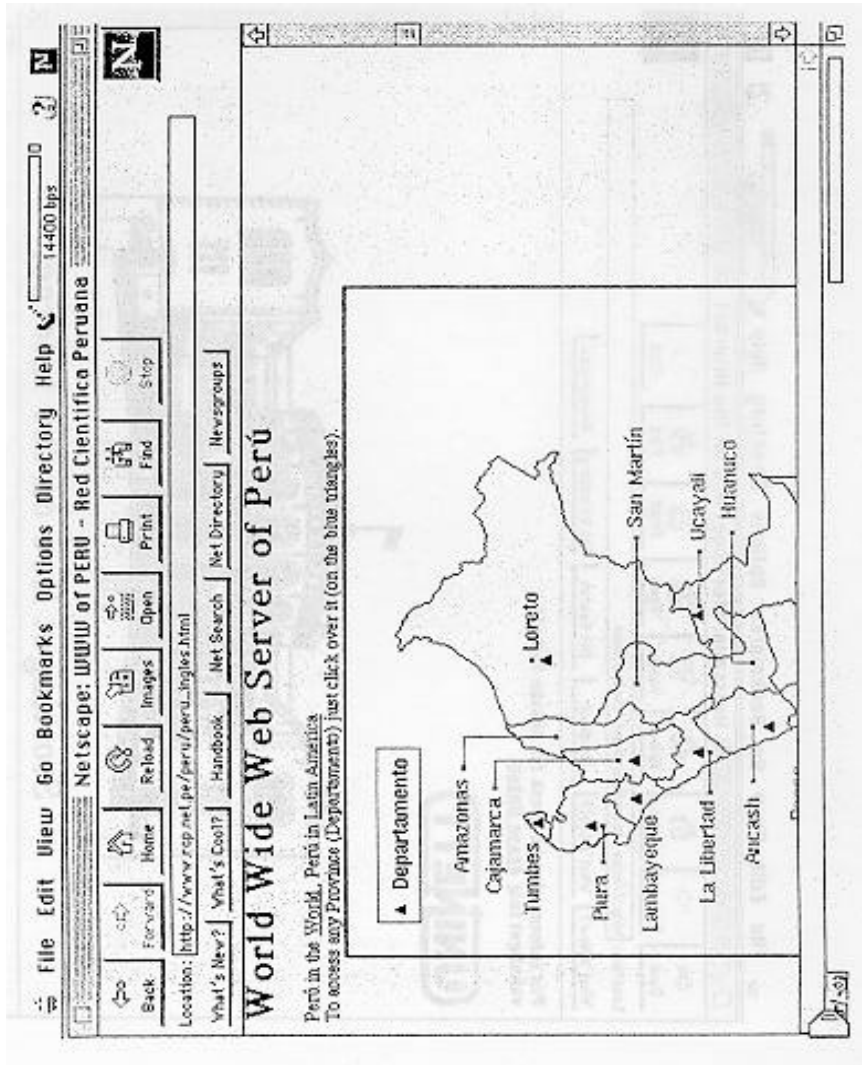


Figure 5



THE INTERNET: INFORMATION FOR GOVERNMENT LIBRARIES SELECTED SOURCES IN THE AMERICAS AND EUROPE*

By Judith R. Bernstein

Abstract: The Internet is in its infancy. Rapid development is guaranteed with large commercial firms announcing their intention to produce "value added" products for the net. Continuous change is a given. The Net is here to stay and will become an increasingly important tool for information specialists. We need to learn to use it effectively.

The author recommends investigating the "COOL SITES OF THE DAY" at <http://www.infi.net> and looking at the archival "Cool Sites". Look into the "BEST OF THE NET AWARDS" at <http://wings.buffalo.edu>. One of the premier methods of learning about the internet is The Internet Hunt at gopher:<http://gopher.cic.net> or at: <http://gopher.cni.org> which runs a contest each month consisting of questions which can be answered from sources on the Net. The Hunt questions and answers for the last two years are archived on Anonymous FTP at: <http://ftp.cic.net> Try it and see how you rank against the experts. Note some customary questions received in your department and see if an answer can be found on the Net. Save useful sites in quicklists, hotlists, bookmarks, or in notebooks or card files on the reference desk. This can form the basis for an internal catalog of Internet sites. Consider organizing these sites into categories and constructing your own Home Page.

This is not to say that there are no difficulties in the process. Unlike a traditional library which may weed out some documents every few years, items on the Internet have the property of appearing and disappearing with little notice. Our knowledge of sources seems to survive for a day rather than a lifetime! Sites may be gone for a short time, may simply be under construction, or may disappear forever. Some sites are very, very busy and hard to access. Sometimes traffic is so heavy that one never seems to be able to access a known site. (Veronica sites are a good example.) The problem of access brings us to the question of the time of day at the location where we are using the Internet. At 2pm Eastern Standard Time in the United States it is often extremely difficult to access any sources because the

* Paper submitted at the beginning of 1996 and presented at the 61st IFLA General Conference - August 20-25, 1995 - in Istanbul, Turkey.

busy Eastern seaboard has occupied them fully. In Europe, US sources should be more easily accessed during the day than is the case for librarians in the United States. More heavily trafficked local sites can often be more easily accessed early in the morning and late in the evening.

Maintenance of your selected sites is critical. Preferred sites need to be accessed frequently to see if they still exist and if indeed, they are still providing current data. If links to gopher or Web sites have been set up in your own facility then a specified person must be given the responsibility of checking and maintaining those links on a regular basis.

One cannot break the Internet. It was built to survive nuclear attacks. So jump in and start searching!

Good Luck and Happy Hunting. : -)

Introduction

I imagine the Internet as a large warehouse of books, documents, reports, boxes, games, and records which have no organization, no catalog nor is anything labeled or numbered. In this warehouse are hidden all kinds of treasures which can be found if only we have the right clues to help us in our quest. As librarians, we are accustomed to organization and order but the Internet was specifically designed to have no central control and thus has no global arrangement. The Internet is in fact a series of networks loosely connected with some common protocols. Without some guideposts, one can get lost in cyberspace. Like the land of the fairies, one can surf the net on Midsummer's Eve and become so entranced that one wakes up a hundred years later!

Our users do not want to spend hours lost in the Net, they want librarians to find the answers for them. Even more, they would like customized service specifically designed for their needs. We believe that with sophisticated search tools and access to such a large database of information readily available on the Internet it will be possible for librarians to provide this customized service. With sufficient knowledge and practice librarians can build a database of sites particular to each client. Librarians will continue to carry on the traditional role of filtering from the mass of information the particular gems needed by our users, or alternatively, instructing the users in how to find it themselves. That which is non-traditional is that the body of information from which we select will be much greater, more fluid, and will require new sorts of expertise.

With each new technological change in the communication of information, there is talk of the demise of librarians. In fact, we will be even more essential to keep up with the exponentially increasing new sites, ferreting out the good ones, and

providing a filter for users. However, before one can exploit the data available on the Internet, one must be aware of its existence. To address this "resource discovery" question is the purpose of my presentation. The two Internet sources which I will address will be Gopher and the World Wide Web. Some mention will be made of LISTSERVS, FTPs, and NewsNet but they are left for individual exploration. Pointers to useful sites, tools to help on the hunt for treasures, methods by which resources can be located, and lists of sites that have proven valuable will be recommended which can be used to find nuggets of information efficiently and successfully.

Gopherspace

The Gopher is arranged in a hierarchical manner. One must move through a series of menus to find individual files and documents, and must return to the main menu before going in another direction. The files listed below are accessed as follows: Each named site has an address. After accessing gopher with the address given, a menu appears. At that menu select the line which appears within // and then at the new menu select the line within the next //. Gopher search engines are very helpful in locating data in the thousands of interconnected gophers known as "gopherspace". The most popular are Veronica, Jughead, and WAIS. With Veronica, one may search directories or titles in 5000 gopher services and perhaps 10 million gopher items. Traffic is very heavy. Jughead usually is used to search local menus but can also search top level gopher menus (and is more readily available than Veronica). Keyword searches are indicated on local menus with the <?> prompt. The WAIS search engine does full text searching of indexed documents and directories and presents its results by weighting how closely the documents selected match the question. The Nordic project is currently working on a WAIS server which can access both gopher and the Web. Another useful tool is Archie which has indexed about 1200 internet archival sites with about 2.5 million unique file names and created a searchable database of the directories and file names. When you search Archie you will be given site names and paths to files which you then may obtain by anonymous FTP.

Gopher Subject Trees

One of the more useful starting points for exploring gopherspace are those gopher sites which have created subject trees and subject bibliographies to Internet resources. A subject tree is a hierarchical series of menus where there are broad subject entries subdivided into narrower subjects which are usually further subdivided into even narrower aspects. Since most of these trees are individual

site efforts and there is no central Internet authority there is much overlapping of material in different trees. This has its advantages since well organized and "advertised" sites are heavily trafficked. The following are some of the recommended subject tree sites.

Rice University, USA. <gopher://riceinfo.rice.edu>. Select /Information by Subject /Search by Veronica and Jughead/. One of the oldest and best developed sites in the world, Rice has an extensive subject list and sublists which are updated weekly. For example, under the subject "Economics and Business" there are over 350 subdirectories and documents pointing to further subdivisions and documents.

Australian National University. <gopher://info.anu.edu.au>. Select /Electronic Library - Internet Resources by Subject /Resources classified by subject/. The Web address is http://www.anu.edu.au/anu_www.html. The tree is arranged by LC classification and searchable with Veronica and Jughead. ANU is particularly strong in the social sciences where the Coombs data bases provide outstanding searchable information on demography, population, and Asian Pacific studies.

Bath University, United Kingdom. <gopher://ukoln.bath.ac.uk>. This tree, arranged by UDC classification, can be located by selecting /BUBL Information Service/Internet Resources by Subject/ BUBL Subject Tree/. The directory can be searched with the "/" key which will lead to extensive subdirectories and documents.

University of North Carolina, Chapel Hill, USA. <gopher://sunsite.unc.edu>. Select /World of Sunsite/. The "sunsites" are joint projects with Sun Microsystems Co.; they provide fast access, particularly as they have worldwide mirror sites. This site is also an excellent source for US government documents, under the directory /US and World Politics/ including a searchable CIA World Fact book, US Supreme Court documents, White House documents, and Federal Information Resources. The Web sunsite at <http://sunsite.unc.edu> has Lycos and Harvest search engines, and the latest Web statistics.

Kent State University, USA. <gopher://refmac.kent.edu>. Select /Internet Resources by Subject/. This is the home site for the searchable /Directory of Scholarly Electronic Conferences/ an excellent source for accessing a particular bulletin board or discussion group. Under /Business and Economics/ can be found TQM information, the Economics working paper archive, the Economic Bulletin Board, and /Business Sources on the Net/ some 14 lengthy bibliographies on business subjects. Selecting /Electronic Journals/ accesses the Electronic Journal archive from (<gopher.cic.net>) and the Internet Hunt. The directory/Internet Training and Information/ contains the Michigan bibliographies and Gopher Jewels.

The Swedish University Computer Network maintains an extensive subject tree at <gopher://gopher.sunet.se>. It includes a table of contents which lists both topic and sub menus and documents and has WAIS searching. Sunic also operates the root gopher server for Europe and maintains the core backbone (Ebone) for 27 European countries. The type of services offered in each of these countries and their technical connectivity arrangements are outlined here.

Study carrels are similar to subject trees. The most useful can be found at Washington and Lee University, USA. <gopher://liberty.uc.wlu.edu>. To reach the list of searchable study carrels select /Finding Gopher Resources/ Search High Level Gopher Menus by Jughead/. By selecting /Jughead/ one accesses an index to some 275 searchable worldwide gopher sites. WLU and Rice are the best Jughead sites available.

North Carolina State University, USA. <gopher://dewey.lib.ncsu.edu>, select /NCSU's Library Without Walls/Study Carrels/. This site also provides many US government documents, a collection of electronic journals and books, and Jughead searching.

Gopher jewels at The University of Southern California, USA. <gopher://cwis.usc.edu>. Select /Other Gophers and Information Resources/Gophers by Subject/11 Gopher Jewels offers an "alternative to the more traditional subject tree design" providing information by category searchable with Jughead. One can jump up one menu level or to the top menu from any directory. This site also provides pointers to gophers by subject from Michigan State University, Sweden, BUBL at UK, and Rice . It is also a good site for finding US government information under /US Government Gopher Servers/. A good secondary source for Gopher Jewels is <gopher://wings.buffalo.edu> which also lists other gophers which contain subject trees.

Subject bibliographies <gopher://una.hh.lib.umich.edu>. Select/inetdirs/Search full texts of these Guides/ and at <http://www.lib.umich.edu/chhome.html> This is the major site for the "Clearinghouse of Subject Oriented Resources Guides", a large collection of bibliographies arranged by subject. This list provides some of the most important guides on the Net. In an area of particular interest it is worth downloading the related guide and checking through the suggested internet sites.

The Web

While gopher is a very useful system it is limited by its hierarchical structure and its inability to support video, images, and sound. Nonetheless, currently it seems that gopher sites have more hard data, and less useless glamour than the Web.

Richard Wiggins comments that the Web may be 24,000 miles wide and only one foot deep. The World Wide Web (WWW) uses more sophisticated technology and thus is able to provide easier access to a broad range of links to texts, music, images, files, names, even gopher and FTP sites. On the Web, one does not have to go back to the main menu to move in another direction. One can simply jump to another subject by clicking on an appropriate button. Many Web sites are conveniently arranged by subject indices.

The Web is easily accessed through browsers which can interpret hyperlinks and use them to move from one document to another using a standard form of address called a Universal Resource Locator (URL). Some of the most popular browsers are Mosaic, Netscape, and Lynx (text only).

WEB SEARCH ENGINES. There are several search engines for searching the Web. Below are some of the more popular ones.

The Webcrawler at <http://www.cs.Washington.edu/WebCrawler/WebQuery.html> indexes titles, URLs, and contents. The World Wide Web Worm (WWWW) at <http://www.cs.colorado.edu/home/mcbryan/WWWW.html>. WWWW has an excellent tutorial page, searches subjects and addresses, but is built from page titles rather than contents.

CUI W3 catalog from the University of Geneva at <http://cuiwww.unige.ch/w3catalog> searches directories of Web documents.

Nexor Home Page in the UK provides access to the Aliweb search engine at <http://web.nexor.co.uk/public/aliweb/aliweb.html>

Nexor also lists all Archie sites on the web at <http://web.nexor.co.uk/archie.html> Lycos at <http://lycos.cs.cmu.edu> Lycos, the author's favorite search engine, searches both document titles and contents and seems to be successful because it catalogs titles, headings, the first 20 lines and the 100 most significant words and its large catalog already had 1.2 million entries last April.

Harvest is one of the newer search engines and can be found at <http://harvest.cs.colorado.edu/>

Web sites

WWW Virtual Library from CERN Switzerland at http://info.cern.ch/hypertext/DataSources/by_Subject/Overview.html The concept of the World Wide Web was first developed at CERN and it is a HUGE searchable subject catalog arranged by LC classification leading to a universe of materials which is exceedingly large. There are also links to other browsable subject catalogs as well as an alphabetical list of worldwide servers.

Einet Galaxy at <http://galaxy.einet.edu> or <http://www.einet.net> contains a fully searchable topical index which allows entry into a wide variety of internet sources. It is said to currently contain some 130,000 links!

Yahoo at <http://www.yahoo.com> is another massive index of Web pages organized in subject categories. There is excellent depth to the Yahoo tree. Its sites "What's cool", "What's popular", and "What's New" are useful to check on a periodic basis. It is a particularly good source for investment and financial information links.

