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A PERSPECTIVE ON U.S. COOPERATIVE COLLECTION DEVELOPMENT*

By Suzanne Fedunok

Abstract: This paper gives a brief summary of recent efforts at cooperative collection development in U.S. academic libraries, highlighting science serials and the impact of electronic journals. The report is offered with the hope that these projects may offer instructive examples for U.S. and international libraries.

Introduction

Only a few years ago, interest in cooperative collection development in U.S. libraries seemed to be dead. Despite much rhetoric and effort in favor of rational and planned cooperative collection development in U.S. academic libraries, the results were disappointing. One could point to only a very few significant shifts in collecting based on planned dependency and to even fewer formal written agreements. The Farmington Plan of the 1950's was discontinued; the proposal in the 1970's to create a national serials center came to nothing, and in the 1980's the Research Libraries Group, after years of effort to use the conspectus as a vehicle for cooperation, dissolved the Collection Management and Development Council that originated it.

The Center for Research Libraries (CRL) offers an example of longstanding successful cooperative collection development, although the focus is on little-used, peripheral, esoteric, scholarly materials. Its efforts are not to be denigrated, but one might argue that its programs have not significantly altered the cost, size, or overall shape of its members' collections.

There is no national library materials collection plan in the U.S.

There is little or no point in trying to construct a 'distributed national collection' as a matter of active policy (as opposed to providing access to what the nation's libraries happen to acquire.) There is no way of predicting what is wanted either in the present or the future, apart from obvious materials, which are acquired by libraries anyway. ...

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For copiable materials that are not acquired by local libraries, there is no point building up a national collection; they are or soon will be easily and cheaply accessible from anywhere. For non-copiable materials such as monographs, there would seem to be more of a case for building up a comprehensive national collection. ... if local libraries are built up with good collections of books, a country would have a good national collection without the necessity of further effort. [1]

Contrary to the high hopes and frustrated expectations typical of U.S. libraries' efforts, three universities in the state of North Carolina reported what seemed to be an almost unique history of cooperation dating back over fifty years. The paper by Patricia Buck Dominquez and Luke Swindler describing was so remarkable it won a national award. [2]

Recent developments

The following is an overview of some recent cooperative collection development activities in the U.S., offered to demonstrate that many of the largest research libraries, working with national library associations, are once again getting excited about cooperative approaches to collecting. The Internet and the WorldWideWeb (WWW) are major reasons for this. Indeed, much of the following information was gleaned from the Web. Not only is scholarly information, particularly in the sciences, now widely available in significant amounts over the Internet, but the ability to discuss and document cooperative collecting decisions is enormously enhanced. Cooperation has taken a new lease on life.

When Cooperative collection development appeared on the agenda of the Chief Collection Development Officers of Large Research Libraries (the so-called "Big Heads") meeting at the Annual Conference of the American Library Association (ALA) in June, 1995 a half-dozen librarians from among the fifty largest libraries in the country contributed reports. [3]

A recently completed CRL Strategic Plan calls for "strengthening collections of peripheral *and essential* (italics mine) research materials as a means for North American research libraries to avoid costs of acquisition, storage, preservation and delivery." The Center is currently engaged in more than 35 programs. Balloting for cooperative purchases now occurs over the Internet. [4]

The thirteen university libraries comprising the Committee on Interinstitutional Cooperation (CIC) recently launched a Virtual Electronic Library project, one aspect of which is cooperative collection development. Bibliographers in the sciences, Korean studies, Japanese studies, and Scandinavian studies met and drafted plans for cooperation, and others are to follow. [5]

The CIC mandate for cooperation recognized the impact of the Internet: "In the modern library environment with online access to cataloging information for most acquisitions of most libraries, every time avoidance of unnecessary duplication and expense occurs for little-used research material, a net increase in resources available for the nation results." Added to which is the realization that WWW sites, electronic mail and listservs serve to meet "the challenge to create an environment in which ties at the selector level can flourish..." [6]

In the University of California (UC) system about twenty groups of bibliographers are at work on cooperative collection development projects. [7] Clinton Howard reported at the above-mentioned ALA Big Heads meeting that a shared purchase program in the UC system had made a total of \$1,000,000 available over the past several years. He also noted the importance of electronic access to a shared catalog, and of access to shared issue-level periodicals holdings information.

In contrast to the CRL, which is mainly occupied with paper-based resources, the Association of Research Libraries (ARL) is digitizing and sharing electronic texts. A joint venture with the American Association of Universities begun in 1993 and called the Research Libraries Project includes pilot projects to pursue the networked, digitized and distributed acquisition of materials originating in Latin America, Germany, and Japan.

Of special interest to science librarians, the ARL/AAU Japanese Scientific and Technical Information Project plans to link Japanese and North American libraries by means of the Internet. The pilot project will

- 1) enhance the WWW page maintained at Ohio State University
- 2) broaden contacts with Japanese libraries
- 3) improve abstracting and indexing services' coverage of Japanese titles
- 4) maintain an electronic list of users who will provide feedback on the projects
- 5) increase bibliographic access to the selected publications. [8]

If the pilot project succeeds, it will be extended to the humanities and the social sciences.

In 1996, the Research Libraries Group (RLG) announced its new five-year Strategic Plan, which contained the following bold vision statement:

"Between 1996 and 2000, RLG will strive to transform the nature of information access; build a boundaryless foundation for the international research information environment; and enhance its established and distinctive support of fundamental library service needs." [9]

One goal is Integrated International Information Delivery (IIID), a "radically new system of information delivery" to the desktop of the enduser through integrated use over the Internet of RLIN searching, other Internet information resources, commercial document supply services, ARIEL document delivery, and interlibrary loan." The underlying message is that an "unseen hand" -- the effect of the combined, if uncoordinated, efforts of hundreds of selectors in U.S. academic libraries -- will produce the requisite stock of information for U.S. researchers . The scheme focuses on identification of items and on their delivery and nowhere mentions cooperative collection development or planned dependency.

Attendees at the Moscow and the Istanbul IFLA conferences heard about four libraries in the State University of New York (SUNY) system, motivated by the expense of duplicated and possibly little-used science serials, who are actively seeking planned dependency. They documented periodical use, created a speedy and dependable interlibrary loan system, and developed a decision rule for when to purchase and when to rely on interlibrary loan. [10].

The academic libraries in California are implementing a Virtual Electronic Library project that calls for integrated access to the full text of science journals from major publishers, with links to electronic reviews and indexes and to cited references, using MELVYL as the interface. With this project, a major library system turns its attention once more to planned dependence. Another example is the CIC Virtual Electronic Library. There can be no doubt that cooperation is once again flourishing because of the "New Electronic Age."

Conclusion

It has probably not escaped the reader's notice that most of the projects described above operate on the fringes of their institution's collections, a common criticism of cooperative collection development efforts. They tend to deal with relatively small collections of non-commercial, non-copyrighted, little-used materials, mostly in foreign languages. By and large, they have not tackled broad subject areas, or costly, duplicated, materials such as those in the sciences.

Unlike the humanities and the social sciences, the bulk of important scientific and medical research is contained in a relatively few, and very expensive, journals, published by a handful of international publishers. These science journals are widely held because they are regarded as essential literature that must be immediately at hand for consultation by scientists and researchers working in fast-moving and competitive areas. Consequently science journals were thought to be unsharable. The research projects undertaken by the SUNY libraries mentioned above confirmed this. Despite significant duplication among the four campuses,

the most costly and duplicated science journals were also heavily used and time-dependent. The concept of one subscription to be shared among the partners by expedited interlibrary loan, was abandoned.

The advent of electronic journals has changed all that. While they might never have considered cooperation in the past, libraries now want to participate in cooperative collection development because of consortial pricing, space saving, enduser delivery, and other attractive features of electronic journals. These journals are largely the costly, duplicated journals in the sciences.

As early as 1995, the CIC institutions identified the cooperative purchase of electronic resources as a major source of savings. In early 1996 a posting to the COLLDV-L list serv documented a dozen cooperative electronic resources licensing projects [11], and the number has doubtless grown considerably since. The year 1996 saw the formation of the largest higher education consortium in the U.S., consisting of the California State University, the City University of New York, and the State University of New York. It formed with the explicit aim "to pursue group purchasing/contracting opportunities for electronic information." [12] A similar goal motivates the newly-formed consortium of Northeast Research Libraries (NERL).

Many of the largest and most important science-technology-medicine publishers will make their journals available from WWW sites in 1997, some on a "free trial" basis. Libraries are faced with at least four choices: they may subscribe to electronic journals on a title-by-title basis from publishers. Some are only available that way. Libraries may also elect to sign agreements with publishers for lists of its titles, as NERL did with the Ideal service of Academic Press and with Project Muse,. Once again, some publishers will only offer libraries lists, or "libraries" of titles. Alternatively, libraries may enlist the services of vendors such as EBSCO, or Swets, or Blackwell, or use library utilities (OVID, OCLC, etc.) to provide titles from many publishers. Lastly, libraries may opt for delivery of information on an article-by-article basis from services like UMI ProQuest, CARL SUMO, etc. Important questions remain to be answered by libraries as they confront these options. One thing is certain, however: if shared licenses are not significantly less costly, the incentive to cooperate in a big way among libraries will once again disappear.

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RESEARCH ON THE COLLECTION AND DISTRIBUTION OF FOREIGN SCI-TECH JOURNALS IN CHINA *

By Xu Hongying¹

Abstract: In broad outline and with rich data, this article introduces the principle, category, quantity and other relevant information about China's importing and collecting the foreign Sci-Tech journals. It discusses the major achievement, basic experiences, the existing problems in recent years in the cooperation and coordination among China's major libraries and information institutes as well as their efforts in distribution of document resources, while they collect the foreign Sci-Tech journals. The article also provides specific and positive proposals particularly aimed at the problems on how to adapt to the new situation of deepening reform in Sci-Tech information business and on how to improve the nation-wide cooperative purchasing, the organizational administration of coordinated collection of foreign Sci-Tech journals, the application of new technology and other related work.

Documents are the records of people's social practices, productive practices and Sci-Tech activities. It is an important channel of information exchange. The Sci-Tech documents generated in certain historic periods faithfully reflect the level and tendency of science and technology in that historic period and under that social condition. The document is a kind of intellectual resource possessing special information value and functionality. Therefore, it is the obligation and responsibility of our information workers to do a good job in collecting Sci-Tech journals and give full play to the information function of journals. Considering my

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thirty years' experience in acquisition of foreign documents, I hereby express some advice on the collection and coordination of foreign journals in China.

I. The Acquisition of Foreign Sci-Tech Journals in China

Sci-Tech journals, a tool of issuing Sci-Tech achievements, transmitting scientific information, exchanging academic views and accumulating academic data, play a very important role among all the Sci-Tech documents. Statistic shows that there are 140, 000 species of journals all over the world, about 80 percent of which are published in English.