Planet Earth Home Page (PEHP) at http://godric.nosc.mil/planet_earth/info.html has a smaller index of subjects but a nice "Getting Started" page. It is particularly useful if you are familiar with the named clickable sources. It divides its "library" into 13 rooms with each room containing 17 "shelves" of linkable information.

Scott Yanoff's List, "Internet Services Special Directory", is another lengthy, topical index and frequently updated list of sites and documents located at <http://www.uwm.edu/Mirror/inet.services.html> and <gopher://csd4.csd.uwm.edu>. For gopher menus select /Remote Information Servers/Special Internet Connections/.

Tips for Web Spinners at <http://gagme.wwa.com/~boba/tips.html> provides information on how to develop your own home page. It also provides links to browsers, search engines, and other interesting sites including the "Cool Site of the Day".

Lund University, Sweden <http://www.ubs.lu.se/wwwindex.html> is the site of the Nordic WWW/WAIS project - an experimental program for automatic detection and classification of WAIS databases featuring a WWW front end.

Government produced information

Almost all nations provide some government data on the Internet but worldwide there are relatively few well developed sites. New sites are just in the construction phase. The following are a few sites where there is considerable information in the English language. It is also worthwhile to check the travel and tourism sites for general information about countries, cities, and regions. One of the best sites for this purpose is <http://gnn.com/gnn/meta/travel/index.html>

United Nations. <gopher://gopher.undp.org> and <http://www.undp.org> This site includes major UN documents, current information, conferences, Security Council resolutions, press releases and briefings, and the UN currency exchange rates. It provides access to the International Atomic Energy Agency, North Atlantic Treaty Organization, The World Bank and other related agencies.

European Union. <http://www.echo.lu/> and <http://www.cec.lu> provide a discussion and description of the European Commission. The European Union home page is at <http://s700.uminho.pt/ec.html> At <http://www.helsinki.fi/~aunesluo/eueng.html> there is information on both the European Union and the European Commission.

United States. <gopher://gopher.marvel.gov> and at <http://lcweb.loc.gov> is the most powerful site for US government information as well as a gateway to the Library of Congress catalog. It provides access to the "Thomas" Congressional gopher which contains digests and full texts of bills, to government press releases, NTIS, the US budget, the CIA World factbook, NATO and NAFTA documents, other national constitutions, and to the popular White house site at <http://www.whitehouse.gov> where pictures of the Presidential family and the Whitehouse building can be seen.

<gopher://gopher.stat-usa.gov> or <http://www.stat-usa.gov> is the primary site for access to the National Trade Data Bank (NTDB). The NTDB is the US Government's "most comprehensive source of world trade data", an exceptional source for export opportunities by industry, company, and product, and foreign companies or importers looking for specific products. It includes the Russian Defense Conversion database which lists joint opportunities for international companies. This is a heavily used source for international information.

<gopher://gopher.nih.gov> and <http://www.nih.gov> provide access to documents from the National Institute of Health. Select /Gopher Tunnel/Wais-based-info/ to obtain the alphabetical list of WAIS servers, the NIH phone book, molecular biology databases and to GenBank, the Genome Project, etc. The Web site also includes Cancernet, and Aids Information.

<gopher://umslvma.umsl.edu> Select /library/government information/ This site, at the University of Missouri, contains a subject tree listed under /Subject Area Resources/ but its major value is its extensive listing of US government documents. /In the News/ section is the gateway to current information which might include the newly proposed US budget, GATT news, and the Republican Contract with America. Under the directory /Full Text Government Documents/ can be found the Army Area Handbooks, Background notes of the State Department, and the CIA World Factbook; all containing useful information on countries worldwide.

Latin America. The primary gateway for information about Latin America is at the University of Texas at <gopher://info.lanic.utexas.edu> Select /Latin American General Information/Latin America and Caribbean Economic and Social Data Base USAID/ to find current statistics for Latin America both by region and

country. Red Cientifica Peru <gopher://chasqui.rcp.net.pe> or <http://www.rcp.net.pe> has excellent searching tools and Internet instruction in the Spanish language.

Canada. <gopher://gopher.stat.ca> or <gopher://gopher.usask.ca> This site also has Jughead and Veronica.

<http://info.ic.gc.ca/champlain/champlain.html> still under construction, searches all known federal, provincial, and local government sites using the Harvest search engine.

An extensive menu of government agencies is located at <gopher://gopher.nstn.ca> Select /Internet Public libraries/.

United Kingdom. <http://www.coi.gov.uk> provides links to press releases from UK government departments including the Bank of England, Department of Trade and Industry, the Ministry of Defence, etc.

<http://www.fco.gov.uk> is the home page for the Foreign and Commonwealth Office and lists foreign policy speeches and press conferences.

Baltic. <http://www.viabalt.ee/> Some government information about Estonia, Latvia, and Lithuania may be found here although this is primarily a site for business in the Baltic area.

Hungary. <http://www.meh.lu/kum.htm> provides some political documents and addresses of Hungarian political figures.

Russia. <http://www.pitt.edu/~CJP/rees.html> brings together a large body of material on the nations of the former Soviet Union, some of which contains government information.

Australia. <http://www.nla.gov.au> is currently under construction but plans for a guide to federal, state, and local government information by subject is well underway. It also includes the Parliamentary budget and information from government agencies.

Israel. <gopher://israel-info.gov.il> provides information about the Israeli government.

References

For additional information on the Internet, the following references are recommended.

Kroll, Ed. *The Whole internet: User's Guide & Catalog*. 2nd edition, Sebastopol, CA: O'Reilly & Associates, 1994. This is THE basic Internet reference.

Comer, Douglas. *The Internet Book: Everything You Need to Know about Computer Networking and How the Internet Works*. Englewood Cliffs, NJ: Prentice-Hall, 1995.

December, John and Neil Randall. *The World Wide Web Unleashed: Everything You Need to Master the Web*. Indianapolis, IN: Sams Publishing, 1994.

Gaffin, Adam. *Everybody's Guide to the Internet*. Cambridge, MA: MIT Press, 1994. This was originally published on the net as The Big Dummy's Guide to the Internet.

Kehoe, Brendan P. *Zen and the Art of the Internet: a beginner's guide*. 3rd edition. Prentice-Hall, 1994.

The list of LISTSERVS can be obtained in a set of 14 files by anonymous FTP to: <ftp://rtfm.mit.edu/> in the /pub/usenet/news.answers/mail/mailling-lists directory.

Kovacs Scholarly Electronic Conferences provides a searchable list of listservs at <http://www.mid.net/KOVACS> and at <gopher://gopher.usask.ca>

For more information on Usenet see:

Pfaffenberger, Bryan. *The Usenet Book: Using and Surviving Electronic Newsgroups on the Internet*. Reading, MA: Addison-Wesley, 1995.

Some public Veronica servers are listed below:

<gopher.veronica.scs.unr.edu> (Nevada, USA) Veronica Home Directory

<gopher.veronica.sunet.se> (Sweden)

<gopher.veronica.uib.no> (Norway)

<gopher.veronica.uni-koeln.de> (Germany)

<gopher.wisteria.cnidr.org> (USA)

<gopher.serra.unipi.it> (Italy)

<gopher.info.mcc.ac.uk> (England)

There are now about 750 WAIS servers. The original station is <gopher://gopher-gw.micro.umn.edu>. This is an extremely busy site. A good alternate source for the list of WAIS servers is the University of Maryland at <gopher://info.umd.edu> Select /Access to other Electronic Info Resources/WAIS/ Other WAIS servers are at :

telnet quake.think.com

telnet wais.com

telnet sunsite.unc.edu

telnet info.funet.fi (login:info)

telnet wais.nis.garr.it (login: wais)

telnet swais.cwis.uci.edu

Some Archie public servers are listed below:

Canada	archie.cs.mcgill.ca
Austria	archie.unive.ac.at
Finland	archie.funet.fi
Germany	archie.th-darmstadt.de
Italy	archie.unipi.it
Sweden	archie.luth.se
Switzerland	archie.switch.ch
United Kingdom	archie.doc.ic.ac.uk
Australia	archie.au
New Zealand	archie.nz
Israel	archie.ac.il
Japan	archie.wide.ad.jp
NJ, USA	archie.internic.net
Maryland, USA	archie.sura.net

For archie plex server: <http://www.lerc.nasa.gov/Doc/archieplex-httpd.html>

For help: archie-group@bunyip.com

Mirror sunsites can be found at <http://sunsite.cs.msu.su/moscow>

<http://sunsite.doc.is.ac.uk>

<http://sunsite.kth.se>

<http://sunsite.huji.ac.il>

This tree is mirrored at Bilkent University, Turkey.

<gopher://bilkent.edu.tr>

Gopher Jewels mirror sites are at

<gopher://gopher.info.monash.edu.au>

<gopher://gopher.bilkent.edu.tr>

<gopher://gopher.technicon.ac.il>

<gopher://gopher.csv.warwick.ac.uk>

On the Web at: <http://galaxy.einet.net/GJ/index.html>

Wiggins, Richard. *The Internet for Everyone: A Guide for Users and Providers*. McGraw-Hill, NY. 1995.

This is an excellent resource for the beginning and advanced net user.

A discussion of two Web search engines, Lycos and Harvest, by John December appears at <http://www.rpi.edu/~decemj/cmc/mag/1994/sep/spiders.html>

Mirrors for the CUI W3 catalog can be found at

<http://www-resus.univ.mrs.fr> and <http://www.winc.com>

At the mirror site for Aliweb at http://www.leo.org.www_index/aliweb.html in Germany there is a tutorial for searching both in the German and the English language.

Cancernet is mirrored in Singapore at <http://biomed.nus.sig> and <gopher:biomed.nus.sig>

New hunts can also be found at the USENET newsgroup alt.internet.services and at Anonymous <FTP://ftp.nic.surnet.nl>

Internet help sites

Information about the Internet can be obtained from The InterNic, the official source for information about the internet. <http://www.internic.net> and <gopher://gopher.internic.net>

Information about gophers is obtainable from the mother site of all gophers, the University of Minnesota at <gopher://gopher.micro.umn.edu> Select /about gophers/how to get software and FAQs/

New Electronic Journal listings can be found at: <gopher://ccat.sas.upenn.edu> Select /E publications and Resources/Directory of Electronic Journals and Newsletters/1994/ARL Directory/Electronic Journals & 'Zines/

New Listings on the Net. How to find out about them? Subscribe to LISTSERV@NDSUVM1.BITNET Subscribe NEWLIST first name last name

New gopher sites are listed at <gopher://liberty.uc.wlu.edu> Select /finding gopher resources/all gophersites/new gophers/

Net Happenings. This list includes pointers to a large number of repostings from lists of new and updated sites including new Gopher Jewels. Subscribe to majordomo@is.internic.net "subscribe net-happenings" Another source for net happenings is: <http://www-iub.indiana.edu/cgi-bin/nethaps/>

For a list of lists send e-mail to the mail-server@sri.com or mail-server@crvax.sri.com. in body "send interest groups" The lists of lists can also be obtained in a set of about 14 files updated monthly, by Anonymous FTP to mail-server@rtfm.mit.edu in the /pub/usenet/news.answers/mail/mailling-lists directory.

For lessons on how to navigate the Internet. <gopher://wings.buffalo.edu> Select /Access the Internet/What is the Internet/Let's go Gopherin'/Navigate the Internet/.

or FTP [ubvm.cc.buffalo.edu](ftp://ubvm.cc.buffalo.edu) Select /navigate/* or /gophern/* These two addresses provide the text of beginning courses on the Internet.

Annotated Book Review Lists can be found at Anonymous FTP at [sluaxa.slu.edu](ftp://sluaxa.slu.edu) Directory /pub/millesjg. Filename is newuser.faq This list is also available on the World Wide Web at <http://lawlib.slu.edu/newusers.htm> and Anonymous FTP at [ubvm.cc.buffalo.edu](ftp://ubvm.cc.buffalo.edu) Directory /nettrain/ Filenames are nettrain.revs_1; nettrain.revs_2; nettrains_revs3; nettrain.revs_4

<gopher://gopher.babson.edu> Select /Internet/Information/Internet Bibliography/ Written by Hope Tillman this appears to be the most comprehensive and up to date of the review sites.

Bill Goffe's Guide to Subject Oriented works on the Internet is updated about every 5 weeks. <gopher://una.hh.lib.umich.edu/inetdirs>

Electronic texts are available at the Bodleian Library at the University of Oxford gopher site at <gopher://gopher.rsl.oc.ac.uk> Select /librarian's corner/ Alex/ which can be browsed by author, date, host, language, subject, title or searched by keyword. Also select from the main menu /Browse by subject/Internet/ Many electronic guides to the Internet are available in full text here including Big Dummy's Guide to the Internet; EFF Guide to the Internet; Internet Basic, Hitchhikers Guide to the Internet; Zen and the Art of the Internet; User Guidelines, and Unofficial Smilie Dictionary. There is a mirror site at North Carolina University <gopher://dewey.lib.ncsu.edu> Select /Library Without Walls/Reference Desk/Guides/.

Author's Update - The Internet: Information for Government Libraries

April 1996

Since this article was prepared the Internet, and specifically the Worldwide Web, has had explosive growth and this growth shows no signs of abating. Gopher, which was in the Spring of 1995 already being outclassed by the ease of use and the graphics of the Web, is still important for its content but gopher sites are even more easily accessed through the Web than before. Rice University gopher at (<http://riceinfo.rice.edu>) and the Australian National University (<http://elisa.anu.edu.au/elisa.html>) are still very important informational sites as is the BUBL tree at Bath University. Additionally, the Clearinghouse of Subject Oriented Resources Guides at the University of Michigan is maintained and kept current. Some things are gone forever; Gopher Jewels disappeared in early 1995 and the Internet Hunt has not been updated in a year or more.

On the other hand, the efforts at organization, cataloging, and indexing of the Web are growing as fast as the Web. Many more new search engines, each with its own unique capabilities, are being developed. Lycos, the WorldWide

WebWorm, and Webcrawler are still important but to them one must add Digital Equipment's Alta Vista (<http://altavista.digital.com>), Architext Software's Excite (<http://www.excite.com>), Infoseek (<http://guide.infoseek.com>), and Open Text (<http://www.opentext.com:8080>). More interesting, there are sites which include many search engines, (<http://www.enterprise.net/anadas/search/>);

([http://www,search.com](http://www.search.com));

the Netscape Homepage; and (<http://www.albany.net/allinone>), the latter in both French and English. There is also a special site for searching some 13,000 Newsnet groups (<http://www.dejanews.com/dnhome.html>). SavvySearch is unique in performing parallel searches in several databases simultaneously! (<http://cage.cs.colostate.edu:1969>)

Some older sites have gotten better and better. Yahoo is still the most popular directory site for categorized information and Scott Yanoff's list, the Internet Service List, (<http://slacvx.slac.stanford.edu/misc/internet-services.html>) is still a good place for What's New and What's Cool on the net. New sites on the net can also be found at Yahoo, Netscape, and Net Happenings (<http://www.midinet/NET/>) as well as NCSA which is more selective in the new sites that it lists at (<http://www.ncsa.uiuc.edu/SDG/Software/Mosaics/Docs/whats-new.html>).