China is a developing country. In order to better explore the information resources, serve the Four A's and accelerate the development of science and technology, the most economical and rapid means is to import, collect and use the foreign Sci-Tech journals and other documents in an organizational way. It will help the technical staff to access the global information quickly, and surpass advanced international levels.

With the arrival of the "Information Age", Sci-Tech journals quickly increased. According to the well-known "Ulrich's International Periodicals Directory", the number of journals recorded the 17th edition has increased by 50 percent over that of in the 13th edition. The "International Scientific Periodicals Directory" shows that the number of bio-physical journals has rapidly increased from 1 (1940) to 78 (1980) The growth rate per year is about 13 percent. The sharp increase of journals will inevitably lead to the mix of good quality and bad quality. Moreover, with the more intersection and duplication, as well as the increase in price, how to choose the foreign Sci-Tech journals has become a critical problem . Most institutes importing foreign Sci-Tech journals are located in Beijing and Shanghai, such as The Institute of Sci-Tech Information of China (ISTIC), China Defense Science and Technology Information Center (CDSTIC), Library of Academia Sinica (LAS), The Information institute of Ministry of Geology and Minerals (IIMG), Library of Chinese Academy of Medicine (LCAM), The Information Institute of Ministry of Electronics and Mechanics (IIMEM) and Document Information Center of Agriculture Ministry (DICAM). The comparison between the 5706 titles they subscribed in 1991 and the 12286 titles in "Directory of Foreign Newspapers and Periodicals" is shown in Table 1.

Table 1: Subscription of 7 Institutes with the Number of Titles in "Directory of Foreign Newspapers and Periodicals" for comparison

Subject	"Directory"	Subscription (1991)	Rate%							
	Titles	CDSTC	ISTIC	IIMG	LCAM	DICAM	IIMEM	LAS	Totals	
Military	349	122	/	/	/	/	/	/	122	35
Generalities of Natural Science	356	18	7	18	23	7	2	50	155	43.5
Mathematics	402	2	8	/	/	/	/	62	72	17.9
Physics	500	17	22	3	3	/	1	112	158	31.4
Chemistry	628	/	14	2	19	1	/	80	116	18.3
Astronomy	103	/	/	/	/	/	/	18	18	17.5
Geology	930	1	2	402	/	6	/	60	471	50.6
Biology	1402	/	/	59	235	248	/	239	781	55.7
Medicine	3377	/	/	/	1231	17	/	14	1262	37.4
Agriculture	1447	/	/	1	6	807	6	20	840	58.1
Generalities of Technology	634	33	264	1	40	/	108	82	528	33.2
Electronics	1795	102	518	/	2	/	87	245	954	53.1
Mechanics	363	/	86	/	/	/	132	11	229	63
Totals	12286	295	951	486	1559	1086	336	993	5706	46.4

Not only some large-scale information institutes, but also the majority of colleges and universities are located in Beijing. Each college or university library has its own character, but all of them collect foreign Sci-Tech journals. The holdings of the Beijing University Library and Tsinghua University Library take the first places compared with libraries of other universities and institutes of technology (see Table 2 and 3)

Table 2: The Top Three among 32 Univ. in Foreign Journal Holdings

Unit	Number (Title)	Order
Library of Beijing University	29818	1
Library of Nanjing University	25752	2
Library of Fudan University	22019	3

Table 3: The Top Three among 44 Institutes of Technology in Foreign Journal Holdings

Unit	Number (Title)	Order
Library of Tsinghua University	15863	1
Library of Zhejiang University	13270	2
Library of Shanghai Jiaotong University	11062	3

Because of the lack of macrocontrol and coordination in administration as well as the change of foreign exchange rate since 1985, all the libraries and information institutions have faced widespread fund shortage, which led to the decrease of subscriptions. Take the library system in Academia Sinica as an example, the subscription reduced by 50 percent from 1985 to 1990. (see Table 4)

Table 4: Subscription of Information System of Academic Sinica (1985-1990)

Year	1985	1986	1987	1988	1989	1990
Number (Title)	15698	15787	14513	11757	10195	8765

Only in five years, the subscription decreased from 15, 698 to 8, 765. This case not only caused the discontinuance of journals, but also badly affected the services for readers.

The decrease of the Sci-Tech journal subscription inevitably causes the decrease of the circulation rate. In most libraries and information institutes, the circulation

rates are rather low because of the limitation of the readers' borrowing habits, the imperfection of interlibrary loan rules, the inefficient reporting channel of catalogue systems and the low level of information network services. (see Table 5)

Table 5: Journal Circulation in the Library of Academia Sinica(1993-)

Subject	Mathematics	Physics	Chemistry	Technology	Electronics	Biology & Zoology	Chemical Eng.	Geology	Generalities
Circulation	187	165	209	149	218	278 132	89	94	88
Circulation Rate(%)	32.52	38.82	41.80	30.10	20.90	20.50	12.28	8.17	9.26

In short, it is necessary for major university libraries and special libraries to carry out the researches on collection and rational distribution of documents.

II. The Review of Cooperative Purchasing of Foreign Sci-Tech Journals in China

1. It is of historical importance to strengthen the cooperative purchasing of journals.

Considering the present situation of economy and document resources in the world, the increase of acquisition fee in any country can not be in direct ratio to that of the documents. How to strengthen the macrocontrol and cooperative purchasing of documents, especially of foreign Sci-Tech journals, and how to implement the rational distribution have become difficult problems for any country, whether it is rich or poor.

In the United States, the "National Union Catalogue" was compiled in 1902. The "Union Catalogue of Periodicals in the United States and Canadian Libraries"(1st ed.) was published in 1927. And in 1945, the American Association of Science Research Libraries put forward the "Farmington Plan". In 1959, the United States began to carry out a "Cooperative Acquisition Plan in Latin America".

Meanwhile, other countries put forward similar national cooperative acquisition plans as well. For example, Denmark, Norway, Sweden and Finland drafted the transnational "Scandinavian Plan" in North Europe. The implementation of this plan saved the acquisition fees, avoided duplicating the expensive but rarely used documents, and assured the provision of important information of every subject.

Different in background, all these plans and coordinating measures proved that the coordination and cooperation of documents are the trends. Therefore, we can

use these plans and projects as references for the document resource coordination, distribution and sharing in China.

2. Review of the foreign Sci-Tech journal acquisition in China

The foreign Sci-Tech journal is one of the major information resources, as well as the important channel to foreign Sci-Tech and economic information. It is also the basis of the Sci-Tech information research in China. Consequently, the journal takes a large proportion in all kinds of documents in every library and information institute, and this proportion is still increasing. All 38 major information institutes in Shanghai subscribed foreign journals, and the subscription rate took the highest percentage of all acquisition fees. (see Table 6)

Table 6: Foreign Document Types of 38 Information Institutes in Shanghai ordered from 1985 to 1989

Document Type	Journal	Book	proc.	Standard	G.P.	Dissertation	Sample	Patent	Tech. Report
Rate(%)	100	97.3	73.6	41.5	37.4	34.1	34.1	31.5	31.5

Analyzing the distribution of funds on books and journals in some special libraries in Shanghai, we can see that the highest percentage of journals arrived at 93 and the lowest one was still above 50. (see Table 7)

Table 7: The Funds Ratio Between Books and Journals of 9 Information Institutes in Shanghai (1989)

Unit	Funds Ratio		Unit	Funds Ratio	
	Book	Journal		Book	Journal
A	20	80	F	25	75
B	20	80	G	15	85
C	34.3	65.7	H	20	80
D	7	93	I	20	80
E	30	70			

- A: The Information Institute of Baoshan Steel Factory
- B: The Information Institute of Shanghai Metallurgy Bureau
- C: The Information Institute of Shanghai Branch of Chinese Medical Society
- D: The Information Institute of Shanghai Medicine Bureau
- E: The Information Institute of Shanghai Aeronautics Bureau
- F: The Information Institute of Shanghai Instrument Bureau
- G: The Sci-Tech Information Institute of Medicine
- H: The Library of Shanghai Medical Industry Institute
- I: The Library of Shanghai Agriculture Institute

In some developed countries we also have done investigation into the scientists' needs for journals and theses. In the United States, 68 percent of scientists' information needs are satisfied by journals. The investigation directed by the Library of Russian Academy of Science showed that the utilization rate of journals was 84 percent.

In brief, how to scientifically collect journals, share and cooperate to gain the greatest information profits from limited funds as well as to solve the problems of document resource distribution, especially of the cooperative purchasing and collection of journals, have become focuses in the field of library and information science.

Early in 1956, the State Council decided to set up the Book Group under the Science Plan Committee. This group consists of library experts from the Ministry of Culture, the Ministry of High Education, the Ministry of Hygiene, Academia Sinica and National Library. They are in charge of the whole plan of the national book service for scientific researches. The "National Book Coordination Plan" pronounced on Sept. 6, 1957 was adopted at the 57th conference of the State Council. The main contents are: (a) to set up a central library committee. (b) to compile a national union catalogue of books and journals.

Since the crush of the Gang of Four, national economy and technology have greatly recovered and developed, and the information business has made some advancement correspondingly. To vitalize the economy and advance the technology, our country has invested lots of foreign exchange in all kinds of documents. The amount reached its peak in 1985. The statistic show that the foreign Sci-Tech journals introduced in that year set a record of 26, 450 titles and 295, 000 copies. (see Table 8)

Table 8: Statistics of Foreign Sci-Tech Journals in China (1954-1990)

Year	1954	1957	1961	1971	1980	1985	1990
Statistics (Title)	2600	10000	14654	30000	23200	26450	23000
(Copy)	16300	220000	135820	60000	190000	295000	186000

Nevertheless, the lack of a unified plan, as well as the imperfection of the ideology and leadership system resulted in repeating and missing. Therefore, we must find a new way not only to satisfy the readers' needs but also to save money. Just under this special condition, the national document resource distribution is openly placed on the agenda of leaders and information workers. On Oct. 22, 1987, the "Book and Information Service Coordination Committee of Department" was set up. It consisted of experts from the National Committee of Science and Technology, the Ministry of Culture, the National Ministry of Education, Academic Sinica, the China Defense Sci-Tech Information Center, the Chinese Academy of Social Sciences, the Ministry of Posts and Telecommunications, the Ministry of Electronic Industry, the National Bureau of Archive, the National Bureau of Standard and the National Bureau of Patents. The primary tasks of the committee were to give advice on developing plans and policies of information services to relevant government departments; to study and coordinate the exploitation and use of national document resources as well as the computer database and network construction of national information system. They hoped to solve the vital problems on a high level.

Under the leadership of the committee, "Collection, Exploitation and Use of Document Resources Special Group" was set up in March 1988. In October, the group chaired the first meeting on the investigation of national document resources in Beijing, discussed and passed the "National Document Resource Investigation Plan". In November, the Information Bureau of the National Committee of Science and Technology sponsored a meeting on the document service of the national Sci-Tech information system. It studied the principles and methods of rational distribution as well as the use of Sci-Tech documents. It also drew up the "Sci-Tech Document Interlibrary Loan Method", and "Provision, Management and Reproduction Method of Microform Documents", etc. Under these policies, some provinces, cities and autonomous regions established their own coordinating organizations one after another. Each ministry put forward its research project on the distribution of document resources. For example, the China Defense Sci-Tech Information Center, the Ministry of Geology and

Minerals and Academia Sinica sponsored some meetings to study the related problems. It is necessary to combine microstudy and macrostudy, theory and practice. Research results, working plans and actual effects have proved that cooperative purchasing and distribution of foreign Sci-Tech journals are of great significance and have boundless prospects.

III. First Achievements of Cooperative Purchasing of Foreign Sci-Tech Journals in China

With the deepening of the technical and economic system reform as well as the implementation of information policy, many ministries and regions widely carried out cooperative purchasing of foreign Sci-Tech journals, and achieved some positive results.

1. Confirmed the sense of cooperation and coordination, obtained the achievement in fundamental theories and methods

To improve the document coordination, each ministry, region and library made deep investigation and research on the significance, principles, methods and policies of coordination and distribution, and unanimously agreed that the cooperation and coordination of the documents are an important part of the reform. The coordination of national documents directly affected the collection, arrangement, storage and development of the document resources in a country, reflecting the level of the informatization of the society and the socialization of the information. Therefore, based on the researches, libraries must work out the principles, measures and plans of coordination corresponding to their own conditions. All institutes took different ways such as combining theory and practice, statistics and users' appraisals, quantitative and qualitative analysis, doing on-the-spot investigations. So the conclusions they got to are logical and supported by facts. Not only can they be widely spread, but also put into practice. All plans laid down according to these conclusions have fairly strong operability.

2. Found out the library holdings, gained relatively great social and economic profits

Through the investigation of foreign Sci-Tech journals, each province and ministry had found out the document holdings, and done some distribution. For example, National Library and the Institute of Sci-Tech Information of China made the entire investigation to their holdings; China Defense Science and Technology Information Center and information system of Academia Sinica adopted the distributing measures to make coordinated subscription and meet the users' needs. These measures also help them make their relations smoothly,

understand the emphasis, titles, quality of their holding, avoid the reimport, add some new titles, strengthen the provision and sharing the document resources, and raise the utilization rate of the Sci-Tech documents and the entire efficiency of document resource supporting system.

The Ministry of Geology and Minerals made some investigation and research on national geological original foreign journals, compiled and published the "Subscription Union Catalogue of Original Newspapers and Periodicals Abroad and in Hongkong, Taiwan among Libraries in the Ministry of Geology and Minerals (1989-1990)". In 1989, they subscribed 221 titles less, that saved RMB 144, 000.00. The subscription of foreign journals decreased 221 titles again in 1990, that saved RMB 106, 770.00. And 89 new titles were added.

The document and information system of the Academia Sinica combined both qualitative and quantitative analysis to investigate its whole document system, made quantitative statistics, checked the document coverage ratio, made the citation analysis and investigation of the information institute users. All these efforts led to the accomplishment of the "Document Resource Rational Distribution and Sharing Plan of Academia Sinica " and other 19 research reports on special topics.

The "Document Resource Distribution and Sharing Plan of Academic Sinica" was listed in the 8th Five-year Plan of the document and information system of Academia Sinica. And other four information centers decreased their subscription by 2, 123 titles and added 4, 048 new species, that saved about RMB 1, 550, 000.00.

According to the 8th Five-year Plan, the Ministry of Agriculture, the Ministry of Textile Industry, the Ministry of Railroad and over 20 provinces and cities had accomplished the researches on distribution of document resources.

3. Formulated a lot of practical coordinating plans and projects

Through the investigation and research, each system and region have formulated distribution plans based on its own local situation. For example, The Ministry of Geology and Minerals established the document coordinating network; The information system of the China Defense Science and Technology formulated the distribution plan of Sci-Tech documents on national security and drafted the project of Sci-Tech document construction and distribution in the year 2000. The Academia Sinica drew up a "Distribution and Sharing Plan of Document Resource in Academia Sinica", which has explicitly decided on the significance, principles, management, division, cooperation, process, storage, utilization and support conditions of the document resource rational distribution and sharing.

Since these plans and projects are based on large scale investigation and research, the results are relatively typical and universal, exerted great influence on the national distribution of document resources.

4. Promoted the formulation of some important regulations and policies of document resource sharing

Early in 1986, the Chinese Library Association sponsored a "Document Resource Distribution Symposium" at Nanning for document resource sharing. At that meeting, many people underlined the problems of drafting relevant regulations and policies. In November of 1988, the Information Bureau of the National Committee of Science and Technology held the "National Sci-Tech Information System Document Workshop" at Chengdu, discussed the problems on Sci-Tech document distribution and utilization. The advice on "Adjusting and Strengthening Sci-Tech Document Work in National Sci-Tech Information System" issued on that meeting suggested that the document distribution be divided into related three different levels national, special ministry and regional. Some advice on funds was put forward on the national Sci-Tech information services meeting in 1992. Many institutes have drawn up some regulations in accordance with the spirit of the national meeting.

5. Compiled some reference books to support the document resource sharing, drafted some relevant methods to promote the document and information services

The holdings, utilization and character of each institute are made clear after the study of the national distribution of document resource and the complementation of relevant coordinating plans. Many union catalogues of books and journals, as well as methods of exchange, interlibrary loan and request duplication were worked out during the coordination and distribution, and became the important basis of the national distribution and sharing of document resources. Such as the "Document Resource Guidebook of Academia Sinica" of 1991, the "National subscription Union Catalogue of the Original Newspapers and Periodicals Abroad and in Hongkong, Taiwan on Geology and Minerals" successively compiled from 1989, the "Subscription Union Catalogue of the Serials on the China Defense Science and Technology" reflecting the collections of the Ministry of Defense since 1987, the "Concise catalogue of Sci-Tech Periodicals in Jilin Province", and the "Interlibrary loan methods of Sci-Tech Document in Shanxi Province (draft)", etc.

The above-listed books reflecting the collections of foreign Sci-Tech document in a ministry, a region or a profession as well as some other "plan", "handbook",

"regulation" and "method" relevant to services appearing during the resource distribution research have all directly promoted the services of document and information. They have had great effect on the increase of the utilization rate of Sci-Tech journals and promoted the implementation of information research achievement.

IV. Basic Experiences and Existing Problems of Cooperative Purchasing and Distribution of Foreign Sci-Tech Journals in China

1. Basic experiences

The rational distribution of document resources is a systematic project with extensive business scope and a lot of theories and practical problems. Considering its own situation and character, each ministry and region conducted lots of investigation, research and practical work, adopted a series of effective measures. The basic experiences are:

- (1) using the experience of selected units to promote work in the entire area or combining the experience of selected units and the work in the entire area

One of the basic methods is to use the experience of selected units to promote work in the entire area. For example, the information system of the Defense Science and Technology chose Beijing as a typical case to carry out the document distribution researches, then selected the distribution of the relevant central ministry information institutes as the emphasis and considered the regular document resources as the breakthrough to advance its work. In the beginning, journals are selected as the typical case. And the coordination began with the expensive foreign journals. At last, the whole national document distribution was carried out. Other ministries carried out coordination combining the experience of selected units and the work in the entire area. For instance, the information and document system of Academia Sinica is a united information system. All tasks in this system are closely linked. It has already done some investigation and research on document resources. The information centers and special libraries with abundant document resources are considered as models, and all the 143 information institutes as the entire area. They combined these two parts with each other, launched the coordination simultaneously, and made great progress.

- (2) equality and mutual benefits, consulting with each other to resolve all kinds of problems of distribution

Thoughtful distribution is the foundation of resource sharing. Therefore, all members of the document resource distribution system are equal in rights and obligations. When we discuss some problem, we should pay attention to the

interests of the whole, as well as the equality and mutual benefits for the whole the initiative. For example, during the cooperative subscription of the high-price journals, some ministries assigned institutes with abundant funds and good duplicating capability to subscribe and provide duplicating services. To improve the efficiency, each member must carry on the spirit of the coordination and encourage the style of taking the whole interest into account. We should adopt the system of democracy and centralization to resolve the disputed problems.

(3) properly deal with the relationship among duplication, saving and utilization

The purpose of the document resource distribution is to improve the supply and utilization rate of documents. Therefore, the relationship among duplication, saving and utilization should be properly controlled. It is not an unchangeable principle, but a kind of dialectical relation. Consequently, we should pay much attention to it.

(4) make full use of the computer technology

Lots of data need being handled. During the investigation and research of document resource distribution, checking the journals in each institute comparing them with standard databases like SCI, EI, etc. to examine the quality of its holdings, and compiling union catalogues both involve millions of data. If all the tasks are handled by hand, manpower and time will be seriously wasted. So we must make full use of computers to facilitate the checking, compiling and storing of data.

(5) attract leaders' attention and support of the whole information circle

Like other resources, document resources are also the wealth of a country. It has never been so true today to consider the strengthening of document resources as well as the providing of scientific and economic information as an important strategy since the "Information Age" became a focus. Therefore, every chief ministry and information institute adopted many positive measures to support the initiative and strengthen this project. Some ministries, such as the Ministry of Geology and Minerals, the Ministry and Railroad, and the Ministry of Textile Industry, have considered it a research project and allocated a certain amount of research funds. The Institute of Sci-Tech Information of China did some research on "Structure of the collection of the Institute of Sci-Tech Information of China". The National Library also studied its holdings in 1988. The Book and Information Publication Committee of Academia Sinica decided to take the research on "Distribution of Document Resources of Academia Sinica" as a soft project on academic level. The Information Bureau Ministry of Defense Science and Technology guided and launched the project on "Distribution of National Sci-

Tech Documents". Each region also developed similar researches and adopted many powerful measures. For example, under the leadership of the Province Sci-Tech Committee, the information institutes in Sichuan, Liaoning, Jilin and Hunan, etc. made a lot of management and development.

2. Existing primary problems

- (1) the understanding of significance thoughtful distribution and resource sharing of foreign Sci-Tech journals still needs being improved.

In recent years, the information institutes of some ministries and regions have developed widespread researches on document resource distribution and had good social and economic effects. But, with regard to the nation-wide situation, this project has not been successfully developed in some ministries and regions. The most important reason is the lack of understanding. They have not understood the further theoretical and practical significance of this work. And there still exists pragmatism, short-sight and fear of the pressure in both information circle and chiefs of ministries. Because of the difficulties, some ministries, provinces, cities and autonomous regions have not started this kind of project.