While it is estimated that the number of Web sites has increased from about 23,000 in the Spring of 1995 to over 100,00 in January of 1996, even more significant is the exponential growth of commercial sites which, following Net etiquette, provide useful information as well as advertising. On the other hand, the commercialization of the net has increased the number of fee based sites. The National Trade Data Bank (NTDB) (<http://www.stat-usa.gov>) now charges a fee, albeit small, for access to its database and this trend is likely to increase in the future.

Government sponsored databases have increased slowly in the last year, but some have completed their construction phase and others have developed new homes. The United Nations home page provides information on all its agencies at (<http://www.un.org/>). In addition to the site at Champlain, Canadian government information can be found at (<http://info.ic.gc.ca/opengov/index.html>) and the United Kingdom has an expanded site at (<http://www.open.gov.uk/index.html>).

Librarians continue to have concerns about the quality of information on the net and how to evaluate it. We want to know how current, how accurate, and how reliable is the information source. We are concerned with credentials just as we would be with traditional print sources. Small efforts have been made to rate the quality of sites on the net. Magellan (<http://magellan.mckinley.com>.) rates many of its indexed web sites with from one to four stars. A list of its top rated 5% of Web sites are listed by PointCom (<http://www.pointcom.com>). For an overview of

this subject see Hope Tillman's article „Finding Quality on the Internet or a Needle in the Haystack“, (<http://www.tiac.net/users/hope/findqual.html>). Software is now available which can electronically monitor sites, update addresses, and alert us, when a site is no longer being maintained. Developing our own customized home pages on which we can list addresses most pertinent to our particular clientele is becoming easier and easier. Since the originally article was presented at IFLA, there are many more tools available for finding information and they are even more sophisticated. We have more and better possibilities of identifying exactly the piece of information needed by our clients. We increasingly have the skills to identify, evaluate, organize, and communicate information found on the Internet just as we have always done with traditional printed formats.

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THE USE OF INTERNET IN GOVERNMENT LIBRARIES: THE CASE OF TURKEY *

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Abstract: Turkish government libraries can use Internet since 1993. Together with an increasing growth in the membership of the network, arose problems. However, most of these problems were the extensions of the already existing difficulties confronted by the government libraries.

With the aid of the results of an institutional library survey and of more detailed observations upon a sample of 7 government libraries, the major administrative, economic and technical problems were identified and discussed. Conclusions made possible to forward some workable proposals.

1. Introduction

1.1 Information demand of government

Government institutions, being organized for the sake of fulfilling the responsibilities under their concern, require efficient means of communication at interoffice, interregional and international levels. Keeping the highly complex and multiaspect coverage of state affairs under consideration, it is evident that a substantial demand for quick, reliable and organized information of adequate detail will continuously persist. One of the primary tasks of government libraries is therefore to play a crucial role in the proper satisfaction of such an information demand.

1.2 Government libraries

Government libraries, being usually considered under the class of "special libraries", are established within the bodies or at the service of the governmental

* Paper submitted at the beginning of 1996 and presented at the 61st IFLA General Conference - August 20-25, 1995 - in Istanbul, Turkey.

institutions (like those of the parliament, ministries, judiciary, state owned enterprises etc.) both at levels of local or central government¹. As such, a government library should ideally be equipped with all the necessary superstructure in order to provide information for daily requirements of administration and expert force, and for longer term intentions like preparing reports, making analytic research, planning, designing projects, formulating policies, controlling and evaluating implementations. Therefore, a government library might steadily provide apart from usually expected services extensive reference facilities, bibliographic search, abstracting and translation services, and produce furthermore awareness bulletins, subject bibliographies and the like.²

Thus the government libraries are able to considerably influence the quality of work done by the government. Consequently, problems concerning the services of the government libraries might, in turn, create serious problems of information adequacy on the side of governmental institutions.

1.3 Purpose

During the last decades, the impact of rapid advance in communication technologies upon the quality, time use and extent of library services had at the same time urged the governmental institutions to make the necessary innovative investments in their libraries. Setting up the infrastructure concerning the Internet use in government libraries becomes to be one of those innovations.

In the following sections, a short account of Internet use in Turkish government libraries will be given. On viewing the problems to be encountered special emphasis will be attributed to economic and administrative issues, since the considerations of purely technical character will be the subject matter of another paper to be presented.³

2. Internet use in Turkey

2.1 Demand for Internet use

The history of Internet use in Turkey covers only a period of about 3 years. However, the development of the number of users had rather been explosive according to the reasons met everywhere like satisfying the general human

¹ This is a practice oriented description. For a formal definition, see e.g. Thompson.

² For details, see e.g. San, pp 25-29.

³ Mentioned is the paper of Çakır on Internet use in TÜBITAK.

curiosity upon exploring the economic, social, scientific and technical world better, having a library without walls and collective brains, sharing resources of the global community etc.⁴ Only the relative importances attributed to single reasons might have indicated a local pattern. Thus the emerging possibilities by using Internet received a cordial welcome, mainly due to the shortage of supply for detailed, better systematized and more precise data and time saving information services of wider scope and range.

2.2 History

On the 12 th of April 1993 the international network connection of Internet was realized between the Middle East Technical University in Ankara and National Science Foundation in Washington D.C. over a 64 Kbit transmission line. The achievement was a result of the project TR-NET, which was mutually conducted by the Middle East Technical University and the Scientific and Technical Research Council of Turkey.

Soon discovered the librarians the various benefits provided by Internet in retrieving, cataloguing and ordering. Especially at a time, in which Turkish economic instability had caused certain difficulties of finance, and hence imposed restrictions upon the purchase of books, periodicals, on line retrieval services and CD ROM's, the new possibilities rendered by Internet use had gained high popularity among the library administrators. The existence of user friendly programs like Gopher, WWW might also have had an influence upon such a popularity.

To be inclined to handle a technical device, and to be able to undertake the necessary investments and arrangements for its efficient use are two different issues. Nevertheless, following the inevitable growth of the network locally and also towards Istanbul and Izmir, the library memberships of Internet had increased at an accelerated rate.

Soon arose problems of electronic highway and network environment essentially due to disproportions between the communications infrastructure and the pressing demand for Internet use. Failing financial support, lack of a legal personality being in charge of Internet matters, lack of reliable forecasts and planning measures for medium and long run developments had made the related problems graver.

⁴ It should perhaps be pointed out that in counting items, reasons, influencing factors, parts of a whole etc. the purpose is not to be exhaustive, but just to illustrate by examples.

2.3 Users

In 1994 the Internet users in Turkey could roughly be categorized as follows; Real persons .by 51 %, government institutions by 15 %, commercial establishments by 13 %, the universities by another 13 % and other institutions 8 %⁵. Though not strictly comparable, figures of user aims for the world of 1993 seem to be as: 48 % for research, 29 % for trade, 10 % for defense, 7 % public affairs and 6 % for education⁶. Despite the differences between the definitions of variables upon which the estimates were based, one might feel to conclude that the percentage weight of the public sector Internet users in Turkey approach to the same level as that of the rest of the world.

3. Internet use of government libraries in Turkey

3.1 A general view

Concerning the use of Internet by government libraries an illustrative cross section might be helpful to visualize the current situation.

First of all it should be pointed out that there are a number of so called "government libraries" which are actually nothing but warehouses of books or archive material of certain government institutions. Evidently these cannot provide government library services in the above defined sense, nor the reasons behind their establishment were in accordance with the expectations from a usual government library.

Discarding such examples out of the framework of examination, what remain as government libraries are mostly situated in Ankara. On the other hand, a survey comprising 25 institutional libraries in Ankara was recently conducted by the Department of Informatics of the Turkish Scientific and Technical Research Council.⁷ Since the final report of the survey was not available by the time of investigations for the present paper, only a direct glance to the questionnaire material could be casted.

It was observed that 10 of 25 institutional libraries had Internet connections, and 4 of them will also be integrated within a few months. Out of the mentioned 10, only the director of a single library complained about non use, and frequent use

⁵ According to Önalın, p.3.

⁶ Cabezas, p 11.

⁷ Next year a more illuminating survey will be conducted.

were registered by the remaining 3. Interesting might furthermore be the observation, that 6 of user libraries were benefiting from Internet as an information center or library, whereas only two provided databases open to Internet.

As for government libraries, e mail seems to be the most common form of Internet use. Moreover, data bases (like those of the United Nations), the library catalogues (like those of the Library of Congress), certain archives of importance or historical fame, files of technical reports, addresses, statistical data, sound and image retrieval were also recurrently asked.

3.2 Some sample libraries

3.2.1 Introduction

For a library, the extent of the real gains from Internet use depends upon the scope and nature of its services. Therefore, it would be better to forward a closer account of the work done in certain selected government libraries, which seem - for some reason or other - to be convenient for illustrative exemplification. Thus a purposive sample of 7 government libraries had been selected out of the population that was referred for the recent institutional library survey. Among those, 5 are using Internet already, and the rest two will soon be potential users.

3.2.2 Scientific and Technical Research Council

The Scientific and Technical Research Council of Turkey, being one of the two forerunners of Turkish Internet project, utilizes library services over an integrated library automation system. The library administration is hierarchically situated under the Directorate of Information Services. Apart from the traditional services and the possibilities offered by the youth video club (for popular science and technology), the library also provides documents, delivers copies, and arranges upon request certain educational and consultant services. The Directorate of Information Services makes furthermore on-line CD-ROM search facilities available, and presents 4 national bibliographic databases upon Scientific and Technical Articles, Medicine, Environmental Science and Sponsored Projects by the Council.

On the other hand, the Directorate supplies the following sources of knowledge ready for dissemination through Internet. Of the Council: Comprehensive information including organisation, legal status, activities, research groups, scholarships, news bulletins, and moreover the above mentioned databases and the library catalogue; and of Turkey: Directory of Information Centers.

3.2.3 Central Bank

The Central Bank of the Republic of Turkey disposes of a wide network in order to communicate with national and international branch offices, and also with the related national and international institutions⁸. Since January 1995 the electronic data transfer system of the bank supplies the Internet with statistics and own estimates of money, credit, banking and allied data. Retrieval is possible through Gopher, WWW and Telnet over the public telephone network by means of a modem.

Library of the Central Bank provides interlibrary loan, index, awareness and CD ROM search services in addition to the customary library activities. However, the direct access to Internet over the library had not been realized yet, since the recent public expenditure cuts had resulted in the retardation of the related investments.

3.2.4 State Institute of Statistics

State Institute of Statistics is the responsible government agency for the compilation, preparation and publication of basic statistical data for Turkey. Having the same status with the Central Statistical Offices of the other countries, the Institute is obliged to be in regular and planned international contact with partner institutions and international statistical offices like those of UN, OECD etc.

It shouldn't be hard to imagine the variety of benefits that the Institute's library could gain by the use of Internet. At present the library is connected to Internet as a mode over a leased line. The Internet users receive thereby statistical summary reports. However, 1995 seems to bring substantial developments in the Internet use of the library. Firstly, access to the comprehensive disaggregate data sets provided by the Institute will be possible through Gopher or WWW. Library catalogue will also be available. Secondly, the newly established local area network will enable the different Departments of the Institute to be in exchange contact with the library computers over the backbone. With the aid of the same backbone the library will also interact through Internet.

3.2.5 State Planning Organisation

State Planning Organisation was founded for the sake of preparing long term development plans and thereby functioning as a principal government agency which gives the government expert support for the specification of social and economic policies. Consequently, the Organisation is also held responsible for follow up studies of plan implementation and for relevant coordination.

⁸ For detailed information about the network, consult T.C. Merkez Bankasi, *passim*.

The library was integrated to the AX 780 computer network system of the Organization in 1987. Since 1994 the Internet could be reached over TURPAK in the position of an end user of the Middle East Technical University facilities. By full membership, which will probably be the case during the coming months, the library will furnish certain databases, including the library collection after 1980, the periodical catalogue, plan and implementation data of economic variables at adequate sectoral aggregation levels.

3.2.6 Undersecretariat for Treasure

The government library of the Undersecretariat for Treasure has a collection which is primarily specialized in economic sciences, and is composed of books, reports, statistical series, CD-ROM databases and microfiches. Cataloguing and lending services are computerized. The recording of the general catalogue by means of MARC format had also been completed.

The Internet use was realized by means of a node connected to the Middle East Technical University over a lease line. In case of a membership, library catalogue will primarily be subjected under disposal.

3.2.7 Export Promotion Center

The Export Promotion Center of Turkey aims at covering the necessity for every possible expert guidance to export merchants, for the sake of promoting export development. Therefore the library of the Center was also equipped to provide international trade information such as customs tariffs, foreign trade legislation, world prices, exporter importer catalogues and other relevant commodity information.

With 16 terminal points the Center disposes of the HX/3000-922 RX system. The library catalogue was completely transferred to computerized media. On the other hand, current information on foreign trade statistics, product codes, foreign exchange rates and the like can at request be promptly transmitted from the Undersecretariat of Foreign Trade over a special terminal. Internet use will be available until the end of the year, through which the library collection will be propagated to a wider range of interested people.

3.2.8 General Directorate for Woman's Statute and Problems

In the realm of the newly established General Directorate for Woman's Statute and Problems, an Information and Documentation center on woman's studies is under development. One of the principal goals of the Center is to prepare an extensive database comprising all sorts of documents on the Turkish woman in the world.

Computerized library services will be enhanced by means of having access to Internet up till the end of the year. Over Internet use it will be possible to retrieve the library catalogue, special statistics database on woman, and certain subsets of the above mentioned database in various forms, like women news.

4. Problems of government libraries and Internet use

4.1 Fundamental perspective

The brief account on the use of Internet in Turkish government libraries might induce the impression that the attempts within such a short time were remarkable. However, it is not concealable that behind the efforts paid, there was neither an organizing and directing force nor a selective policy of tasks and priorities. After so many years of discussion, it seems that the long term library and information policies with chances of a high target attainment could not have yet been devised for Turkey⁹. As by most of the developing countries, the priorities of Turkey had lain in securing high rates of growth through swift industrialization. The very fact that the accumulation and propagation of knowledge was equally important, and as being one of the driving forces behind the steady growth even more important, was not well realized.

When observing the problems of Internet use at the micro level of each library, we mostly detect nothing but the reflections of the main problems of government libraries upon our present concern. The below treatment will therefore comprise a greater area of interest, namely that of considering the adequacy and effectiveness of government library services in a more general context.

4.2 Main problems

4.2.1 Administrative issues

For an explication as our space permits to, it is perhaps better to begin with the administrative problems. The core of these type of problems lies in the establishment of government libraries without specifying the aims, duties, competences and responsibilities properly. Some government libraries seem to be founded just as a traditional unit of the organisation, without paying much attention to the ways and means it might effectively occupy within the division of labour to be expected from the related administrative body.

In addition - and perhaps as a natural extension of the missing status - the government library administrators cannot usually partake in the high level

⁹ See, T.C. Devlet Bakanligi, p.83

decision mechanisms. Indirect evidence to this matter is collected by the mentioned survey of institutional libraries. Only 4 of the 25 libraries were situated directly under the highest level hierarchical positions (like the office of the president), and 2 of them were under the highest administrative officer (like that of the general secretary). The rest of the government libraries were administrative department head). Thus the chief librarian might not in an abundance of cases take an active part in the determination of procurement and investment plans, and could this be fortunately the case, he would probably struggle with the upper bureaucracy for the fulfillment of policy decisions in due time and at the desired extent. Especially in an era of permanent technological change in the information production and propagation where the Internet might be regarded as a recent example of such an advance these handicaps might in turn create serious drawbacks in the quality and coverage of services provided by government libraries.