- (2) the unbalanced relationship between the distribution research and development of the foreign journal and the actual coordination and cooperation

Because of the divergence on ideology, the attitudes to document resource distribution and cooperative purchasing are different. Therefore, some institutes have started, while others have not; some done quickly, while others slowly; some made deep and comprehensive research while others were satisfied with the temporary and superficial results.

- (3) without standardized statistical methods and calculating units

Neither macrocontrol nor microcoordination can be carried out without investigation, research and data. To acquire reliable data involving different institutes, strict statistical methods and unified units are needed, especially in the research of journals. In recent years, with the application of new technology and complication of media, it is inevitable to meet the problems of calculating units of year, type, book form and binding volume. Without unified standard, the statistic will absolutely have no significance. Therefore, it is necessary to work out a standardized regulation.

- (4) missing authority of the existing chief ministries and coordination committee

The information department of ministries in charge of the nation information services and the interministry book and information coordination committee in charge of the book and information coordination, have developed some helpful

coordination, carried out and implemented some plans, obtained some outstanding achievements since their foundation. But because of the effects of planned economy, national and regional information coordination committees are not in charge of the funds. Therefore, their authorities are not demanding. They only can persuade, mobilize, but can not efficiently carry out the tasks. Without powerful national support, each ministry has to go its own way. That spoiles the implementation of the entire national plan.

(5) theoretical research still requires deepening

The national distribution of the document resources is a long-term project. The completion of the task is related to a number of theoretics and policies of Sci-Tech information services. So both theories and practical investigation should be paid great attention. Some institutes assigned research subjects, allocated funds, guided on administration, examined the research results, and obtained some achievements. Some ministries and regions still have not adopted these measures, that led to the different understanding and administration. Some consider it oversimple, others think it is lacking objective conditions and is difficult to implement. All these are the results of lack of theory guidance and practice.

V. Advice on How to Strengthen the Cooperative Purchasing of Foreign Sci-Tech Journals in China

1. Continuously underline the long-term significance of cooperative purchasing and foreign Sci-Tech journal resource sharing and make great efforts to improve people's initiative and positive impact

As far as the current task of information services in China is concerned, if we hope to build the service system and document supporting system all over the country and accomplish the strategic objective of the second step of our national modernization, we must exert great efforts to make better distributed collection and rational distribution of Sci-Tech journals, which are the most important technical information resource. Therefore, we must do research, understand, and propagate the great significance of Sci-Tech journals and distributed collection to technology and information business.

2. Positively advance the drafting and implementing of plans of foreign Sci-Tech journal distributed collection in ministries and regions

Foreign Sci-Tech journal is related to many theoretic and practical problems on current technical policies and information services; to a number of current national laws and regulations; to practical conditions like funds, manpower, etc. So it requires a fairly well conceived and practical plan.

When drafting and implementing a national plan of foreign Sci-Tech journal collection in each ministry, profession and region, it is most important to resolve the following problems:

(a) ideology and environmental analysis (b) mode and specific target (c) fundamental methods and steps (d) necessary conditions and measures (e) organization and management, etc.

To draft and carry out the collection plan on foreign Sci-Tech journals in national systems, professions and regions, the following tasks are also to be done:

(1) to summarize the experience and make the achievements well spread

Since the "National Books Coordination Plan" was approved on Sept. 6, 1957, especially since the 80's because of the implementation and execution of reform and open policy as well as the widespread application of new information technology, the information circle has been enthusiastic about the theoretic problems on document storage and distribution, and obtained some achievements. The contradiction between the development of information services and funds shortage has become more and more intensive since 1985. With the establishment of the Interministry Information Services Coordination Committee in 1987 the relevant theories and practice have closely combined, and the storage improvement and coordination of libraries (institutes) have developed to those of a ministry or a region. A lot of research data and plans aiming at the implementation of resource sharing have been produced. They accumulated valuable experiences in investigation, organization and management of document resources, and discovered many general problems. But those problems discussed in most research reports and papers are still at the initial stage, require further study and practice. Therefore, it is necessary to sponsor national special meetings again, inviting experts, scholars and chiefs of some projects to study and summarize the experience in research mode, calculating unit, etc. In order to implement the further plan, we should affirm the basic experiences, praise the advanced units, energetically propagate the experience and new typical cases, make the spirit of document coordination and resource sharing known by all kinds of users, information workers and relevant managers.

(2) to strengthen and expand research on relevant theories and policies

The theoretic research on rational distribution of document resources emphasizing on Sci-Tech journals has been carried on for more than 30 years. Many useful papers have been published at home and abroad. During this period, they have put forward many principal opinions and advice to promote the development of national distribution of document resources. Since the document resource

construction is a dynamic and systematic project, most of its work is restricted by external elements such as current social environment, technical economic conditions. Therefore, the relevant research on theories and policies must be continuously strengthened in order to carry on the distributed collection Sci-Tech journal successfully. On the one hand we should continue to explore the theoretic basis and mode in the light of the problems encountered in the past, on the other hand, the internal relations between external environment and major factors in the document and information business should be carefully studied. I had searched, read and analyzed dozens of papers and research reports on document resource investigation and distribution, few of them make analyses and forecasts on the external environment. This illustrates that it is necessary to expand the research scope of relevant theories. Furthermore, the experience showed that if only we can clearly explain its effects on development of economy and technology, "Rational Distribution of Foreign Sci-Tech Journals" is a project by technicians and chiefs of economic and technical departments. Therefore, we must expand and deepen researches of relevant theories and policies to substantiate the basis of "distribution".

(3) to strengthen the leadership, organization and management

National foreign language Sci-Tech journal distribution is related to thousands of families. In fact, the work is a part of the basis of the national information systems. On one side, it is necessary to request every information institute or individual to establish the concept of macrosystem, macrodocument and macroinformation step by step, on the other side, National Sci-Tech Committee should continuously strengthen the functional management, and carry out a tendentious policy on funds, faculty, technical equipment and policy to the Sci-Tech information institutes of the central ministries and large regions, especially to the document and information institute on the national and ministry level. We must make their status, principal task and supporting condition clear to ensure their central position. In this way, we can strengthen the supporting ability of the national Sci-Tech document resource system and dispel the misgivings of users and information institutes.

3. In order to strengthen the leadership, or tighten the macrocontrol and administration, it is urgent to strengthen the functional management in every type of information institute.

For example, it is necessary to consult experts on some disputed problems with general significance about expensive serials. Some vital problems like funds application and use should be decided by certain authority.

In addition, it is suggested to strengthen the management of the interministry coordination committee on information services or set up a national document and information service group. Each country should allocate a certain amount of funds to do some coordination and carry out researches on the collection and distribution of foreign documents.

4. Strengthen the basic technical structure, raise the level of technical management and modernize the reporting method.

It is necessary to exchange the information in a country, a ministry or between several ministries, for acquisition coordination, interlibrary loans and request borrowing. Coordination requires large number of data to support its complementation. Therefore, improving the level of the management, reporting and retrieving services of journals and strengthening the construction of comprehensive and special journal database and networks are important tasks and conditions to realize the distribution and resource sharing of the foreign Sci-Tech journals. And every relevant ministry should make their own efforts. To accelerate the construction on this work, fee-based services can be exercised on the basis of a market economy. Besides, we should strengthen standardization of processing, managing foreign Sci-Tech journals to make it more convenient.

In short time a national network for collecting and providing foreign Sci-Tech journals will be set up, when the basic conditions are satisfied. This network system will prove to be a rationally distributed and well organized one involving multidiscipline and multi-supporting functions. Then the quantity and quality will be greatly raised.

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AVAILABILITY OF JOURNALS IN ELECTRONIC FORM*

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Abstract: Great expectations to improve access to information and to save resources have arisen together with the development of electronic journals on the Internet. Both librarians and researchers are looking for new possibilities in the field. Information specialists in different subject areas of a multidisciplinary university library made a survey in their respective subject areas looking for availability of journals relevant for research and education on the Internet. The paper describes the results of the survey and discusses the consequences of the development of electronic journals for acquisition at university libraries and for their users.

1. Background

Already for several years the scholarly and library community have actively discussed the possibilities that electronic publishing - or "publishing on the net", as we limit the concept of electronic publishing in this paper - offers for the learned society and the libraries serving it. The discussion has accelerated along with the expansive growth of Internet resources and the increasing possibilities to use them. Universities which in most parts of the world have undergone reductions in resources have regarded improved access to networked electronic information as a possibility to enhance the resources of scientific information.

The possibility of using this new alternative information resource has been presented to libraries by university administrators, and in some cases also by researchers themselves. In this situation libraries which have had to cancel subscriptions of scientific journals and which simultaneously suffer from lack of storage space and staff are following the change in the field of electronic publishing on the network with growing interest.

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Scholars have experienced the new form of publishing both as a threat and as a new chance for scientific communication. While, on the one hand, they present enthusiastic and encouraging viewpoints about electronic publications on the Internet, on the other hand, they are most hesitant about the change that is going on in the field.

The following outlines some considerations regarding the issue from the viewpoint of both scientists, libraries and information services, and their users. Many of them are obviously most contradictory to each other:

The Internet is not a forum for serious publishing, and the scientific credits researchers gain by these publications are not equal to scientific publications proper.

The Internet covers an increasing amount of refereed journals, and the status of these journals will gradually be established by implementing a peer review practice for them (1).

From the copyright and price policies point of view the usage of electronic publications still involves a great amount of unsolved problems for all parties concerned - authors, publishers, agents, libraries and end users.

The amount of information the Internet generates at present makes it impossible to select relevant and reliable information from the chaos on the net.

Indexing facilities and search engines on the Internet are constantly improving and will offer tools for better access and selection of information.

There are estimations of up to 70% savings in electronic publishing (2). Add to this the self-service use of these publications and the savings in storage and services of printed materials in libraries, and the benefits of the usage of electronic journals could be obvious.

Besides technical problems there are still plenty of behavioural and cognitive constraints in the usage of electronic information. These problems are a challenge to user education in libraries. However, before developing the information skills of their users, librarians and information specialists themselves need to be trained in these issues.

A high technical level of university networks and workstations along with free and sufficient access to them are the prerequisites for the use of electronic publications. Therefore it may happen that the savings in

publishing and in libraries storing and disseminating traditional information sources do not compensate for the costs caused by the new technology.

Reliable cost-benefit analysis of the production and use of electronic journals is extremely complicated. The amount, availability and conditions of e-journals are constantly changing. The production process from a researcher to publishing to end users is still unstable and covers continuously altering factors, which vary according to circumstances and subject areas.