4.2.2 Budget

Out of the actually interwoven problems of government libraries that would effect the Internet use, another important category consists of budgetary difficulties. Short- and medium-run stabilization policies in Turkey resulted in the pursuit of anti inflationist type of public finance measures, the most familiar of which were the drastically shortened current expenditures by institutional budgets. This fact, however prevented a satisfactory fulfillment of an essential library service requirement, namely having a budget in order to run a minimum amount of operations for a good subsistence, as for example in purchasing serials, in covering maintenance costs and let us say in constantly paying the membership fees for Internet use.

On the other hand, it should be pointed out that a relative freedom to spend out of specific - though insufficient - funds might sometimes create miracles through ingenious ways of allocating the sum at the free disposal. However, the mentioned survey of institutional libraries shows that only 4 out of 25 of them were authorized to use independent budgets.

Moreover, it should not be forgotten that government budgets of stabilization periods are prepared to reflect more or less an "investment shy" character especially for the projects with indeterminate rates of return in the short run. Up to a certain extent, it seems that the Turkish government libraries had also suffered from such budgeting attitudes and practices.

Among other budgetary problems, an important one in this context might furthermore be the unforeseen inflationist pressures upon the relative prices and hence the total costs, which enlarged the inadequacies of the predetermined yearly

budgets in Turkey. Under these circumstances, usual interventions of the Ministry of Finance e.g. in controlling the partial release of funds (according to short run changes in monetary indicators) had also augmented the effects of budgetary restrictions.

4.2.3 Physical conditions

The difficulties to be encountered, in case that the library or information center could only be situated at places which are not specifically designed for its purposes, are well known. In Turkey, the limitations imposed upon the sites, physical plans, environmental relations and infrastructures of libraries are more severe than of those in the developed countries. The problems to be confronted due to physical inadequacies will be acuter when products of new technologies are used, since they require higher physical standards for efficient utilisation.

Here, a word of warning might be suitable! When a new investment will be made for a library in addition to the existing capital stock its proper construction or installation might necessitate certain changes in the previously maintained physical conditions. If the limited resources don't permit to make the thereby induced new expenditures, clever minds become inclined to consider some improvised solutions as satisfactory. Such attempts arising from emergencies are not seldom, though the underlying bright ideas prove themselves to cause serious inefficiencies. Leaving examples of technical sort aside, and just thinking of the example that the Internet facilities are kept in some other unit of the institution and will yet be shared with the library, the reduction of the library service efficiency due to this simple misarrangement can even be more than one might imagine.

4.2.4 Technology use

Technological issues concerning the Internet use is the central theme of another paper. Here, an important economic implication will be stressed upon.

Throughout the time, as a result of the hasty race to keep up with the highly innovative computer revolution, a stock of obsolete or out-of-date machinery and equipment was collected in government institutions. Especially at times of restrictive investment policies, government libraries might obtain generous grants of old- generation hardware equipment - usually with the capacities and specifications of which a library cannot for example produce its planned databases. On the other hand, under the mentioned budgetary and organisational limitations, only a small number of government libraries seem to be liable and capable of planning their future technological developments, and thereby specifying what they should actually acquire in detail.

Similarly and under the existing conditions explained so far, the government libraries also confront with a multitude of problems of discrepancy between the available softwares and the actual software needs, due to various reasons like limited assortment or lack of expert decisions. As a result, half way mechanizations, inefficient use of personnel, discovery of strange service conceptions, duplicated efforts and highly increasing costs were also observed by the government libraries from time to time.

4.2.5 Personnel

A last group of serious problems that the government libraries frequently face with consist of personnel administration.

Especially in government libraries of smaller size, not only the number of employees are small, but also the proportion of the skilled personnel. On the other hand, a government library with the above defined multitude of functions and goals should not only be composed of librarians, but have a complicated personnel structure with experts from different disciplines. Moreover, since the labour markets and employment regulations cannot permit an infinite mobility of the labour force, almost the same personnel should be able to adapt themselves to new conditions, tasks and developments. Therefore the hired personnel should be so qualified and the in service training programmes should be so sufficiently arranged, that the elasticity of orientation of labourers to new types of work will always remain high enough.

Regarding the Internet, the persons who will be in charge of its utilisation should at minimum be aware of basics in librarianship and information science, and master English and computer applications at some satisfactory level. Will these people be trained properly, one might envisage how much more should the trainers be educated.

The personnel bottlenecks of Turkish government libraries might not be very serious, but rather have a lasting character. By some government libraries, better recruitment and placement strategies and sensible reorganisations might partially help. However, to get rid of qualitative and quantitative insufficiencies in library employment, additional and demand oriented growth of appropriate human resources is required, and this is definitely a long-term solution.

5. Conclusive remarks

5.1 On benefits

If all the important government libraries could be interconnected through Internet some of the above stated problems or at least their present dimensions will be

reduced. For example, unit costs will tend to diminish. Hazards of unsuccessful library organization upon service efficiencies will be compensated by other means. Up to some extent, human resource use will also be rationalized.

Moreover it can easily be identified that the share and exchange of information and mere cooperation of government libraries are far from being satisfactory, which in turn cause a common duplication of efforts and low service effectiveness. Internet use might be the cure of such deficiencies.

On the other hand, Internet use might encourage the government libraries in developing own information retrieval and even information management systems. Internet membership will also enable or at least motivate the creation of national databases and the completion of daring projects of the past.

Internet membership of Turkish government libraries might also convert the international demand for specific and serious information about Turkey from potential to actual, and hence will close an important shortage.

The possibilities of access to the Turkish government library collections, (which comprise countless unique documents) will deeply enlighten the world about a relatively unknown country. An abundance of information supply (from Ottoman archive material to the documentation of cultural heritage) will also enable to clarify the controversial questions in the minds of people of other countries.

5.2 Some Proposals

Internet use all over the world brought about a new set of economic, technological and even social problems which show a large variety like those of information overload, intellectual property rights, public interest safeguards etc.¹⁰ It seems that within a relatively short time span, Turkey will also find herself to be plunged into the same vast accumulation of problems, if necessary precautions are not taken today.

Therefore, it becomes to be an urgent matter to develop a national policy of Internet. The policy should specify the role of Internet use in the realm of the long run national information strategies and set the principles and targets about its development under the light of the global experience, and furthermore by means of a planned government support. The technological considerations attached to the realization of the mentioned policy will therefore take the warning signals of the steadily growing excess demand for Internet into account, and hence put

¹⁰ For such problems, see e.g. Bauwens, Clement, Hattery (July 94), Kalin and Tennant., Sawyer, Williams, and some other references to be selected from the bibliography according to purpose.

priorities for the construction of backbones, local area networks and other infrastructural investments, under the principal aim of widening and improving the network. In achieving this, care should of course be payed to use the limited resources in the best possible manner, and not to cause inefficient utilisations in the future. Details of such issues is the concern of another paper.

Considering all the propounded aspects together, it seems that a national agency, being solely authorized for Internet, might have more chances to solve the arising or expected problems. Thus the foundation of such an institution might be proposed. It will mainly be responsible for the developmental matters concerning Internet ranging from public relations to legal aspects and for all sorts of problems to be dealt with in relation to Internet use. Planning and control of investment efforts might also be under the mutual competence of the proposed institution and an authorized expert agency for countrywide network technologies (like the Turkish Postal Administration).

Government libraries require an organized and regulated coordination and collaboration among themselves - for evident reasons that can easily be inferred from the illustrative discussions stated above. The proposed agency for Internet affairs might also contribute to the satisfaction of the mentioned requirement. It could e. g. be charged with adequate responsibility in order to coordinate the government libraries which use Internet. Such a coordination might also include an educational cooperation component with the intention of developing Internet user skills which will, on the other hand, serve to cover an important need of government libraries.

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NO TIME TO WAIST, BRINGING LOCAL LIBRARY FRIENDLINES TO THE INTERNET*

By Repke de Vries

Internet is an increasingly popular electronic way to communicate, travel, shop, gather information, to be educated - and inevitably to get annoyed or bored too. It is used privately, for scientific research, by established organizations, in initiatives ranging from local to global relevance and both to gather information and to provide it. The Internet in short, is now linking anybody with anyone for anything. It does so with just a few software tools that either bring electronic material and services to the net or let the user explore and make use of them. Gopher, World Wide Web and WAIS are relevant here. They all come for free and each in dual fashion : part of the software is for those who wish to build a Server for the net, the other half of the story is the accompanying (Client) program installed at home or work to get access, browse, search and retrieve over the net.

The early release at no charge of this combined software contributed significantly to the success of Internet. The millions of users of the net that now can be expected to have at least Gopher available are a positive development, the parallel explosion of thousands of Gopher servers is a mixed blessing. As a global infrastructure the Internet is a success : in analogy with the telephone system does it have cheap and easy access, it can establish links to anywhere and the interface is simple. A telephone is basically the same the world over, so is Gopher or Mosaic enough to talk to the net.

But beyond that the analogy fails : no friendly operator to ask for information, only recently attempts at Yellow Pages and directories. Once having found a relevant source, organization and presentation of electronic material on an Internet Server can prove to be another hurdle.

In all fairness are information providers still learning too how to make the transition to the new medium and to benefit from new possibilities not existing before.

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It is interesting to note that the history of resources on the Internet started with a kind of mild anarchy, followed by professional attempts to classify and give "navigational aid for finding relevant information" (the UK ESRC funded Social Science Information Gateway, SOSIG).¹⁾ Likewise: the establishment of a Government Information Locator Service (GILS) to "help the U.S. public locate and access information".²⁾ Followed in turn by the formulation in April 1995 of the "Mission and Goals for a National Digital Library Federation".³⁾ The latter by librarians, scholars and information specialists. This digital library will be a professional undertaking, considering all the new possibilities and (among other things) comparing with the usage of traditional libraries.

The Digital Library Federation extends the idea of SOSIG by helping establish better information servers in the first place. One of the Federation's goals is formulated as follows: "the adoption of common standards and best practices to ensure full informational capture; to guarantee universal accessibility and interchangeability; to simplify retrieval and navigation; and to facilitate archivability and enduring access".⁴⁾

The very need to formulate that goal and the very need for SOSIG show that the Internet still cannot match some of the friendliness and ease of use that makes an old fashioned (public) local library such a nice place to be.

Elements of that friendliness are : easy to reach, very recognizable ; convenient opening hours ; help available for general questions ; recognizable policy behind collection and selection ; material is classified and organized according to some standard ; easy searching and browsing ; and one can count on continuity.

The librarian Karen Coyle in her „ACCESS: Not Just Wires“ evaluates Internet information services on some of these same principles and comes to a rather negative conclusion for much of what is provided on the net.⁵⁾ Neither does she value WAIS as an Internet tool very much: „Unfortunately, documents do not define themselves. The idea of doing WAIS-type keyword searching on the vast store of textual documents on the Internet is a folly .. and non-textual items do not respond at all to keyword searching".⁶⁾

¹⁾ SOSIG can be found at : <http://sosig.esrc.bris.ac.uk> Or Telnet to: info.bris.ac.uk Login as : www

²⁾ May 1994, Eliot Christian "Toward a Global Information Locator Service" Email: echristi@usgs.gov

^{3,4)} April 1995, Scott Bennett et al. "America's Heritage - Mission and Goal for a National Digital Library Federation" Email: M. Stuart Lynn, mslynn@cpa.org
The Digital Library Federation can be reached at: <http://www.dlib.org/>

^{5,6)} November 1994, Karen Coyle "ACCESS: Not Just Wires" Email : kec@stubbs.ucop.edu

Focussing here on social science information and data, the author's own experience is that WAIS has a role to play in making Internet resource centres a friendly service. Of the elements mentioned makes the Internet itself such (electronic) places reachable on a global scale with 24 hours access - but not always easy to find without navigational aids. WAIS as an Internet database that can be queried with natural language accomodates the element of help with general questions. But WAIS in its capacity to index many types of text and other electronic material and allowing queries on fields, also brings easy searching, browsing and automatic downloading to the user of search results: be it documents, scanned journal articles or datasets.

Gopher and certainly World Wide Web can bring the element of classification and organization with their build in possibilities of structured presentation and hypertext - but only after the human effort of selecting, classifying and making descriptions. They both are easily integrated with WAIS. The remaining elements of (electronic) collection building or selection of information to present to the net and continuity of the service over time, are policy decisions shared alike between traditional and Internet information providing.

WAIS stands for (Internet) Wide Area Information Server and is available in a free and commercial version. The following overview of WAIS possibilities and examples of usage, is based on the freely available Dortmund FreeWAIS-sf.⁷⁾ The WAIS server holds one or more WAIS databases and handles searching of these databases together with keeping a log of queries and retrieved material. WAIS databases can be registered by their owners in a central "directory of Servers and Databases" - itself in WAIS format and maintained on a voluntary basis.⁸⁾ The indexing software takes text material or other computer files and creates indexes for fast searching and retrieval over the net. Indexing can be done on the whole text body but also with keywords or synonyms. Keywords make it possible to create a database of images from scanned documentation or a picture collection and index on the attached keywords as descriptors. When the logging of a database shows searching with terms that are relevant but not present as such, synonyms help improve success in asking information from WAIS. The Dortmund WAIS also added indexing on particular fields or items of information within text files that have some form of structure.

⁷⁾ Documentation and software: <http://lsw6-www.informatik.uni-dortmund.de/freeWAIS-sf/>

⁸⁾ Directory of servers and databases by the commercial WAIS providers : <http://www.wais.com> or FTP and Gopher to www.wais.com. Also for WAIS information in general.

The user queries WAIS by first choosing one or more databases that can be located anywhere on the Internet, followed by typing in search words - with the possibility to search in certain fields (like a title) or to compose a query with boolean operators. All this is done in one, natural language sentence. For example by typing : "Title = Unemployment and Europe". Results come back over the net in two steps : first a list with short lines of text describing each item found. Secondly the choice to browse or download one of these items. If nothing is available in the database, WAIS has very limited possibility for further guidance. Getting help or general information on the contents of a WAIS database is possible, but not self evident. In Gopher or World Wide context needs this additional information to be presented together with offering the WAIS searches it self.

The possibility to choose more than one database at the same time to perform a search on, is a strong WAIS feature that ties in well with the trend to have decentralized databases on the Internet, that are maintained with local and dedicated expertise but still need to be searched as if it is one, central database. These automatic "multiple searches" can either be done with WAIS specific software that a user needs to have or can be made part of a WAIS - World Wide Web integration. Meaning that any WWW browser and server can help the user choosing one or more WAIS databases and perform the search. Results now coming back have a list with items coming from different places and databases : reason for the data archiving world to introduce identifiers in indexed material, showing from which country and institution a particular result is coming from.

Evaluating some Internet services for the social sciences that use WAIS databases, best demonstrates the principles.

The Social Science Information Gateway ⁹⁾ is intended as a navigational aid with over 500 links to social science resources on the Internet. Users either walk a subject tree (classification according to the UDC system or in alphabetic arrangement) or by doing a single WAIS search on descriptions and other items of information on the resource centres covered. This design helps both the novice (WAIS queries in general terms) and the experienced researcher familiar with classifications. The choice of World Wide Web furthermore means that a search for "data" in WAIS not only reveals Internet sites with empirical data material in

⁹⁾ SOSIG : see note 1

Another interesting example of sidestepping is at: <http://ssdc.ucsd.edu/index.html>; here one goes from catalogue information to study documentation to real data. Alternatively, search SOSIG for „San Diego“ and step from there to the San Diego Social Science Data library.

their collections. Most of the descriptions in the database also have an Internet link written into them that permits to sidestep from browsing and visit the resource centre over the net for further specific information.

The Scottish Academic Libraries Serials service (SALSER), not only tells which (journal) serials are held where, it also connects to relevant OPAC's and has further general information on libraries concerned.¹⁰⁾ SALSER brings classic arrangements to the net with alphabetic listings and directories but also has the WAIS multiple search possibility on titles and contents of the separately WAIS indexed serials. Designed within World Wide Web the user fills in a form : not only typing in the topic that a journal should cover (for example "oil") but also checking boxes to search all serials or a selection. The automatic multiple search for "oil" shows in one list all relevant periodicals with identifiers indicating the library and serial.

The Dutch Social Science Information and Documentation Centre has an integration of Gopher and WAIS databases.¹¹⁾ In Gopher menus do WAIS searches show up as items with question marks, but only a single database can be searched at a time. Both the Gopher and the WAIS server have logging facilities that are analyzed to determine the relative usage of the different services, by whom on the Internet, repeatedly or not and how information in Gopher fashion is used relative to information in WAIS databases. For WAIS the logging tells how often the "help on WAIS searching" is browsed and all the search words are analyzed to isolate misunderstandings about the database or popular items. An advantage in general to have a separate WAIS server and databases, is the possibility to make these part of a multiple WAIS search from anywhere on the Internet. The disadvantage to have to export from the main SWIDOC databases to a WAIS format, proved minor.

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¹⁰⁾ SALSER is at : <http://datalib.ed.ac.uk/SALSER/index.html>.

¹¹⁾ SWIDOC can be found with Gopher at : <gopher.swidoc.nl>
With WWW SWIDOC is at: www.swidoc.nl. The Steinmetz archive has both fielded searches with WAIS and multiple WAIS searches to catalogues of other national data archives.

LA NUMÉRISATION DES DOCUMENTS CARTOGRAPHIQUES : PROBLÈMES TECHNIQUES ET JURIDIQUES; L'EXPÉRIENCE DE LA BIBLIOTHÈQUE NATIONALE DE FRANCE*

By Pierre-Yves Duchemin

Abstract: La Bibliothèque Nationale de France a été créée le 3 janvier 1994. Elle regroupe la "vieille" Bibliothèque nationale créée au 14e siècle et la "jeune" Bibliothèque de France créée en 1988.

Dans le projet de la nouvelle institution, il était prévu d'offrir aux utilisateurs un grand nombre de documents numériques. Bien sûr, un grand nombre d'entre eux touche à l'imprimé : c'est ainsi que 30 000 000 pages sont prévues pour être disponibles en Octobre 1996.

Les projets d'images numériques ne concernent pas seulement les livres, mais aussi les "collections spécialisées", c'est-à-dire dessins, gravures, photographies, musique imprimée, monnaies et médailles, manuscrits... et documents cartographiques, puisque, à l'ouverture du nouveau bâtiment en février 1997, dans un premier temps, ce sont quelques 300 000 images qui seront mises à la disposition non seulement des chercheurs mais aussi d'un public plus large.

Cette communication est centrée sur les collections spécialisées, parmi lesquelles on trouve les documents les plus intéressants mais aussi les plus difficiles à numériser correctement. Elle se propose de présenter la politique suivie à la Bibliothèque nationale de France, ainsi que les problèmes spécifiques relatifs à la numérisation de documents spécialisés à travers les questions suivantes :

Historique des projets de la Bibliothèque nationale de France

Nature des collections spécialisées

But de la numérisation (objectifs documentaires et / ou scientifiques)

Des images numériques pour quels utilisateurs ?

Les différentes chaînes de travail

Normes actuelles

Problèmes de catalogage et d'indexation

Coût de la numérisation

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Historique des projets de la Bibliothèque nationale de France

A l'exception du vidéodisque analogique "Révolution Française", réalisé en 1989, la première tentative de la Bibliothèque nationale pour proposer des images électroniques à ses utilisateurs remonte à 1988. Le Département des manuscrits travaillait sur un projet relatif aux manuscrits médiévaux à peinture. Comme, à cette époque, la Bibliothèque nationale n'avait pas de budget spécifique pour l'imagerie électronique, le résultat fut la publication par le Ministère de la culture d'un vidéodisque collectif, dans lequel se trouvaient des documents aussi différents que des manuscrits à peinture, un choix d'oeuvres du Musée du Louvre, de l'imagerie médicale, etc.

D'autres projets relatifs à des images numériques d'après les documents spécialisés de la Bibliothèque nationale furent mis à l'étude pendant les années suivantes mais, faute de moyens financiers, aucun ne vint à son terme. Pour compenser cette absence d'une ligne spécifique dans le budget, on a essayé de trouver des partenariats avec des compagnies privées. Plusieurs d'entre elles étaient prêtes à participer, des tests furent réalisés, des contrats préparés mais, en fin de compte, des problèmes juridiques empêchèrent la signature finale. La loi française est très stricte en ce qui concerne la propriété intellectuelle et l'usage du patrimoine national, et le Ministère de la culture, tutelle administrative de la Bibliothèque nationale, n'a pas accepté ces procédures. L'un de ces projets était sur le point de démarrer en 1991 ; il concernait la collection de 637 portulans conservés au Département des cartes et plans, en partenariat avec une compagnie californienne.

1988 fut la création de la "Très Grande Bibliothèque", la "plus grande et plus moderne bibliothèque du monde", mais on ne sut qu'à la fin de 1990 que c'était la "Bibliothèque Nationale" pour les livres, les publications en série, les enregistrements sonores et les vidéogrammes. La nouvelle institution est divisée en quatre départements principaux: D1 (histoire, philosophie, sciences humaines), D2 (sciences politiques, économiques and juridiques), D3 (sciences et technologie), D4 (arts et littérature), auxquels s'ajoute un département spécifique consacré à l'image et au son. On se rend compte que la géographie n'est pas considérée comme un champ spécifique de la connaissance ; en conséquence, elle sera traitée comme une discipline transverse et les documents cartographiques seront disséminés notamment dans les départements D1 et D4.

Très tôt, la nouvelle institution, désormais appelée "Bibliothèque de France" étudia la possibilité de proposer des images électroniques à ses futurs utilisateurs. Comme elle avait la chance de pouvoir bénéficier de crédits spécifiques pour ces projets, il fut possible de lancer des études et de réaliser des tests : 30 000 000 pages de texte numérisé, représentant 100 000 livres d'une pagination moyenne de 300 pages, dont 60 % ont été réalisés par la Bibliothèque nationale, seront mis à la disposition des utilisateurs à l'ouverture du nouveau bâtiment. Ces textes sont numérisés en mode image ou en mode texte.

La Bibliothèque de France désirait également présenter des images numériques dans les départements thématiques ; à l'exception de D2 (science économiques et juridiques), dans lequel l'image ne trouve guère sa justification, des images numériques étaient envisagées pour les autres départements, notamment pour le D1 (histoire et science humaines) et le D4 (arts and littérature).

La Bibliothèque Nationale de France, créée le 3 janvier 1994, regroupe la "vieille" Bibliothèque nationale créée au 14e siècle et la "jeune" Bibliothèque de France créée en 1988. Cette fusion fut une occasion unique de rassembler des expériences et des projets pour mettre en oeuvre une politique cohérente d'imagerie numérique : sont aujourd'hui prévues à l'ouverture du nouveau bâtiment en février 1997, les 30 000 000 pages de texte numérisé déjà mentionnées et 300 000 images numériques, dont une part importante provient des Collections spécialisées. Des études sont en outre conduites pour définir les futurs projets qui permettront d'accroître la cohérence intellectuelle et la couverture des collections numérisées après l'ouverture.

Nature des collections spécialisées

Cette communication est centrée sur les collections spécialisées, et particulièrement sur les documents cartographiques, pour trois raisons principales:

- d'abord les pages de texte issues d'ouvrages imprimés sont infiniment plus faciles à gérer, à la fois par la manipulation du document, même s'il possède une reliure précieuse, et par l'utilisation de l'image numérique que l'on peut en obtenir.
- ensuite, les documents les plus intéressants proviennent souvent des collections spécialisées et ils sont en outre un excellent choix en ce qui concerne la conservation, la communication, la valorisation et les publications.

- enfin, les collections spécialisées, et, en particulier en raison de leur taille, les documents cartographiques, soulèvent des problèmes tant pratiques que techniques bien plus difficiles à résoudre pour pouvoir obtenir une bonne qualité des images numériques.

A la Bibliothèque nationale de France, les Collections spécialisées appartiennent à la "Direction des Collections Spécialisées" qui regroupe :

- La Bibliothèque de l'Arsenal : bibliothèque historique, gravures, quelques cartes et des manuscrits
- Le Département des arts du spectacle : tout ce qui touche au théâtre et au cirque, des textes et programmes aux tenues de scène, en passant par les décors et les maquettes en trois dimensions
- Le Département des cartes et plans : cartes manuscrites, gravées et imprimées, atlas, globes, objets géographiques, dessins et notes d'explorateurs, photographies, etc.
- Le Département des estampes et de la photographie : gravures, dessins, croquis, cartes, panoramas, plans d'architecture, photographies, cartes postales, etc.
- Le Département des manuscrits : principalement des manuscrits français, latins, grecs et orientaux, comprenant des textes, des dessins et quelques documents cartographiques manuscrits
- Le Département des monnaies, médailles et antiques conserve des monnaies, des médailles, des billets, des bijoux, des vases anciens et divers objets dont certains présentent une représentation cartographique
- Le Département de la musique dans lequel on peut trouver de la musique imprimée et manuscrite, des livrets d'opéras, des portraits de musiciens, des croquis de mise en scène, des croquis de décors, etc.

Cette énumération montre l'extrême variété des documents conservés à la Direction des Collections Spécialisées. Elle montre également combien il est difficile d'avoir et de conserver une politique cohérente à l'intérieur de l'institution quand on doit traiter des documents aussi différents dans le cadre d'un projet de numérisation ; elle montre enfin qu'on peut trouver à peu près n'importe où des documents cartographiques à la Bibliothèque nationale de France !

Néanmoins, chacun des départements des Collections spécialisées a étudié des projets en relation avec ses documents : 19 projets furent proposés, dont 16 ont été retenus et 11 seront mis en oeuvre avant la fin de 1996. Parmi eux, 7 sont relatifs

à des documents cartographiques ou nécessitent une indexation géographique : photographies en noir et blanc de la Société de géographie prises en Afrique par les explorateurs français au 19e siècle, cartes de France du 17e et 18e siècles de la collection d'Anville, dessins et gravures de villes et de paysages français du 16e au 19e siècle de la collection Destailleur, photographies en couleurs de villes et de paysages français prises au cours des années 1980 pendant les missions DATAR, photographies de Paris en noir et blanc prises par Eugène Atget, et plans d'architecture du 18e siècle dessinés par Boullée et Le Queu. Cette première série d'images numérisées est bien évidemment centrée sur la France, mais les nouveaux projets à l'étude possèdent une couverture géographique nettement plus importante.

La sélection s'est effectuée selon trois critères principaux :

- la valeur documentaire - et parfois esthétique - des collections
- l'aspect préservation et conservation des originaux
- la mise en valeur des collections en les ouvrant à un plus large public.

But de la numérisation (objectifs documentaires et / ou scientifiques)

Mettre en oeuvre une campagne de numérisation suppose que plusieurs questions importantes ont trouvé une réponse, les premières étant : pourquoi l'institution souhaite-t-elle proposer des images numériques à ses utilisateurs ? De quelle sorte et quelle qualité d'imagerie numérique l'institution a-t-elle besoin ? Enfin, pourquoi dépenser du temps et de l'argent pour proposer des images numériques aux utilisateurs de la bibliothèque quand ils disposent déjà de photographies et de microformes ?

Parmi d'autres finalités, les images numériques sont créées pour :

- permettre la préservation et la conservation du document original
- améliorer les possibilités d'accès au document en proposant un substitut électronique à l'utilisateur final
- permettre une communication plus importante et plus savante du document grâce à l'utilisation de stations de travail spécifiques dénommées en France "PLAO" (poste de lecture assistée par ordinateur). Ces postes de travail permettent à l'utilisateur d'effectuer des zooms et d'obtenir une finesse de détails qu'il ne pourrait espérer à partir de l'original
- permettre un accès multiple au document
- permettre la communication du document hors de l'établissement grâce à des média optiques ou électroniques et des réseaux en fournissant un accès à distance

- favoriser la mise en valeur de collections prestigieuses de documents rares et de grande valeur parfois non publiées en publiant des disques optiques compacts (DOC), des CD-I, des Photo-CD ou toute autre sorte de disque optique
- permettre des sorties sur imprimante à sublimation de qualité, à l'intérieur de l'établissement
- offrir à l'utilisateur final une copie électronique du document sur un outil de travail spécifique dans un nouvel environnement technique.

Il existe deux manières principales de répondre à ces questions : on peut considérer les documents cartographiques électroniques comme un complément d'information à des ouvrages imprimés, des publications en série ou, en général, n'importe quel support imprimé ou audiovisuel ; dans ce cas, le choix et la sélection des documents à numériser se feront dans le but de créer une unité thématique pour proposer une "collection documentaire de référence" d'images électroniques numérisées.

On peut également considérer qu'il n'est pas du tout indispensable que les projets étudiés et mis en oeuvre lors de la campagne de numérisation soient un complément à un quelconque support imprimé ; dans ce cas, il n'y aura pas besoin d'effectuer une sélection de documents cartographiques dans une collection donnée : la collection elle-même est considérée comme un ensemble et le projet doit conserver son intégrité documentaire. Ces collections montrent en général une grande cohérence intellectuelle et sont prévues pour avoir une existence propre, avec des buts scientifiques et / ou artistiques, en tant qu' "unités documentaires".

Les premiers projets conçus à la Bibliothèque de France étaient pensés pour être intégrés dans la politique documentaire de l'établissement et étaient prévus pour être utilisés comme des documents complémentaires aux ouvrages imprimés présents dans les quatre départements thématiques, où les documents cartographiques ne sont pas si nombreux.

Quand elle étudiait des projets à partir des documents de ses collections spécialisées, la Bibliothèque nationale pensait plutôt que les fonds spécifiques de ses collections spécialisées n'étaient pas des éléments abstraits d'information mais qu'ils avaient un sens intrinsèque.

En conclusion, les projets de la Bibliothèque Nationale de France suivent plutôt la seconde voie, à la fois pour les ouvrages imprimés et les documents des collections spécialisées ; il a été admis qu'un ensemble documentaire cohérent pouvait être à la fois utilisé comme un projet à caractère scientifique ou artistique, et

éventuellement comme complément d'information pour un ouvrage imprimé. Cette méthode permet d'éviter l'inconvénient qui consiste à offrir des ensembles thématiques incomplets : par exemple, pour montrer le rôle de la photographie dans l'histoire de l'ethnologie au cours du 19^e siècle, la Bibliothèque de France était intéressée par une sélection de 15 000 images choisies parmi les collections de photographies de la Société de Géographie, comprenant des photographies d'Afrique, d'Asie, d'Amérique du Sud, etc., quand le Département des cartes et plans proposait un fonds de 20 000 images représentant l'intégralité des photographies de la Société de Géographie sur l'Afrique, comme un premier pas vers la numérisation complète des 200 000 photographies de la Société de Géographie.

Des images numériques pour quels utilisateurs ?