At present the problem is that we are lacking concrete information about the pros and cons concerning the quality, availability, and use of electronic publications at universities. As a matter of fact, universities are expected to make rapid strategic decisions concerning the role of libraries in organizing services of networked electronic publications. It is, however, no wonder that for example the IFLA Section of University and other General Research Libraries which repeatedly has touched upon the issue has never really been able, at least so far, to generate information so important for university libraries all over the world.

2. The Jyväskylä University Library Survey on Internet Journals

Jyväskylä University Library serves a university community of 10,000 students and 1,400 staff members. The five faculties of the University cover Humanities, Social Sciences, Education, Sport Sciences and Science (Mathematics including Information Science, Physics, Chemistry, and Biology including Environmental Sciences). The university network is well equipped, and the University Library offers workstations and Internet training for the users. Much attention has been paid to the development of the Library's WEB-site (<http://www.jyu.fi/~library/>) to support users in exploiting Internet information resources in studies, teaching and research. The majority of the library staff represents a relatively high level of competence in information technology. This means that technological and human resources for active use of the Internet are fairly sufficient.

The Library has undergone a 5-10 % annual decline in resources during the last four years. The number of subscriptions of foreign journals has decreased from 2,500 titles in 1992 to 2,000 titles in 1996. From this angle the external pressure to exploit modern information technology and Internet resources is high.

Because of some comments on "freely available scientific journals on the Internet" by some Library Committee members it was decided that the information specialists of the Library would survey the availability of e-journals on the Internet

in their respective subject areas in May 1996. The disciplines covered were: Education, Psychology, Biology, Cultural Studies, and Sport Sciences (including social, medical and biological branches). It was decided that main attention would be paid to journals the Library subscribes to in print form to find savings in the periodicals budget, but the information specialists also reviewed the general situation in their field. Findings are in this paper reported in the following subject areas: Psychology, Sport Sciences, and Hydrobiology.

Harte and Kim (3) classify electronic publications as follows

- ejournal replaces print journal
- ejournal coexists with print journal
- journal is in electronic form only, but individual articles can be ordered in paper form
- ejournal is "secondary" to print journal
- electronic version is published several months after the print version
- print version is published several month after the electronic version
- full print version is not available in electronic form
- both versions exist but with different pricing arrangements.

Partly based on these ideas, we looked at the availability of the journals in the subject areas concerned and classified them into the following groups:

1. There is only journal information on the net (publisher, ordering address, possibly author instructions, and prices).
2. In addition to the above, the WWW-document contains tables of contents and/or abstracts, and for some journals also selected target articles.
3. The full text version of the journal/article can be read in electronic form by special agreement through an agent.
4. The full text version of the journal/article can be read in electronic form directly from the terminal without charge (format may be html, Adobe Acrobat etc.)
5. Electronic journals proper which do not appear in print form.

The survey is based on information found in WWW-documents. Availability of the journals was examined according to disseminating organizations (agents, publishers etc.), and information on the conditions of access was recorded. Attention was also paid to the prices of the journals in different forms.

3. Major Results of the Survey

The table below shows how many of the Sport Sciences, Psychology and Hydrobiology journals subscribed to at JUL can be found on the Internet, and what kind of information is available on them. In addition, there are some electronic journals proper for which no print version is available.

Table 1. Availability on the Internet of Journals subscribed to at Jyväskylä University Library

		Information in electronic form				
		Full text not available		Full text available		
Subject area	Number of journals subscribed by JUL	1. Journal information	2. Contents, abstracts, target articles	3. Agent	4. Publisher	5. Electronic journals proper (no print version)
Hydrobiology	44	13	19	5	1	2
Sport Sciences	124	2	31	-	2	3
Psychology	140	34	37	15	1	3
Total	308	49	87	20	4	8
Total 2 - 5		119				

Some publications which only had journal information on the net (Group 1) also had an electronic order form and information on bibliographies in which the journal is indexed, and on where article copies can be ordered from.

In addition to tables of contents and abstracts, many journals publish some of their articles in electronic form. These journals include the *Journal of Experimental Analysis and Behaviour* (JEAB), and the *Journal of Applied Behavior Analysis* (JABA), which receive grants from the *Society for the Experimental Analysis of Behavior* for the purpose. *Behavioral and Brain Sciences* also publishes only target articles in electronic form. These journals fall under Group 2 in the classification.

Different fields of science have their own publishers with various ways of making their journals available to their customers. *American Psychological Association* (APA) WWW-pages include a total of 28 journals whose tables of contents are available on the net. JUL subscribes to 13 APA journals (Group 2).

Human Kinetics is the most important publisher in Sport Sciences. Its web pages present 22 journals with tables of contents which can be browsed in electronic form free of charge. JUL subscribes to 13 of these journals, and they are included in the 31 JUL Sport Sciences journals whose tables of contents are electronically browsable. (Group 2).

American Fisheries Society is a major publisher of Hydrobiology journals. It also makes the tables of contents and abstracts available in electronic form. Five of the Hydrobiology journals subscribed to JUL are published by it. (Group 2).

Alongside print versions of journals, many big publishers and some agents offer journals also in electronic form, often on an experimental basis. The general principle seems to be that by separate agreement the subscriber to a print journal can also acquire authorization to use electronic journals. If, for example, the subscriber is a library it can extend the authorization to include its users. Information on licence prices is usually not readily available on the net because the prices vary according to the use of the journals. JUL has so far not acquired any licences in the subject areas under study.

Academic Press has put all its 175 journals in electronic form. Nine of the psychological journals and two of the hydrobiological ones subscribed to JUL are published by *Academic Press*. Anyone can browse the tables of contents and abstracts. Articles, however, can only be accessed by authorized users at sites within the licensed consortia. Journals subscribed to at JUL are classified under Group 3.

The tables of contents of 1,000 journals published by *Elsevier* (ESTOC) have since 1995 been available for free browsing. Although abstracts are searchable they do not appear on screen. Of the journals subscribed to at JUL, five Sport Sciences, three Psychology and two Hydrobiology journals belong to this group. *Elsevier* has several experimental projects in progress which aim at electronic publishing of all its journals. No Sport Sciences journals were available in full text through any major agent.

Psychology Online will include new papers from all seventeen *Psychology Press* journals in one database available via the Internet. JUL subscribes to four of these journals (Group 3). Libraries can obtain a Site License form, free of charge, for the journals they have subscribed to for 1996. Tables of contents of non-subscribed journals may be read for a fee.

Only four of the journals of the fields concerned and subscribed to at JUL were available in full text on the net (Group 4). They are *Contemporary Psychology*, a journal of psychological summaries, and the *Canadian Journal of Fisheries and*

Aquatic Sciences in the field of Hydrobiology. The latter is one of the major journals in the field and is available on an experimental basis free of charge until the end of 1996. The *Journal of Muscle Research and Cell Mobility* and the *Journal of Sport Science* are Sport Sciences journals JUL subscribes to which are available in electronic form, but for a fee.

In the field of Psychology, there are a number of journals which appear in electronic form only (Group 5). *Psychology* is sponsored by the *American Psychological Association* (APA) and published by professor Steven Harnad of the University of Southampton. The journal has a scientific referee system. *Behavior Analysis and Therapy* is a peer reviewed journal published by the *Society for Behavioral Analysis and Therapy*. The *Self Help Psychology Magazine* contains also non-scientific articles. *Fokus på familien* is published by NordEP and appears in the Nordic countries.

In the field of Sport Sciences, there are three electronic journals proper which can be read free of charge. These are the *Electronic Bulletin of the Dante Society of America*, the *Swimming Science Journal*, and the *Coaching Science Abstracts* provided as a community service by the Department of Exercise and Nutrition Sciences at San Diego State University.

No free electronic journals were found in the field of Hydrobiology. The *Experimental Biology Online* is concerned with plant, animal and cell biology, and living organisms in aquatic environments. The publication is sponsored by three international biology societies. The *World Wide Web Journal of Biology* includes only an introductory edition from 1995, which can be read only with correct Netscape settings and auxiliary programs.

In addition to the journals mentioned above, the survey in the field of Psychology also covered some journals to which JUL does not subscribe but which are available both on paper and in electronic form. These journals include *PSYCHE*, an official journal of the *Association for the Scientific Study of Consciousness* and an interdisciplinary journal of consciousness, *Dynamic Psychology*, and the *Canadian Journal of Behavioral Science: On-line*. All the above journals can be read free of charge on the net, most of them contain all issues for 1995 and 1996.

4. Summary of Results and Conclusions

Freely available net journals add extra value to the Library's collections but they do not replace subscribed journals. Among those JUL subscribes to in the three fields under study, there were only two journals freely available on the net. One was in experimental use and one was a summary journal. Journals available

through agents or otherwise for a fee numbered 22, which, however, is only 7% of all journals subscribed to the Library in these fields. In terms of savings, the advantage is not very substantial. As mentioned above, the electronic version of the journal is free only for subscribers of the print version, for others it is subject to a fee. Price estimation of licences is extremely problematic also otherwise: prices are not available or they are difficult to find. Besides comparing the prices, we must also consider the importance of the journal for the library in question, as well as available space, equipment, and general mental readiness to utilize information in electronic form.

If, however, for economic reasons, we think that it is enough for researchers to be able to browse a journal's tables of contents and abstracts, and maybe target articles, then the net already replaces 38% of the journals subscribed to the Library in the fields under study. In such a case, however, the library or customers would have to order and pay for the actual article, for example, through Uncover or OCLC.

This survey covered only a limited number of subject areas. It is obvious that the situation in different fields may vary a great deal. If the survey had included, for example, physics or some of its special fields, the number of electronic journals would have been considerably higher.

We also found the information on electronic journals is not easy to find. WWW-pages where information was sought varied a great deal in structure, and often the information found was not comparable. With electronic journals the situation also changes constantly. There are numerous pilot projects in progress in the field. In a year's time, the availability of journals on data networks is probably completely different from what it was in May 1996. In order that net versions of journals can be utilized as soon and as expediently as possible it is important that libraries follow this development. Cooperation in libraries between subject specialists, those developing the journal collections of libraries, and end users is then very important. It is also most desirable that the information available should be standardized to make it easier to follow the development.

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COST EVALUATION OF DIGITAL IMAGES: THE SPANISH EXPERIENCE**

By Javier Docampo

"The cost of digitization is the biggest single challenge to achieving our goal"

Suzanne Thorin, chief of Staff
of the Library of Congress

Abstract: One of the main objectives of the Biblioteca Nacional (Spanish National Library) is to make its collections available in digital format. This to achieve the B. N. has initiated a most ambitious project called Memoria Hispanica. The first phase - taking place between 1996 and 1998 - will involve the digitization of about 50.000 documents of all kinds: books, manuscripts, graphic material etc. In this field the B. N. can already look back to a whole host of experience of which most important is its experience gained in conjunction with the Heraldic data base. This can serve as an excellent example for carrying out a cost and efficiency evaluation of the digital image services rendered to the library users. The article analyses the effect costs and prices for digital services have had on their use in order to draw valuable conclusions for further on-going projects.

1. Memoria Hispánica: the importance of digitization in the preservation and diffusion of Bibliographic Heritage.

The growing development and progressive cheapening of the digitizing technologies have spread out all over the world the projects for the storage and diffusion of information in digital format. The Spanish National Library, as the main repository of information of the Spanish world, could not remain outside of these new challenges. In this context the Memoria Hispánica project is being developed. Its aim is the creation of the Biblioteca Nacional Digital (Digital National Library), in which every document of the more than eight million items housed in the Library would be accessible in digital format through telematic

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networks¹. This project will allow a permanent solution to the dilemma that can be found all over the Library's history: how to join the preservation of the collections with access to them.

Logically this project only can be a long-term one. The first phase will develop between 1996 and 1998 and it will consist of the digitization of about fifty thousand items selected by three criteria: bibliographic importance, frequency of use and bad state of conservation. The cost calculation is 1.000.000.000 pts. (about 8.000.000 \$) from sources both public and private in a ratio yet to be determined².

Much has been written about digitizing technologies, mostly about purely technical matters. But the problem of the costs of these new services and the influence of their prices on its use has been, in comparison, less discussed³.

2. First experiences: evaluation of the Heraldic Database.

The first experiences in digitization in the Biblioteca Nacional took place in 1993. The most important one in image digitization was the implementation of the Sistema Integrado de Información Heráldica (Integrated System of Heraldic Information)⁴. Its aim was to satisfy one of the more usual questions of our readers, both researchers and ordinary readers: to know the origin of a surname and the connected heraldic device. For this purpose the library began digitizing the best known and important work about Heraldics in Spanish: the Diccionario heráldico y genealógico de apellidos españoles y americanos by Alberto and Arturo García Carraffa, published between 1952 and 1958 in eighty-six volumes.

¹ There are some similar projects in the world but the most important belong to the Library of Congress: American Memory Project and The National Digital Library Project. See about them: „The National Digital Library“, in: Information Retrieval & Library Automation, vol. 30, n. 5 (1994), pp. 1-3 and the vol. 53, n. 20 (1994) of Library of Congress Information Bulletin, issue devoted to the digitization projects of the Library of Congress.

² It should be noted that the first phase of The National Digital Library Project, estimated in five years, has been carried out with a budget of 10 million dollars

³ See the bibliographic report by Javed Mostafa „Digital image representation and access“, in: Annual Review of Information Science and Technology, vol. 29, 1994, pp. 91-135. The best study about the costs of the new digital libraries appeared last year: Saffady, William „Digital library concepts and technologies for the management of library collections: an analysis of methods and costs“, in : Library Technology Reports, 1995, n. 3.

⁴ More information about this project in: „El Sistema Integrado de Información Heráldica: digitalización de imágenes“, in: Biblioteca Nacional: revista de comunicación interna, 1994, n. 4, pp. 12-13 and Xavier Agenjo and Francisca Hernández: „La digitalización de materiales bibliotecarios en la Biblioteca Nacional“, in: Boletín de la Asociación Española de Archiveros, Bibliotecarios y Documentalistas, 1995, n° 3, p. 85.

After evaluating the offers of fourteen companies the Library chose as the best one that of *Idea Informática*. The first phase was the implementation of the digitized image database, the cost of which for the Library was 15.000.000 pts (130.000 \$). Afterwards the same firm created the text database at a cost of 5.000.000 pts (40.000 \$). Both amounts were from the Library's budget. The first experimental model was exhibited for the first time and with considerable success in the National Library pavillion in the Fair joined to the Barcelona IFLA Conference in August 1993. In June 1994 it was carried out in the Biblioteca Nacional. Since the beginning the database was considered as a primary service, so the users have no need for another card or requirement to subscribe to it.

The database stores the images of 14.000 heraldic devices and 25.000 text pages that describe the origins and history of the correspondent surnames. The search strategy is simple, because the only possible access is by surnames. From each one it is possible to obtain both the image and the text. The user can get as well a black and white hardcopy of the text and a colour one of the devices images.

The statistics in 1995 shows that the demand is more focused in the texts (2070) than in the images (333). The reasons may be the imperfect quality of the images. This difference is more pronounced if we take into account the number of hardcopies: 654 text pages and 78 devices images. In this case the reason is clearly the price. A text hardcopy costs 10 pts (0,08 \$) and a device image hardcopy costs 1.000 pts (8 \$), a very high price for a not hardcopy of insufficient quality.

The future development of this database has to focus on three aspects. First of all it is necessary to improve the flexibility of information retrieval. It would be very interesting to develop algorithms that get a more exact description of the heraldic devices, considering that Heraldics is a very accurate science in their definitions.⁵

It would be important also to enter more information trough the digitization of other reference works that fill the gaps of the García Carraffa work. Finally the library has to increase the number of users by distributing it on CD-ROM or by allowing remote access, via Internet or another network.

⁵ The devices description system is very interesting, useful as well for other kinds of materials, proposed by Harold E. Thiele: "Heraldry and blazon: a graphic-based information language", in: *Library trends*, vol. 38, n. 4, 1990, pp. 717-36. A similar experience to ours is the *HISTORIA: Heraldic Images STORing Applications* project, carried out by the Westminster University and the Biblioteca Nazionale Marciana, that is developing a database with images from venetian heraldic manuscripts.

3. Ongoing projects: the digitization of Iconografía Hispana and the CD-ROM Obra gráfica de Goya.

The National Library and more specifically its Prints and Drawings Section has in this moment two projects of image digitization, different both in scope and goal, that show clearly two possible ways to finance this kind of project.

Before discussing the two projects we must gain a brief understanding of how Spanish library services are currently financed. In Spain, most libraries and a great number of documentation centers belong to public institutions of different rank (locals, regionals, state...). There are few private companies that offer library services (Savings Banks or some educational foundations are the most significant) nor are documentation centers usual within private firms.⁶

These circumstances led Spanish libraries to a specific practice in which safe financing, though always insufficient, and its consideration of public service made them give up external financial sources. This caused an underemployment of their resources and a fall in demand. The situation has changed in the last few years. The economic development and a greater interest in Spanish society for cultural affairs has produced growing private financing of library services.

Therefore we reach the two digitization projects that are going to attract our attention. Three years ago we announced the implementation of an optical disk containing the Spanish portraits collection of the library, known as Iconografía Hispana by the repertory in which they are described⁷. The project has been much delayed but now it is almost completed.

The project was charged to Instituto Histórico Tavera, a cultural institution belonging to the insurance company Mapfre. This institution has a specific section for digitization projects that has had some previous experiences. This institution is creating a CD-ROM that contains about 20.000 images and the related records that describe them. Their goals are both preservation, since they are to a great extent engraved portraits of the XV-XIXth centuries, and improvement of information retrieval.

⁶ A review of the financing of Spanish libraries can be found in: Peón Pérez, Jaime Luis "Principios de carácter económico para la organización y planificación de bibliotecas y centros de documentación", in: Boletín de la Asociación Española de Archiveros, Bibliotecarios, Museólogos y Documentalistas, vol. XLI, n. 1 (1991), pp. 53-59.

⁷ Docampo, Javier and Colodrón, Victoriano "Automatización de fondos de material gráfico: la experiencia de la Biblioteca Nacional" in: Bibliotecas de arte, arquitectura y diseño: perspectivas actuales. Actas del Congreso organizado por la Sección de Bibliotecas de Arte de la IFLA, el Grup de Bibliotecaris d'Art de Catalunya y el Museu Nacional d'Art de Catalunya, München: Saur, 1995, p. 94.

The printed texts have been converted into ANSI text and afterwards they have been processed using optical character recognition (OCR) software. The result needs later correction, including the manual introduction of the code of the location in the library. The final product will be a database with some basic retrieval fields: sitter name and profession, biographical dates, artist, description and source.

The images are scanned in grey scale and with a resolution of 600 dpi that gives sufficient quality for the goals of the project and a storage capacity of 4.000-6.000 images in each CD-ROM. It is possible to enhance this capacity by introducing compression algorithms, so that all the work fits into two or three disks. Finally the implementation of an user interface in Windows will complete the project.

The cost of the project will reach ca. 5.000.000-5.500.000 pts (about 40.000-45.000 \$) paid entirely by the Instituto Histórico Tavera. About 500 disks will be issued, 400 for the Instituto and 100 for the Library, which it is not permitted to sell but may offer it in the Internet. The Instituto is going to sell the disks at a price of about 30.000-40.000 pts (ca. 250-350 \$), a very competitive price in relation to the printed repertory, if we consider the improvement of information access and the fact that every image is reproduced.⁸

The second project on which we are working now is the first CD-ROM created from an exhibition held in the Library. Spain celebrates in 1996 the 250th anniversary of the birth of one of the most important Spanish painters: Francisco de Goya. In light of this the Biblioteca Nacional is holding an exhibition with part of its great collection of Goya's prints and drawings, one of the best in the world. As a consequence of cataloguing the works it was thought possible to produce of a CD-ROM. With this purpose the Biblioteca Nacional contacted the company Hobbypress, publisher of the magazine PCMANÍA, which is devoted to the PC world and includes in each issue one or some CD-ROMs about various topics. This firm has created the disk from the material given by the Library. The images have been scanned with a Scanview device (Scanmate 5000) running with software Colorquartet 3.3.1 and with 300 dpi resolution.

On the disk can be found about four hundred images, mostly Goya's prints, plus some images of drawings and pictures. Each of these images has a text record that describes it. The CD-ROM also contains fifty pages of text, music (five minutes)

⁸ See the interesting analysis done by Jennifer Rowley and David Butcher: "A comparison of pricing strategies for bibliographical databases on CDROM and equivalent printed products", in: The Electronic Library, vol. 12, n. 3, june 1994.

and moving pictures about the exhibition, the Biblioteca Nacional and print techniques.

The master cost is about 2-3 million pesetas (16.500-20.000 \$), whereas the duplication cost is about 10-12 million pesetas (82.000-100.000 \$). The most interesting aspect of the project is the massive distribution of the product. The edition of the magazine is between 80.000 and 100.000 issues, with a price of 1.300 pts (about 10 \$), and two hundred thousand readers. The Biblioteca Nacional receives as well 300 disks and the ownership of the master, with the engagement that it will not exploit the product commercially. The result is a work less ambitious than the disks of Iconografía Hispana and focused on a different market, much broader but less specialized.