La réponse à la question consistant à savoir quelle catégorie de public est visée par un programme d'images cartographiques numériques va conditionner de façon structurante les moyens techniques à mettre en oeuvre, les taux de numérisation, les processus d'action, le budget, les postes de travail, les Opacs, etc. D'ordinaire, des enquêtes et des sondages peuvent donner une assez bonne image du public fréquentant une bibliothèque. La situation n'est pas aussi simple en ce qui concerne un établissement tel que la Bibliothèque Nationale de France ; en fait, le nouveau bâtiment abritera deux bibliothèques différentes :

- le "rez-de-jardin" est bien évidemment la bibliothèque nationale pour les livres, les publications en série et l'audiovisuel ; ce sera le domaine des chercheurs, des universitaires et des étudiants avancés
- le "haut-de-jardin" sera une bibliothèque en libre accès de 400 000 volumes fréquentée par un public "plus large" que l'on ne connaît aujourd'hui que par des enquêtes et des études. Cette bibliothèque est censée être une "bibliothèque publique et universitaire" de haut niveau puisque les collections sont prévues pour des étudiants, des spécialistes et des "amateurs".

Il ne faut pas oublier le site Richelieu, où sont conservées toutes les collections spécialisées, où reste le Département des cartes et plans, ouvert aux chercheurs, aux étudiants... et au "grand public", car les collections importantes de documents cartographiques en France ne sont pas nombreuses.

Les différentes chaînes de travail

Dans l'ensemble, ce n'est pas un problème facile à résoudre ; une solution possible consisterait à traiter chaque problème de façon séparée, en gardant à l'esprit que

l'ensemble de la collection de représentations cartographiques numériques doit être cohérent, mais on peut être effrayé du manque de cohérence du résultat final.

Pour résoudre des problèmes différents, la meilleure solution est peut-être de mettre en oeuvre des solutions certes différentes mais intégrées dans un processus global de traitement : chaque projet réclame une analyse propre et des tests spécifiques afin de trouver le meilleur taux de numérisation pour offrir le meilleur outil possible à l'utilisateur final.

Ces études prennent le problème à la fois d'un point de vue technique, juridique et financier ; la réponse en termes techniques est censée répondre aux besoins des utilisateurs... et à ceux de l'établissement.

A ce stade, un nouveau problème apparaît : la numérisation doit-elle être effectuée à partir du document original ou d'un substitut photographique ? Globalement, ce n'est pas un problème technique puisque, dans la plupart des cas, il est possible de numériser un document à partir de l'original, même si les tests montrent que la numérisation d'un inversible couleur de haute qualité donne les mêmes résultats que celle d'un document de taille moyenne. Le problème est différent en ce qui concerne les documents cartographiques dont la taille ne permet pas une numérisation directe : aujourd'hui les plus grands numériseurs sont incapables de traiter un document de 2,5 x 1,5 m.

En fait, la réponse est plutôt une question de bon sens : elle dépend du document lui-même. Par exemple, un projet consiste en la numérisation de 20 000 photographies d'Afrique de la Société de géographie. La grande majorité de ces photographies n'excède pas 9 x 13 cm ou 13 x 18 cm. Les tests ont montré qu'on obtenait un meilleur résultat si la numérisation était effectuée à partir d'un substitut photographique de bonne qualité plutôt qu'à partir du cliché original : ces photographies anciennes sont fragiles et cassantes, certaines ont viré au brun ou au gris clair et un substitut photographique de bonne qualité permet de rehausser le contraste et la définition du cliché lui-même.

D'autres documents soulèvent le problème inverse : quelques-uns des plans d'architecture de Boullée mesurent 4,5 x 2 m : il est bien évident qu'ils ne peuvent être numérisés directement et qu'on ne peut faire l'économie d'une campagne photographique.

Les experts en conservation affirment par ailleurs qu'un inversible couleur réalisé il y a 5 ans n'est plus complètement parfait et qu'un inversible couleur réalisé il y a 20 ans peut être inutilisable, même s'il a été conservé dans un environnement protégé et favorable ; ils disent également que la durée de vie d'une microfiche noir et blanc peut atteindre une centaine d'années.

En France, du fait d'un contexte historique particulier, différentes solutions sont mises en oeuvre ; dans le cadre d'un plan général de conservation, appelé "plan de sauvegarde", de nombreux documents existent déjà sous forme de substituts photographiques. Selon les projets et les collections, ces substituts peuvent être très différents : microfiches, microfilms, cartes à fenêtre, microfiches monovues, inversibles couleur, inversibles noir et blanc, ektachromes de grand format (jusqu'à 24 x 30 cm), cibachromes, etc. Ces substituts photographiques, dont les plus anciens remontent à la fin des années 1970, ont été réalisés dans une optique de conservation et pas dans une optique de numérisation qui n'existait pas encore ; à l'époque, on pensait qu'une reproduction photographique était préférable pour l'utilisateur à un document incommunicable, et les normes de haute qualité n'ont pas toujours été une priorité : les reproductions ne sont pas des fac-similés.

Lors de la sélection des projets, la nature, la couverture et la qualité des reproductions photographiques existantes ont bien évidemment été un important critère de choix : il serait stupide de vouloir numériser des cartes à partir de diapositives 35 mm 24 x 36 mm ou de microfiches. Les tests ont montré que les meilleurs résultats étaient obtenus à partir de cibachromes 5 pouces.

La meilleure réponse en termes techniques à la numérisation de documents cartographiques consiste à réaliser une image numérique en mode "texte" : ce procédé permet à l'utilisateur d' "entrer" dans l'image numérique, de sélectionner des mots, d'effectuer un zoom sur un détail géographique ou toponymique et de sauvegarder le résultat de sa recherche sur une disquette ou un DOC s'il le désire. Cette façon de faire, si elle garantit une grande qualité, coûte beaucoup plus cher et nécessite des moyens techniques plus importants : les taux de numérisation requis pour les projets de la Direction des collections spécialisées couvrent un éventail allant, par exemple, de 1 000 x 1 500 dpi ou 1 500 x 2 000 dpi pour les photographies noir et blanc 20 x 30 cm d'Atget à 2 000 x 3 000 dpi pour les photographies en couleur 50 x 60 cm de la DATAR et 4 000 x 6 000 dpi pour les cartes de France. Quelques cas particulièrement difficiles nécessitent un taux de résolution atteignant 6 000 x 8 000 dpi (Rappelons pour mémoire qu'un page de texte est généralement numérisée au taux de 400 dpi). Le résultat est parfaitement lisible sur un écran SVGA 17", permet une bonne qualité de reproduction ainsi que la publication de catalogues illustrés d'imagerie cartographique et devient absolument parfait sur un écran graphique 21". Si la consultation d'une image numérique sur un écran graphique ne pose aucun problème et permet la lecture des toponymes sur une carte, le problème est la taille gigantesque des fichiers à traiter : une carte ancienne, c'est-à-dire un document pas très détaillé, peut

atteindre 200 Mo..., même si la compression permet de le réduire à environ 200 Ko.

Normes actuelles

Le contrôle de la qualité est une opération très importante de la chaîne de travail et l'utilisation de normes, à la fois pour la numérisation, l'exploitation et la communication permet d'obtenir de bons résultats. Malheureusement, de réelles normes reconnues à l'échelle mondiale n'existent pas encore. Parmi les différents procédés techniques aujourd'hui disponibles, le procédé Kodak existe, mais s'il est devenu une sorte de norme de facto, ce n'est pas encore une véritable norme officielle internationale. La Bibliothèque nationale de France utilise pourtant le photo CD Kodak, en partenariat avec le Laboratoire de micro-image implanté près de Paris, dont sont issus tous les exemples présentés.

Par exemple, la compagnie Kodak fournit des disques contenant une centaine d'images électroniques à deux taux de résolution différents : 512 x 768 dpi pour le contrôle de l'image et le "butinage" et 1024 x 1536 dpi pour la consultation. Si le substitut photographique est de qualité et si le besoin s'en fait sentir, il est possible d'augmenter la finesse de résolution jusqu'à 4 000 x 6 000 dpi. D'autres compagnies fournissent des cassettes DAT contenant 500 à 700 images électroniques aux mêmes taux de résolution.

Tout au long de la chaîne de travail, on doit également se préoccuper des différentes sortes de support physique : depuis le support d'enregistrement, le support de transfert, le support servant à la fourniture du document numérique, le support de stockage pour la consultation jusqu'à, enfin, le support final utilisé pour la conservation des images numériques, on peut rencontrer aussi bien des bandes magnétiques que des disques optiques compacts, en passant par des disques durs ou des WORM.

Le support d'exploitation, c'est-à-dire le serveur, n'est pas le support utilisé pour la consultation, car la qualité de l'image numérique dépend du matériel utilisé. Une résolution de 1 000 x 1 500 dpi sur un écran TV "haute définition" est suffisante si le document original n'est pas très grand et pas trop détaillé. Dans certains cas, afin d'éviter toute piraterie intellectuelle, le support de consultation pourra présenter une qualité dégradée : un document de travail ne requiert pas la même qualité qu'un document prévu pour publication. Une imprimante à sublimation de trop haute qualité peut parfois s'avérer dangereuse...

Le dernier point, mais non le moindre, qu'il faut prendre en compte et toujours garder à l'esprit est que les données seront toujours plus importantes que les

supports physiques : le support peut évoluer, mais les données restent, notamment si elles possèdent une structure normalisée et sont conservées dans un environnement favorable.

Problèmes de catalogage et d'indexation

Il serait inutile d'essayer de proposer des images numériques de documents cartographiques sans catalogage associé. Dans ce cas, l'utilisateur préférerait sans doute feuilleter plus ou moins au hasard dans des albums photographiques plutôt que d'essayer de retrouver un document sur un disque optique compact ou dans une base de données sans aucune indexation.

Doit-on cataloguer les images numériques à l'unité ou bien par lots ? Notre réponse est sans ambiguïté : tous les documents doivent être catalogués à la pièce.

Cela semble évidemment une solution idéale que de cataloguer chaque document comme une unité documentaire séparée et de créer des liens entre eux afin d'obtenir un ensemble "virtuel" dans la base de données, mais cette solution peut s'avérer longue et coûteuse. Si les documents originaux ont déjà été catalogués à l'unité dans la base de données, le problème sera infiniment plus simple : il suffira, dans ce cas, d'ajouter une adresse logique aux descriptions bibliographiques et de créer un lien réciproque afin d'obtenir aussi bien l'image numérique à partir de la notice de description bibliographique dans la base de données que la description textuelle à partir de l'image. Le résultat sera encore meilleur si le système est capable de gérer un catalogage à niveaux : il sera alors possible de lier précisément une ou plusieurs images numériques à une notice textuelle contenue dans un ensemble plus important. Si le besoin s'en fait sentir, et si les crédits et les ressources humaines sont disponibles, la conversion rétrospective d'un fichier ou d'un catalogue imprimé, par numérisation et reconnaissance optique de caractères ou par saisie "classique", pourra être une solution élégante pour obtenir un catalogage à la pièce.

On peut également procéder autrement si les documents originaux n'ont pas encore été catalogués, mais seulement inventoriés ; le choix dépendra du personnel disponible. Dans certains cas, le choix d'un catalogage par lots pourra s'avérer une solution suffisante si chaque document est au moins identifié par une courte légende et une adresse logique dans la base de données. Dans ce cas, l'utilisateur effectuera sa recherche dans la base de données, trouvera une description contenant plusieurs images numériques et devra les faire défiler pour trouver celle qu'il souhaite.

Quelle sorte de catalogage doit-on effectuer pour obtenir le meilleur résultat ? Faut-il encore respecter les ISBD, les formats MARC et les listes raisonnées d'indexation matières quand l'hypertexte et le "langage naturel" font leur apparition ? En France, nous répondons fermement par l'affirmative ! Nous pensons en effet que les formats MARC et RAMEAU, version française de LCSH, sont encore des normes internationales pour longtemps, même à travers une structure SGML.

Dans la mesure où la future base de données (appelée "Système d'information") n'est pas encore opérationnelle, tous les documents spécialisés sont catalogués dans la base de données BN-OPALINE. Le nouveau Syst Système d'information sera développé autour du système ouvert UNIX, possèdera des interfaces W-Window, des liens de transmission à grande vitesse FDDI et des liens TCP/IP ETHERNET au protocole ISO Z 3950.

Coût de la numérisation

Les problèmes de coût sont une question sérieuse : le coût total d'une campagne de numérisation peut être très élevé, tout particulièrement si l'on a choisi des taux de résolution très importants, même si la numérisation aujourd'hui coûte deux fois moins cher qu'il y a deux ans. Pourtant, le coût de la numérisation d'une image est deux fois moins élevé que le coût d'un substitut photographique sur microfiche, mais l'on doit garder à l'esprit que le coût de la numérisation ne comprend pas la seule numérisation proprement dite, mais couvre également les éventuels coûts de restauration, les éventuelles campagnes photographiques, le catalogage, l'indexation, les différents supports physiques, les éventuels postes de travail spécifiques munies d'écrans graphiques "haute définition", etc.

Problèmes juridiques

En France, la situation juridique sur l'utilisation des images numériques n'est pas simple : les lois de propriété et de protection intellectuelle sont très strictes et on doit toujours rechercher d'éventuels ayant-droits. Aujourd'hui, parce qu'ils n'ont aucun contrôle sur l'usage des images numériques disponibles, les ayant-droits semblent beaucoup plus inquiets qu'il y a dix ou vingt ans : ils semblent considérer l'INTERNET et les autres réseaux comme des machines diaboliques destinées à les gruger... quand ils acceptaient, il y a plusieurs années, sans sérieuses discussions, la reproduction des documents dont ils détiennent les droits par des moyens photographiques, magnétiques ou analogiques

C'est la raison pour laquelle la majorité des projets en cours concerne des documents anciens, pour lesquels n'existent pas de problèmes de communication ou de reproduction, puisqu'ils appartiennent à la Bibliothèque nationale de France depuis des années, voire des siècles. La période officielle de 50 ans empêche ainsi l'établissement d'utiliser des documents qui ne sont pas encore tombés dans le domaine public.

Toutefois, quelques institutions, telles que, par exemple, Spotimage, sont en pourparlers avec la Bibliothèque nationale de France au sujet de la conservation de leurs archives électroniques avec, en compensation, une possible utilisation de leurs documents.

Dans l'ensemble, en ce qui concerne les documents de moins de 50 ans, la solution consiste souvent en la signature d'une convention spécifique entre la Bibliothèque nationale de France, voire le Ministère de la culture et les ayant-droits.

Les réseaux

Le développement récent des "autoroutes de l'information", telles que l'INTERNET soulève de nouveaux problèmes : les accès et communications à longue distance ne sont pas faciles à gérer d'un point de vue technique, pratique et juridique.

Un des problèmes les plus simples à résoudre est le problème technique : le réseau lui-même doit s'appuyer sur une base physique solide. En France, la solution est bien évidemment le réseau RENATER, réseau universitaire conçu et réalisé pour permettre aux bibliothèques universitaires et de recherche de travailler en réseau.

D'un point de vue pratique, l'établissement se doit de définir clairement ses besoins ; par exemple :

- combien d'utilisateurs sont susceptibles de se connecter simultanément ?
- quelle qualité d'image numérique doit être disponible sur le réseau. Il est tout à fait possible de consulter un document à un taux de définition très élevé à l'intérieur de l'établissement et d'offrir une image numérique de qualité inférieure sur le réseau ; cette question est déterminante et structurante en termes de flux de données et de temps de réponse.

D'un point de vue juridique, il est souvent impossible de contrôler l'usage qui est fait des images numériques disponibles sur le réseau et, une fois encore, des problèmes apparaissent avec les ayant-droits. Dans certains cas, par exemple avec les réseaux fermés, il est possible d'identifier l'utilisateur distant et de savoir ce qu'il fait. Dans la plupart des cas, avec les réseaux ouverts tels que l'INTERNET,

cette identification n'est pas possible : tout au plus peut-on savoir que M. Untel s'est connecté à la base de données, mais il est impossible de savoir ce qu'il a fait... et ce qu'il va faire du résultat de sa recherche.

Néanmoins, la Bibliothèque nationale de France s'est récemment ouverte à l'INTERNET, et offre sa base de données BN-OPALINE sur le réseau depuis juin 1995, grâce à des protocoles Telnet et Z 3950.

La page d'accueil de la Bibliothèque nationale de France sur l'INTERNET consiste en une base de données graphiques spécifique intitulée "1 000 enluminures sur INTERNET" ; cette base de données devrait être prête en septembre 1995 pour l'inauguration de l'exposition "Culture et pouvoir" à la Bibliothèque du congrès, dans laquelle on trouvera de nombreux objets provenant de France. Ce projet sera l'une des plus importantes bases de données graphiques sur l'INTERNET. Sept manuscrits à peinture du 14^e siècle, la période de Charles V, le fondateur de la Bibliothèque nationale, ont été numérisés ; parmi eux, l'"Atlas catalan" par Abraham Cresques, daté de 1381, représente l'état du monde connu à cette époque et constitue le chef-d'oeuvre de ce projet. Ce portulan comporte 6 feuilles de vélin, pliées en leur milieu et montées sur des ais de bois, chaque feuille mesurant 64 x 49 cm. L'original a été photographié sur des cibachromes 4 x 5 pouces et numérisé au taux de 2 000 x 3 000 dpi pour les feuilles entières et au taux de 4 000 x 6 000 dpi pour les détails ; plus de 50 détails sont disponibles. Une version spécifique de cette base graphique sera opérationnelle sur une borne interactive à écran tactile pendant l'exposition de Washington ainsi qu'à la Bibliothèque nationale de France.

Telles sont, dans l'ensemble, les questions auxquelles la Bibliothèque nationale de France doit répondre. Le nouveau bâtiment de Tolbiac devrait accueillir le public en février 1997, c'est-à-dire qu'il ne reste que 18 mois pour résoudre tous les problèmes, accomplir toutes les tâches indispensables, numériser tous les documents...

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LITERATURE SEARCHES IN MEDICINE: A COMPARATIVE EVALUATION OF MANUAL AND CD- ROM SEARCH MODES*

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Abstract: In the present study, manual and CD-ROM search modes are compared in terms of quality and time, based on the medical searches conducted from Index Medicus and Comprehensive Medline CD-ROM (Ebsco). The more effective search mode is determined with respect to certain quality criteria (Relevance, Coverage, Novelty). The faster mode in terms of response time is revealed, concerning the rate of the speed. The medical doctors of Hacettepe University Medical Center (Ankara, Turkey), who refer to the Center Library in 1991, are represented by 50 samples. Each of the 50 request topics is searched by the researcher, both manually and by computer. Equivalent periods of coverage are used (1988-1991). Precision and Recall, being the measures of relevancy, and Novelty ratios are found for both modes. The source, representing the current medical literature faster, is determined as well. Coverages of both search sources, for an equivalent period, are compared. The faster mode is found by measuring the response times. Results indicate that the CD-ROM mode is more effective than the manual one, in terms of relevance, coverage, novelty and response time. However, manual searches have revealed higher Precision and the time devoted to manual search strategies is shorter. Since the two modes have complementary features, co-existence of both is suggested.

Introduction

Let it be admitted that there is always a need for high quality medical search results in every country in the world, because these results have significant effects on human health. A weighty portion of literature searches performed by several institutions in this country are on medicine. The aim of the present study is to determine the more effective medical search mode in an objective manner, since

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there is a strong subjective tendency towards computerized literature searches in Turkey. CD-ROM mode, in particular, attract the attention of most of the librarians and users. Manual searches seem to be entirely abandoned.

In the present study, manual and CD-ROM search modes are compared in terms of quality and time, based on the medical searches conducted from Index Medicus (IM) and Ebsco Comprehensive Medline CD-ROM respectively. The more effective search mode was determined with respect to certain quality criteria such as relevance, coverage and novelty. The faster mode in terms of response time was revealed, concerning the rate of the speed.

Methodology

The medical doctors of Hacettepe University Medical Center (Ankara, Turkey), who refer to the Center library in 1991 (821) were represented by 50 samples (n=50). Following the search interviews, an effort was spent to arrange search strategies equally. As a principle MeSH terms were selected for both modes. However, in preparing CD-ROM search strategies natural language terms were used, where needed, in combination with MeSH terms. In particular, when a specific MeSH term did not exist at all, depending on the features of the request topic, either broader MeSH terms were coordinated with natural language terms or only natural language terms were used. Each of the 50 request topics was searched both manually and by computer, by the researcher. Equivalent periods of coverage were used (1988-1991). As far as 1991 searches were concerned, equivalent months of the year were determined. However, there was a 6-month delay in receiving 1991 IM issues while the CD-ROM disks were usually available within the existing month. The problem was solved by installing the back month's disk each time, instead of waiting for the coming IM issue.

Each CD-ROM search output was compared with the equivalent manual search result list to find out the unique and common citations. As a result, citations were categorized in three groups:

1. Unique citations retrieved from the manual search,
2. Unique citations retrieved from the CD-ROM search,
3. Common/matched citations retrieved from both search modes.

Single literature lists, categorized in these three groups, were submitted to the requesters. The requesters were asked for making relevance judgements regarding their search topics. Two relevance assessments, relevant and nonrelevant, were used, simply just to avoid confusions and uncertainties of multi-category relevance assessments. The requesters were not informed about which group indicated

which search mode. The advantage of producing a single list is to avoid the risk of judging the same citation several times.

Abstracts were provided for each citation to ensure healthy judgements. Original article abstract photocopies were attached to the first group citations which were uniquely retrieved from the manual searches. Since CD-ROM produced the abstracted outputs, there was no problem for the groups 2 and 3. A questionnaire was attached to each abstracted list. This questionnaire was prepared for additional relevance and novelty assessments.

Each judged literature list was reassessed on its return, to estimate Precision (P)-Recall (R) pairs for two modes. P and R, being the measures of relevance, are the two well-known performance criteria. P is defined as the proportion of retrieved citations that are relevant, while R is the proportion of relevant citations that are retrieved. These two ratios are defined as:

$$P: \frac{\text{Number of relevant citations retrieved}}{\text{Total number of citations retrieved}} \times 100,$$

$$R: \frac{\text{Number of relevant citations retrieved}}{\text{Total number of relevant citations in the collection}} \times 100.$$

It was necessary to obtain the number of citations retrieved (for P), number of relevant citations retrieved (for P and R) and total number of relevant citations in the collection (for R).

Estimation of P ratios caused no problem for both modes:

$$P \text{ (Manual): } \frac{\text{Group 1+3 (relevant citations retrieved)}}{\text{Group 1+3 (relevant, nonrelevant citations retrieved)}} \times 100$$

$$P \text{ (CD-ROM): } \frac{\text{Group 2+3 (relevant citations retrieved)}}{\text{Group 2+3 (relevant, nonrelevant citation retrieved)}} \times 100$$

In estimating the R ratio it was necessary to get the total number of relevant citations in the collection. This is completely impractical in any system of a normal size. As an alternative, "Relative Recall" (RR) is used commonly, to calculate R ratios. In the current study, RR estimations were based on the relevant citations retrieved. The total number of relevant citations in the collection was accepted as the sum of the relevant citations retrieved in the groups 1, 2 and 3. Thus the R ratios for search modes estimated as follows:

$$R \text{ (Manual): } \frac{\text{Group 1+3 (relevant citations retrieved)}}{\text{Group 1+2+3 (relevant citations retrieved)}} \times 100$$

$$R \text{ (CD-ROM): } \frac{\text{Group 2+3 (relevant citations retrieved)}}{\text{Group 1+2+3 (relevant citations retrieved)}} \times 100$$

After the calculation of individual P-R pairs, average P and R ratios were estimated for both modes (50 searches) as follows:

$$\text{Average P (Manual): } \frac{\text{Group 1+3 (relevant citations retrieved by 50 manual searches)}}{\text{Group 1+3 (relevant and nonrelevant citations retrieved by 50 manual searches)}} \times 100$$

$$\text{Average P (CD-ROM): } \frac{\text{Group 2+3 (relevant citations retrieved by 50 CD-ROM searches)}}{\text{Group 2+3 (relevant and nonrelevant citations retrieved by 50 CD-ROM searches)}} \times 100$$

$$\text{Average R (Manual): } \frac{\text{Group 1+3 (relevant citations retrieved by 50 manual searches)}}{\text{Group 1+2+3 (Total relevant citations retrieved by 50 manual and 50 CD-ROM searches)}} \times 100$$

$$\text{Average R (CD-ROM): } \frac{\text{Group 2+3 (relevant citations retrieved by 50 CD-ROM searches)}}{\text{Group 1+2+3 (Total relevant citations retrieved by 50 manual and 50 CD-ROM searches)}} \times 100$$

Coverage, being another performance measure, can be described in terms of how much coverage of the literature on a specific subject is provided by a particular data base. IM and Medline CD-ROM were not evaluated in this particular sense. But the coverage of these two sources of 1991 were compared. Coverage evaluation was performed in two stages:

1. The lists of journals indexed by IM¹ and Medline CD-ROM², were compared with the medical journal list prepared by Brandon and Hill³ successively.

¹ The National Library of Medicine, List of Journals Indexed in Index Medicus (Bethesda, Md.: The National Library of Medicine, 1991)

² A List/output of journals indexed by Ebsco Medline CD-ROM in 1991.

³ A.N. Brandon and D.R. Hill, "Selected List of Books and Journals in Allied Health," Bulletin of the Medical Library Association 80 (3 1992): 238-239.

2. The lists of journals indexed by IM and Medline CD-ROM), were compared with each other in details.

Evaluation studies regarding novelty were performed in two stages as well:

1. Novelty ratios were determined for both modes and compared.
2. The source, included the current citations in its coverage earlier, is determined.

Novelty Ratio (NR), being one of the important quality criteria in evaluating the literature searches, can be described as, the proportion of relevant items retrieved in a search that are new to and unknown by the requester. The ratio is defined as:

$$\text{NR: } \frac{\text{Number of new (unknown) relevant citations retrieved}}{\text{Number of relevant citations retrieved.}} \times 100$$

The requesters were asked to mark the relevant citations that were new to them. So individual and average NRs for both modes were estimated in our study, by means of the assessments of the questionnaires and the lists judged by the requesters.

Estimation of NRs for both modes:

$$\text{NR (manual): } \frac{\text{Group 1+3 (new / unknown relevant citations retrieved)}}{\text{Group 1+3 (relevant citations retrieved)}} \times 100$$

$$\text{NR (CD-ROM): } \frac{\text{Group 2+3 (new / unknown relevant citations retrieved)}}{\text{Group 2+3 (relevant citations retrieved)}} \times 100$$

Averages NRs were estimated for both modes (50 searches) as follows

$$\text{Average NR (Manual): } \frac{\text{Group 1+3 (new / unknown relevant citations retrieved by 50 manual searches)}}{\text{Group 1+3 (relevant citations retrieved by 50 manual searches)}} \times 100$$

$$\text{Average NR (CD-ROM): } \frac{\text{Group 2+3 (new / unknown relevant citations retrieved by 50 CD-ROM searches)}}{\text{Group 2+3 (relevant citations retrieved by 50 CD-ROM searches)}} \times 100$$

Novelty has another aspect, in terms of adding the current citations as soon as possible into the coverage of the data base. This has a primary importance in medicine. Thus, the second stage of the comparative evaluation study regarding novelty was performed to determine the search source which included the current citations into its coverage earlier. This study was based on the common citations retrieved, in group 3. To give an example for this stage, search number 10, retrieved 14 common citations. 8 of them appeared in IM and in Ebsco Comprehensive Medline CD-ROM in the same year, 6 of them appeared in CD-ROM a year earlier than IM. The sum of such citations, revealed the total numbers regarding this aspect.

Response Time (RT), being the basic time measure, consists of the time devoted to strategy preparation and actual search time. The faster mode was found in this study, by measuring both strategy and actual search times for each search in the two modes. After determining the individual RTs, total and mean RTs were estimated for both modes, regarding 50 searches.

Results and discussion

Relevance:

The average P ratios of searches were as follows: Manual 84.2%, CD-ROM 75.1%. The average R ratios of searches revealed were: Manual 53.1%, CD-ROM 84%. The manual searches yielded a higher P ratio while CD-ROM searches revealed a higher R ratio.

The average P ratio of CD-ROM searches was lower than the manual ones. One of the reasons of this result might be the usage of natural language terms in the CD-ROM strategies. It is well known that there are some disadvantages of using such terms which result in retrieving those citations which are nonrelevant. For example, if a certain term has several meanings, it is possible to retrieve a nonrelevant item, containing the nonrelevant meaning. The success of manual searches in P ratios is due to some features of human brain including deciding, understanding, conceiving, perceiving, avoiding and coordinating. Besides, manual search strategies based on MeSH terms eliminate the disadvantages of natural language terms. Even if a term or a synonym is missed in the strategy, it is possible to retrieve a relevant citation.

On the other hand, manual searches yielded a lower R ratio. One of the reasons of this result might be the advantage of natural language terms. These terms, allow to retrieve more citations which enhance the R ratio. Besides in IM searches, if no specific MeSH terms are available, the words or terms related to the topic, are searched under some broader MeSH terms; in such cases some significant relevant

citations are likely to be missed. In addition, some terms might be hidden under a MeSH term that probably does not exist in the strategy.

It should be mentioned that the success of CD-ROM searches in P ratio (75.1%) was higher than the success of manual searches in R ratio (53.1%). In conclusion, it should be emphasized that CD-ROM searches were more successful than the manual ones in terms of relevance. But it should be kept in mind that in P ratio, manual searches were more successful.

Coverage:

Results of the coverage evaluation study is as follows:

1. 29.8% of the journals indexed by Medline CD-ROM existed in Brandon and Hill's list. On the other hand, 23.3 % of the journals indexed by IM existed in this list. CD-ROM was more successful in terms of coverage. However, the outcome of this study revealed the fact that none of the sources were sufficient in their coverage, in accordance with Brandon and Hill's list.
2. IM indexed 2,960 journals, Medline CD-ROM indexed 3,435 journals. 2,768 journals were indexed commonly by both sources, 667 journals were uniquely indexed by CD-ROM, while 192 journals were uniquely indexed by IM. Thus, CD-ROM indexed 475 more unique journals than IM.

It is well known that besides IM, Index to Dental Literature and International Nursing Index are among the sources which are covered by Medline. This detailed coverage study revealed the fact that 667 uniquely indexed journals by the mentioned CD-ROM product of Medline, were not totally dental and nursing journals. Only 326 out of 667 were such journals. 341 were mainly medical and related area sources. On the other hand, IM indexed 192 unique journals. It was surprising to see that few of them were on dentistry and nursing. As far as the year 1991 was concerned the two sources did not index an amount of medical journals in common. Medline CD-ROM was found to be more comprehensive in its coverage, since it indexed 341 medical and related area journals uniquely, that were neither dental nor nursing, which were apparently more in number than the 192 journals uniquely indexed by IM.