As we have seen the funding of both works has had a similar basis. The Library has neither the structure nor enough funds to afford these kinds of projects. We have therefore had to resort to the private sector, a cultural institution and a publishing firm, and they have funded entirely both projects. The Library gives the reproductions of their collections, the text records and, in the case of Goya's Graphic Work CD-ROM, the introductory texts to each section. Besides the external distribution through the sale of the CD-ROM the Library is preparing a new Study Room for the users of the Prints and Drawings Section, in which they will be able to view the originals, when their use is justified, and the reproductions both photographic (open cards, photographs) and digital. Every new service is going to be free and only the reproductions requested by the users will have a charge intended to cover the expenses but not to obtain a direct economic profit.

4. Conclusions

The ambitious project Memoria Hispánica can only be completed by a process of successive specific programs coordinated with the same goal: the creation of the Digital National Library⁹. The funding of these projects in countries like Spain, in which most of the libraries and the documentation centers belong to public institutions, has to come from private hands, both cultural institutions without profit goal and private companies. The former source is appropriate to projects for the care and spread of the cultural heritage, and this heritage is often in libraries

⁹ In the National Library the collections of the Prints and Drawings Section can be a privileged field for these plans. Future projects could be the next catalogue of German prints of the XV-XVIth centuries or a part of the vast photograph collection. About digitization of photograph collections see Benemann, William E. "Reference implications of digital technology in a library photograph collection" in: RSD: Reference Services Review, vol. 22, n. 4 (1994), p. 45-50.

collections. Private firms have to answer the growing demand for digital products and therefore often need these historic collections for their activities.

If the prices of the new services are too high for the users because of the high costs for the Library it is likely that the use of these services will be low. On the other hand if we can encourage the companies to assume the whole cost in exchange for the possible profits of the venture, the resulting services will be cheap or even free to users, thus greatly increasing their use. The confluence of the budget possibilities and interests of the private firms with the needs of preservation and diffusion of the bibliographic heritage is the best way digitizing technologies can enter the libraries even in times of scarce budgets and without making more expensive the prices of the services.

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**PAID SERVICES AT THE LIBRARY FOR FOREIGN
LITERATURE:
NEW OBJECTIVES, EXPERIENCE, PERSPECTIVES****

By Olga V. Sinitsyna

Abstract: In some fields Russian libraries seem to be rather progressive. Facing great financial problems many libraries had to find a way to earn money to survive and maintain their collections in the late 80s. The All-Russia State Library for Foreign Literature was one of the first to break the barrier of Lenin's dominating idea „Libraries - free of charge for everybody“. The Arts Department of the M.I. Rudomino State Library was one of the first to initiate paid services and by now it is quite experienced in the field.

The paper describes all kinds of services provided by the Arts Department, identifying those which may or may not be charged for, financial and administrative regulations, exceptions for special user groups, co-ordination and application of new technologies.

Russian libraries were institutions that faced great financial problems in the country's changing economic system in the 1980s; but their defences were very weak. Traditionally they had no sources of finance other than state or local budgets and they were never expected to earn money or raise funds. Amongst workers librarians were the poorest in terms of salary and also the most conservative in terms of changing their approach to their profession and abilities.

The very idea of charging for some library services was considered as shocking and indecent. There was also an important ideological reason - Lenin's thesis: „Libraries- free of charge for everyone“ - that didn't allow even thinking about charging for anything in libraries. At that time the only service which was acceptable to charge for was photocopying. But libraries' expenses began to increase immensely. In the late 1980s it became vitally important for survival that

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libraries made a choice between „fee or free“. The new economic situation challenged us to look anew at what we had and how we were working, re-evaluating possessions and public interests from a commercial point of view. At the same time some new groups of library users were ready to pay for information, such as TV and film studios, publishers, etc.

The Library for Foreign Literature in Moscow and its Arts Department was one of the first in the country to introduce fee-based services for special user groups and then for the general public. From the very first we had to make it absolutely clear to ourselves what kind of services we could and could not charge for. We had to consider the basic principles of free and equal access to information, accepted throughout the world. We also had to consider the privileged position of our Library in terms of the foreign materials we possessed, being unique in the country by being supplied with hard currency, even in the most difficult periods of our history. In our country there were only a very few other libraries and only a few individuals who could acquire foreign publications.

This privilege made the choice even harder because from one point of view we had to share our rich collection with everybody deprived of hard currency and thus provide access to foreign publications. From another point of view, we had to preserve and maintain our collection for future generations. When in 1989 the State stopped providing the Library for Foreign Literature with hard currency we were forced to search for non-traditional sources of finance. At the same time insufficient salaries (at the time lower than the official standard of living and remaining so) made many professional librarians look for more profitable jobs and thus leave the Library. Such staffing problems helped to accelerate changes in the traditional approach to library services.

I will not speak about fund-raising in the Library in general. I will mention only that changing the Library into an International Cultural Center immediately brought about some good results. Combining traditional Russian-type public and research libraries with libraries of different foreign Cultural Centers under the same roof provided the core Library and its users not only with funds necessary for new acquisitions, but also with access to the collections of these other libraries and their information resources. Library staff and users benefited further from this development since new information technologies and modern equipment at these centers became available to everyone.

The continuing low salary problem forced us to analyze our own options and resources in order to identify what sort of services we could add to the wide range of traditional library services. We didn't want to deprive library users of anything or to make them feel unhappy in the Library which they loved. So the main

problem was to find a proper balance between free and paid services. We formulated our main approach by bearing in mind two sides of a coin: staff and users' interests: all the traditional basic library services - receiving readers' cards, searching in the catalogues and special card-files, ordering and using library materials, reference assistance, attending exhibitions, public lectures, meetings, etc. - are and should be free of charge. Only additional or supplementary services may be charged for.

The Arts Department of the Library was one of the first to examine what resources we had to offer users in addition to traditional services. We realised that not all specialized cardfiles compiled by the Department, though they are quite well presented, were widely used by readers because only a few of them had sufficient knowledge and skills in bibliographical work to conduct searches themselves.

All the Guidelines and leaflets produced in the Library were of little help since it was always easier for the reader to ask the reference librarian for assistance than to read the Guide or to examine the samples on display. The reference librarian cannot do all searching for readers, he can only give advice on how and where to search. Rearranging the Art files in the most convenient way for users would be of little help either.

Iconographic searches cause even more difficulties than bibliographic searches. I do not mean ordinary requests for some well-known images or pictures of specific artists; these do not cause any problems since we have enough reference tools to help. But again the reference librarian cannot do a search on behalf of the user, as we usually have about 100 readers a day in our Department. However, it is evident that an art librarian can do this type of search more efficiently and quickly, using the same tools as readers but adding professional skills and intuition. It was therefore obvious that we could institute image research as a fundraising additional activity.

I have to mention that the majority of art publications in our Library are kept in closed stacks. In total the Library collection of art materials include more than 100,000 volumes and more than 150,000 current periodical titles. Only about 4,000 books and current periodicals from the last two years are on open access in the Arts Reading Room. Departmental staff therefore have to use the same catalogues and files as readers, the only difference being that art librarians compiled these files themselves and therefore had experienced the contents of all publications included and also a visual memory of them.

Whatever we did to make the reader's searches easier, we had to assume that it was impossible to foresee all types of reader requests, and therefore we

concentrated our efforts in rearranging files following general and typical questions only.

We found that many people were willing to pay to have searches done for them since it would be done better and quicker than if they did it themselves. They preferred to save time and get the best results passing the job to specialists. Moreover, they are mostly hired specialists doing a job financed by others, so they were not using their own money.

Gradually a circle of permanent clients was formed and some of them, like the slide manufacturing studio „Diafilm“, relied on our knowledge and vision of the subject. The editors gave us only the titles of proposed slide sets and left it to the Art librarian to select the images. I would like to name a few of these sets: „Mother-images in art“, „Male portraits in art“, „Games and gamblers in art“, etc.

Various film-makers and film- and TV-directors are also among our permanent customers. We selected photos for films on Federico Fellini, Michelangelo Antonioni, Greta Garbo, Clark Gable, Alida Valli and many others.

Among the themes that required much time were „Bars and restaurants as the site in modern art“, „Cruelty in modern art“, „The world of the Holy Bible“, „Magicians, tricks and freaks through the ages“. Compiling images for the last one we even had to find the pictures of Mesopotamian clay tablets with the cuneiform magic words „Ahalay-Mahalay“ inscribed.

In responding to these requests it is not only money which concerns us. It is a very practical way to raise intellectual interest in our jobs, to make routine work more creative and to develop the subject knowledge and reference skills of the librarians.

The subjects of requests are studied in depth in order to make a good selection of images. We also use all available reference tools and the searches provide us with an opportunity to examine our Library collection in terms of gaps, strengths and weaknesses.

One of the latest subject requests, which encouraged staff members to study a lot, was on the subject „Sun signs and symbols“. At first it seemed to us to be easy to find the necessary images, having good reference books on myths and mythology. But the more we got involved in the subject, the more sides to this seemingly endless theme were revealed. We had to cover every period of human history from the very beginning to the present, every field of art and craft, various folk ornament patterns, urban design and, of course, religious and ritual objects.

Eventually our eyes were so well tuned to discover Sun-signs that we noticed them everywhere, even on the patterns of the jackets of our colleagues and visitors.

Another type of request which we met with an additional service was to allow materials which were to be used only in the Reading Room to leave Library premises. The most frequent reasons for such requests was that it was necessary to reproduce or photocopy plates using special equipment which could not be brought into the Library, e.g. stationary TV equipment etc. At other times such requests were made because images had to be shown to Chiefs who refused to come to the Library because they thought themselves to be too important!

Responding to such requests we had to find means to insure materials and we require official letters for such requests indicating the purpose, preservation measures and payment for insurance. Unfortunately, even an official letter does not guarantee that borrowed books are returned on time, though payment usually makes people more responsible. We feel that the only secure way to handle such requests is to accompany the borrowed materials but that is seldom possible and we therefore still consider this kind of service as extraordinary, although it generates attractive sums of money.

Photocopying is a service which almost every library provides, so I do not need to say much about it. In this context we are mostly concerned about allowing the reproduction of our materials, copyright, the physical condition and value of the material involved.

A completely different kind of service concerns education. Our Department is closely connected with the Arts and Architecture Faculties of Moscow universities and colleges and as a result students and faculty members use us regularly. We support their curricula and acquire necessary materials and put them on open shelves. We also arrange displays for exams, etc. We do not charge graduate or post-graduate students if they need to make slides from our books for use in presenting papers or in dissertations. We also help school art teachers to select visual materials for their classes, they can borrow slides and we allow them to make slides of their own at a nominal price.