Novelty:

1. The average of the NR results for manual was 7.47%, while it was 11% for CD-ROM. Thus, Ebsco Comprehensive Medline CD-ROM was more successful in bringing the relevant citations to the requesters' attention for the first time.
2. It was also found that Medline added the current literature into its coverage earlier than IM. 68.9 % of the common citations retrieved by both modes,

represented by group 3, appeared in Medline CD-ROM and in IM in the same year. 30.7% of them appeared in Medline a year earlier than IM. There were no citations appeared in IM earlier than Medline CD-ROM. Thus, once more, CD-ROM was found to be more successful.

Response Time:

The present study revealed that CD-ROM searches were faster than the manual ones, as commonly accepted undoubtedly. The RT for CD-ROM searches was 50 hours 35 minutes in total. The mean CD-ROM search RT was 1 hour 42 seconds. The total RT devoted to manual ones was 149 hours 10 minutes. The mean manual search RT was 2 hours 59 minutes. Approximately, within almost a 3 hour's time, 3 CD-ROM searches were completed, while a single manual search was performed.

One of the most significant results of the present research was that the time spent for CD-ROM strategies was longer than the manual ones. The time devoted to manual strategies was 4 hours 10 minutes in total. The mean manual search strategy time was only 5 minutes. On the other hand, CD-ROM strategies took 9 hours 35 minutes in total and the mean strategy time was 11.5 minutes.

Conclusion

Results indicate that the CD-ROM mode is more effective than the manual one, in terms of relevance, coverage, novelty and response time. However, it should be kept in mind that manual searches have revealed higher P, IM indexes unique journals which do not exist in Medline CD-ROM (as far as 1991 is concerned), most of the common citations retrieved by both modes appear in IM and Medline CD-ROM within the same year, and the time devoted to manual search strategies is shorter.

Considering the results of this study, it is concluded that the two search modes have complementary features which suggest the co-existence of both, where possible and needed. If, IM already exists in the library, searchers should decide, in an objective manner, when to search IM and when to search Medline CD-ROM, depending on the features of the request topic.

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**LIBRARIES ARE NOT FOR BURNING: INTERNATIONAL
LIBRARIANSHIP AND THE RECOVERY OF THE
DESTROYED HERITAGE OF BOSNIA AND
HERZEGOVINA***

By András Riedlmayer

Abstract: In the past three years, the cultural heritage of Bosnia-Herzegovina has suffered major destruction. The result is what a Council of Europe report has called "a cultural catastrophe." Historic architecture (including 1200 mosques, 150 churches, 4 synagogues and over 1000 other monuments of culture), works of art, as well as cultural institutions (including major museums, libraries, archives and manuscript collections) have been systematically targeted and destroyed. The losses include not only the works of art, but also crucial documentation that might aid in their reconstruction. Our Bosnian colleagues need the assistance of the international library community to help them recover and restore some of what has been lost and to rebuild the buildings and institutions that embody their country's cultural heritage. Librarians outside of Bosnia, through their home institutions and professional organizations, can provide material and technical assistance, training and documentation to help to undo the destruction of memory.

Three years ago this August, Bosnia's National and University Library, a handsome Moorish-revival building built in the 1890s on the Sarajevo riverfront, was shelled and burned. Before the fire, the library held 1.5 million volumes, including over 155,000 rare books and manuscripts; the country's national archives; deposit copies of newspapers, periodicals and books published in Bosnia; and the collections of the University of Sarajevo.

Bombarded with incendiary grenades from Serbian nationalist positions across the river, the library burned for three days; most of its irreplaceable contents were reduced to ashes. Braving a hail of sniper fire, librarians and citizen volunteers formed a human chain to pass books out of the burning building. Interviewed by

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an ABC News camera crew, one of them said: "We managed to save just a few very precious books. Everything else burned down. And a lot of our heritage, national heritage, lay down there in ashes." Among the human casualties was Aida Buturovic librarian in the National Library's international exchanges section, shot to death by a sniper.

Three months earlier Sarajevo's Oriental Institute, home to one of the largest collection of Islamic and Jewish manuscript texts and Ottoman documents in Southeastern Europe, was shelled with incendiary grenades and burned. Losses included 5,263 bound manuscripts in Arabic, Persian, Hebrew, and *adzamijski* (Bosnian Slavic written in Arabic script); 7,000 Ottoman documents, primary source material for five centuries of Bosnia's history; a collection of 19th-century cadastral registers; and 200,000 other documents of the Ottoman era, including microfilm copies of originals in private hands or obtained on exchange from foreign institutions. The Institute's collection of printed books, the most comprehensive library on its subject in the region, was also destroyed as was its catalog and all work in progress.

In each case, the library alone was targeted; adjacent buildings stand intact to this day. Serb nationalist leader Radovan Karadzic has denied his forces were responsible for the attacks, claiming the National Library had been set ablaze by the Muslims themselves "because they didn't like its ... architecture." (New York Newsday, 30 November 1992).

The 200,000-volume library of Bosnia's National Museum (est. 1888) was successfully evacuated under shelling and sniper fire during the summer of 1992. Among the books rescued from the Museum was one of Bosnia's greatest cultural treasures, the 14th-century Sarajevo Haggadah. The work of Jewish calligraphers and illuminators in Islamic Spain, the manuscript was brought to Bosnia 500 years ago by Jews fleeing the Spanish Inquisition. It entered the National Museum's collection over a century ago. Successfully concealed from the Nazis by a courageous museum curator during World War II, the Sarajevo Haggadah has now once again had to be hidden in a secret location.

The National Museum, meanwhile, has been badly hit. Shells have crashed through the roof and the skylights and all of its 300 windows have been shot out, as have the walls of several galleries. Parts of the Museum's collection that could not be moved to safe stores remain in the building, exposed to further artillery attacks and to decay from exposure to the elements. Dr. Rizo Sijaric, the Museum's director, was killed by a grenade blast on 10 December 1993 while

trying to arrange for plastic sheeting from UN relief agencies to cover some of the holes in the building.

In April 1992, Serbian forces began bombarding the historic city of Mostar, the center of the country's southwestern region, Herzegovina. The Archives of Herzegovina, housing manuscripts and records documenting the region's past since the medieval period, was repeatedly hit and suffered severe damage. Over 50,000 books were destroyed when the library of Mostar's Roman Catholic archbishopric was struck by shells fired from artillery positions on the heights overlooking the city. Further tens of thousands of books and documents were exposed to fire and damp when shells smashed through the roof and windows of the Museum of Herzegovina. The University of Mostar Library was also hit and burned, along with a score of other libraries and archives at various locations in the city.

Throughout Bosnia, libraries, archives, museums and cultural institutions have been targeted for destruction, in an attempt to eliminate the material evidence - books, documents and works of art - that could remind future generations that people of different ethnic and religious traditions once shared a common heritage in Bosnia. In the towns and villages of occupied Bosnia, communal records (cadastral registers, endowment documents, parish records) of more than 800 Muslim and Bosnian Croat (Catholic) communities have been torched by Serb nationalist forces as part of "ethnic cleansing" campaigns.

While the destruction of a community's institutions and records is, in the first instance, part of a strategy of intimidation aimed at driving out members of the targeted group, it also serves a long-term goal. These records were proof that non-Serbs once resided and owned property in that place, that they had historical roots there. By burning the documents, by razing mosques and Catholic churches and bulldozing the graveyards, the nationalist forces who have now taken over these towns and villages are trying to insure themselves against any future claims by the people they have driven out and dispossessed.

Other Bosnians, however, remain determined to preserve their country's historic ideal of a multicultural, tolerant society and the institutions that enshrine its collective memory.

Surviving staff members of the National and University Library - Serbs and Croats as well as Muslims - are still at work in Sarajevo. An estimated 10% of the Library's collection was saved, as were tapes containing computerized catalogue records for a small portion of the items that perished in the fire. In temporary quarters, 42 librarians (out of a pre-war staff of 108) are preparing inventories,

undertaking what conservation measures are possible under current conditions, keeping track of titles published in Sarajevo since April 1992, and planning for the post-war reconstruction of their institution. They are also trying to serve the needs of 850 faculty members and the 4,500 students still studying at the University of Sarajevo; 70 students have completed work for doctoral degrees since the beginning of the siege.

The librarians and research staff of Sarajevo's Oriental Institute have also decided to carry on, despite the nearly total loss of their Institute's collections. In temporary quarters, they have been holding seminars and symposia to share their research, reconstructed from notes kept at home, and making plans for the Institute's future. They have issued a call for moral and material support from their colleagues throughout the world.

Response thus far by international agencies, institutions and professional organizations has been only modestly encouraging. UNESCO has given its endorsement to the rebuilding of the National Library, has sponsored a number of meetings to discuss the project, and has set up an office in Sarajevo. However, few books and little aid has actually reached Sarajevo thus far.

The Helsinki Citizens' Assembly, a human rights group based in Prague, has called on its affiliates to assist Bosnia's National Library and has established collection sites for donated materials in Europe.

Contact:

Tony Bloomfield,
HCA-UK,
11 Goodwin Street,
London N4 3HQ
tel.: 44-71-272-9092
fax: 44-71-272-3044

A similar effort is underway in France, led by the Association pour la renaissance de la Bibliothèque nationale à Sarajevo, which is collecting both funds and book donations.

Contact:

A.R.B.N.S.,
94, boulevard Auguste Blanqui
F-75014 Paris
France
tel.: 33-14-337-5218
fax: 33-14-331-6233

The Turkish National Library has undertaken to locate Bosnia-related materials in its own collections -- with the goal of making copies available when Bosnia's National Library is rebuilt -- and has issued a call to national and academic libraries elsewhere urging them to join the effort.

Contact:

Altınay Sernikli,
T.C. Milli Kütüphane Başkanlığı,
06490 Ankara, Turkey;

In June 1994, Iran's ambassador to Bosnia promised financial support for the reconstruction of the Oriental Institute; the Royal Library in The Hague has also pledged assistance. Publishers in the Czech Republic and Germany have offered to help produce reprint editions of the classics of Bosnian literature. A small group of British academics have established Bosnia-Herzegovina Heritage Rescue U.K., a private foundation, to assist with immediate conservation needs in Bosnia.

Contact:

Dr. Marian Wenzel
9 Canterbury Mansions,
Lymington Road,
London NW6 2EW U.K.
tel.: 44-71-433-1142

In the United States, tax-deductible contributions to support the reconstruction of Bosnia's National Library can be sent to the Sarajevo Fund (P.O. Box 1640 Cathedral Station, New York NY 10025).

The above represents but part of a growing number of efforts -- most of them small in scale -- to remedy what a Council of Europe report has characterized as a "major cultural catastrophe." What has largely been lacking, except in symbolic terms, has been an organized response on the part of the professional library community.

The American Library Association's official response, at its 1993 mid-winter meeting in Denver, was to issue a cautiously-worded statement decrying the loss of access to information by the peoples of the former Yugoslavia. This statement (CD#37) was passed over the vocal objections of some members, who wanted the ALA to avoid involvement in "political" issues. The full text of the statement was sent to the official addressees (including the White House and the U.N.), but it was decided not to give it wider publicity. At its congress in Barcelona later that year, IFLA adopted a similar resolution, pointing no fingers and naming no names - as if the libraries in question had somehow self-destructed.

The debates in Denver and Barcelona reflect an unfortunate confusion. The burning of libraries and archives cannot be construed as a mere expression of one side's views in a political dispute. It is also not merely one of the regrettable calamities of war. It is a crime against humanity and a violation of international laws and conventions. The latter include the 1931 Athens Charter, the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict, the 1964 Venice Charter, and the 1977 Protocols I and II Additional to the Geneva Conventions of 1949, all of which were ratified by the government of the former Yugoslavia and remain legally binding upon its successor states.

The prosecution of crimes against culture remains one of the urgent tasks facing the International Criminal Tribunal for the Former Yugoslavia and deserves our support. But we can also play an active part, in our professional capacity as librarians and representatives of our home institutions, to assist in the task of rebuilding the libraries and cultural heritage of Bosnia-Herzegovina. In addition to the examples given above, there are also other creative ways to use our collective expertise and resources. Although the scale of destruction is unprecedented, not all has been lost in Bosnia and some of what has been destroyed may be recoverable.

Sarajevo's Gazi Husrev Beg Library, one of Bosnia's preeminent manuscript libraries (est. 1537), was shelled in May 1992, but most of its collection has been saved. That collection, along with other caches of rescued but endangered materials (including most the holdings of the Archives of Herzegovina in Mostar), requires the attention of conservation professionals. Even before the fighting is over, we can offer training internships as well as technical and material assistance to our Bosnian colleagues, who face the task of caring for, preserving and restoring these precious items.

Of the manuscripts and documents destroyed in the fire that consumed the Oriental Institute, many had been filmed before the war as part of research and exchange projects. Copies of those microfilms, now dispersed in foreign libraries and research institutes, can be collected - with the help of foreign librarians and scholars - to form the core of a rebuilt Institute. With some colleagues, we have launched a project to gather information on microforms and other facsimiles of rare and unique Bosnian materials currently held in collections outside of Bosnia. Colleagues who know the present whereabouts of such material are urged to contact the author.

In addition to the burning of libraries, the most grievous loss has been the systematic destruction of historic architecture and works of art in Bosnia. More

than 1,200 mosques, over 150 Roman Catholic churches, 15 Orthodox churches, 4 synagogues, and more than 1,000 other monuments of culture have been destroyed or severely damaged since 1992.

Bosnians are anxious to rebuild at least a representative portion of these monuments of their country's multi-ethnic heritage. This will require not only financial support and technical expertise, but also *documentation*, much of which now survives only outside of Bosnia. Libraries and photo archives abroad hold the key to any possibility of recovering and reconstructing what has been destroyed. Art librarians and their associations represented in IFLA could contribute by organizing surveys of library holdings of such materials and sharing the results with our Bosnian colleagues.

We have at hand some of the means to undo the destruction of memory.*

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A reminder of what Bosnians of all religious backgrounds -- and the rest of us -- have been deprived of in little more than three years of organized destruction. Illustrations include: illuminated pages of manuscripts from Bosnia's Christian, Islamic and Jewish traditions, historical documents, civil and religious architecture, and other works of art. This book was also published in German and Serbo-Croatian editions.

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* Those who know the whereabouts of microfilms and photo archives that document the cultural heritage of Bosnia are asked to contact the author: (c/o Fine Arts Library, Harvard University, Cambridge MA 02138; e-mail: riedlmay@husc.harvard.edu).

For further information on how to help Bosnian libraries, please consult the Bosnian Manuscript Project's home page on the World Wide Web: <http://www.applicom.com/manu/ingather.htm>

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An illustrated directory listing some of the libraries, museums, performing arts centers and architectural monuments in Sarajevo damaged or destroyed in the siege, indicating reconstruction needs and contact addresses as of March 1995; available from: Open Society Institute, Budapest 114, P.O.Box 10/25, 1525 Hungary; fax: 36-1-327-3101

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Catalogue of an exhibition assembled by the Mostar Federation of Architects to document further destruction of the old town during the siege by Croat nationalist forces in 1993-94. Copies may be obtained from the Open Society Institute, Budapest.

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Catalog of the Institute's collection of Persian MSS, now destroyed; ill. with facsimiles.

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A guide and bibliography describing 28 public and private manuscript collections in Bosnia-Herzegovina, compiled in 1991. The majority of the collections described in this survey are now ashes.

Captions

1. The National and University Library of Bosnia-Herzegovina, engulfed in flames following shelling by Serb nationalist forces, Wednesday, August 26, 1992.
2. Burned books carpet the interior of the Sarajevo Oriental Institute of after ist destruction by a barrage of incendiary grenades on the night of May 17, 1992.

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