Taking the initiative the Arts Department created a Children's Reading Room. Since much of our material is in foreign languages the main difficulty for children was the language barrier and so we decided to teach foreign languages as well as the history, art, literature and customs of the countries of the language concerned. In the past children were not welcome in libraries but nowadays many former libraries for adults accept juvenile readers. In almost every Russian regional or city children's library language and art classes are now arranged. This kind of

service is paid for by attendees. Since we provide a supplementary education it is up to the users whether to take this option or not. These classes are taught by both invited specialists and by members of the Library and Departmental staff. It is my responsibility to manage this business and we set prices ourselves. For us it is very important to attract children from the families with low and medium income.

In our educational activity we combine teaching of children with sharing our experience in the field with language and art students from pedagogical colleges and universities. Every spring we arrange a two-week seminar and training for students and teachers. We show them how to use the Library's information resources and introduce new educational methods and tools. Our idea is „not to try to feed everybody but to give them a fishing rod and to teach fishing“. To teach future teachers seems to us very effective. The colleges which commission such a training pay only a nominal charge, about 60R .

Our pricing policy is not to get as much money from clients as possible but to set reasonable prices to make all our additional services available to all categories of users, including librarians and teachers. In 1987 the Library received the first „recommended“ price-list from the Ministry of Culture for additional services such as photocopying, translating, taking pictures and making videos. This has been our basic document since then although prices in the country increased immensely in the early 1990s.

For the services not mentioned in this basic list we had to make our own calculations, taking into account the average time required to provide the service. The salary per hour plus all taxes and expenses of a library professional with the highest qualifications were used. As prices are linked to the State salary rate we have to update the price-list regularly but we do not raise prices every time salaries increase since we realise that we might lose some of our permanent clients as a result.

We balance our charges between having to produce income and the capability of the user to pay. Since we wish to make our services available to clients with a low income we developed a system of reduced prices and even excluded certain groups of users from payment: students, school teachers, museum staff, retired people, church, State cultural institutions, non-commercial film studios producing films for educational purposes, restoration workshops, etc. Sometimes the clients of these categories refuse to pay such a reduced fee as they wish to contribute to the Library's development by paying full fees. For example, an English merchant's warehouse of the 16th-17th centuries in Moscow Zaryadje was restored prior to a visit to Russia by Queen Elizabeth II. We assisted in this job by selecting samples of English warehouses of that period. We did not want to charge for the work but

since the project was sufficiently financed the restorers insisted on paying for the work we had done for them.

Payment can be made in several ways. We accept cash and in such a case we give a receipt to the customer, pass the money to the Library cashier who transfers it to our bank account; payment can be made directly into our bank account.

Library regulations require a special procedure for administering and managing the paid services provided by different departments. In this we are supervised by the Budget-planning and Financial departments. A special agreement is signed between the Library Administration and the Department outlining mutual responsibilities, duties, a list of services and the procedure to regulate money. 30% of each fee earned goes into the Library budget, 10% to the Departmental budget, 10-20% is paid to the staff of the relevant department and the remainder is paid as extra salary to the staff of the department who were personally involved in this particular transaction.

Although we feel ourselves rather advanced in terms of using our heads and hands for these services we are still quite confused by the options of new technologies. At present our readers are not very interested in information about publications or their location. They need original texts and images here and now. They are not like businessmen or lawyers who urgently need current information in any medium and at any price. Our users mostly deal with universal values and are not so eager to get current news. It is not absolutely clear to us what type of on-line search or information delivery we could charge for in the future. For us it is still a big question.

We co-ordinate everything concerning paid services with other similar libraries in Moscow. We share our experiences at meetings of ARLIS/Mos and at seminars with colleagues from all over Russia. We wish to have the same price structure in similar cities, or at the least in the same city, since there is no state regulation of this process. We really need an international discussion on this issue.

I hope that in the nearest future our users will learn to value information regardless of the location of the original book and we will become as advanced in providing services using electronic tools as we are with brains and hands. Time will teach us.

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**SELF-FINANCING SERVICES IN LIBRARIES: A METHOD
OF INCREASING LIMITED LIBRARY BUDGETS IN
POST-COMMUNIST ROMANIA?*****

By Sally Wood Lamont and Iona Robu

Abstract: This paper reports the self-financing experience of the Cluj Medical Library, Romania. The recurrent library budget given by the University covers mostly book and periodical acquisitions: other expenses, such as equipment, consumables can only be partially (i.e. 10-15%) covered from this budget, the rest must be borne by the library itself.

In order to continue improvements, the library budget had to be increased by self-financing schemes, therefore a conscious decision was made to introduce fees for additional library services given. The influence of old mentalities are discussed as well as the implications and results of the scheme.

Introduction

Background

I (i.e. Sally Wood-Lamont) initially became involved with Romania as Coordinator of the Scottish Books for Romania Appeal which was launched by Edinburgh University Library in January 1990. I had been working in Edinburgh University Library for over 20 years and in the latter years I was Head of Donations and Exchanges Department. This appeal gathered in over 500,000 books from libraries, publishers and bookshops.(1) All books were sent with convoys/lorries going to Romania on which space was bought or occasionally donated.

Cluj Medical Library Project (2)

In 1991 a Medical Librarian in Cluj, Ioana Robu, asked for help in the Medical Library field. I arranged an attachment within Edinburgh, Manchester & Glasgow University Libraries. I realised then that if I wanted to change the libraries in

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Romania, first of all a Romanian Librarian had to be fully trained in Great Britain and secondly I would have to go out and work myself there so that together we could use our experience in both countries to inaugurate a working plan. In 1992 I arranged for Ioana to spend a year and a half in Scotland to do an MSc in Librarianship at Robert Gordon's University, Aberdeen : her thesis subject was *Automation in Romanian Medical Libraries: Survey of the Paths towards an Optimal Solution* (3). In 1993 I received sabbatical leave from Edinburgh University for 18 months and with Ioana came back to Cluj to initiate the Cluj Medical Library Project. Its aim: to automate the Central University Library of the University of Medicine and Pharmacy and make it a model for all Romanian libraries to copy (4). Soon after her arrival back in Cluj Ioana became Director of the Library and I worked alongside her as a Library Consultant.

A server, ten workstations, a Novell site network and an Australian library automation system called ALICE was purchased with single donations from Scottish charities; the total sum raised from these doubled by a matching SOROS grant. By October 1994 the library was ready to initiate full circulation. New readers had been registered on computer; all foreign books had been entered on the database; Romanian books from 1985 and 40% of the multiple textbooks. We now turned our attention to providing the services that all Western libraries do as a matter of course and which Romanian libraries have had limited opportunity to install. The primary problem was finance.

Budgeting and financial management of Romanian university libraries

All Romanian university libraries function entirely with money allocated from the government through the Ministry of Education and administered by the patron university. (5) Libraries do not have direct control of their budgets, with the exception of very large university libraries (four in the whole of Romania). The recurrent Medical Library budget, controlled by the Medical University, covers mostly book and periodical acquisitions. In theory the cost of consumables and other equipment is also covered, but this involves so much paper work and disruption of the work flow, plus the uncertainty that the material requested will actually be received that one wonders whether the whole process is worthwhile after all. There are signs that more money will be allocated to libraries and that financial bureaucracy will loosen up, but it is a slow process. Moreover, one must keep in mind that inflation still runs high, at over 25% per year.

In these circumstances, we had two ways of quickly making things work better: (1) optimize the use of the money allocated; and (2) introduce self-financing schemes.

Optimization of financial resources management in our library

In order to utilise our recurrent budget to the best possible advantage for our readers we broke completely from the traditional methods of using Romanian State book/periodical agents. We order all our books from a Scottish bookseller in Edinburgh, who gives us 10% discount on most purchases covering the cost of transport. Therefore we are able to purchase our annual order at cost price without the expensive levies of the Romanian State agents. Similarly we order our periodicals direct from Swets and Zeitlinger in Frankfurt and gain a 2% discount and have one of the best services in all libraries for the receipt of journals. We are able to claim missing issues and fill gaps, a service that is unavailable with state agencies.

Although, in the early nineties the use of foreign agencies was strongly discouraged by the Romanian Ministry of Education, to the extreme that foreign currency was refused, a recent Appraisal Committee from the same Ministry complimented the library for the efficient use of foreign currency and included in the final report a recommendation for all libraries to follow our example!

Self-financing

However if we wanted to continue improvements in the library then we had to find the resources ourselves and a conscious decision was made to introduce fees for additional library services given. A project was drawn and was readily approved by the University Senate. The self-financing services were then included in the official library regulations.

Photocopying

Photocopying services are very rarely given by the library themselves. Many have their own photocopier but only for their own private use. In many cases libraries have received as a donation, a xerox machine but without a budget for consumables - paper, toner and regular services. The country is littered with new xerox machines which lie unused waiting for the next donation of paper or toner.

We persuaded the Rector of the University to purchase a photocopier for the library, promising we would make it self-financing and that it would be for the use of all readers. In fact he bought three Cannon photocopiers for the Medical University one of which was placed in the library along with a colour photocopier that was included as an extra in the deal. We received 2 toner cartridges and a supply of 2 reams of paper; the latter was supplemented by a supply of paper (20 reams) I had received as a donation. (This paper was not A4 size but we asked the Cannon engineer to alter one of the paper trays in order to adapt for its use). With

this extra stock of paper we had the means to build up a cash flow, necessary to start a proper self-financing service where we could buy toner and paper as we required it. We surveyed the rates charged by everyone else in town and also worked out the cost pro rata of each copy taking into consideration all aspects, time, toner and paper costs and agreed on a price that was slightly cheaper than most but would maintain our cash flow. This xerox machine also allowed us to make another new rule in the library: periodicals were no longer allowed to be borrowed. In the past many journal issues were permitted for loan because the more important readers said we had no photocopying facilities and they had not time to read the journals. This had also resulted in gaps in our collections as some of them remained at hospital departments and were never returned. In addition other readers, in lesser positions, were denied the opportunity to read many of the current journals. We moved the young typist into an office on her own elevating her position to secretary and xerox operator. She is now the pivot of the library, answering the telephone, dealing with enquiries, organising the xeroxing and providing a first class service. I must add that the other two xerox machines have suffered the same fate as many others: one is broken and one is only used when someone buys paper or toner.

Spiral binding and laminating

A spiral binding machine and a laminating machine had been purchased with the initial donations from Scottish charities as we knew these facilities would be needed for the library itself e.g. signing, rebinding etc. However we were frequently asked to spiral bind for readers and to make badges for conferences, doctors etc. It was logical to again make this a self-financing service, working out costs that would be much cheaper than was being offered in only one other location in town and in this way help the staff and students of the University and also help ourselves. In fact we are now doing most of the badges for Medical Conferences and Library related conferences. In addition these conferences can now offer spiral bound programmes, laminated publicity notices and also copies of papers given, all of which enhance the image that our Medical University is projecting internally and externally.

Borrowers cards

The decision to charge for borrowers cards was yet again one of necessity. Though we had an initial supply of 1000 self-seal laminating pouches and we made each of our borrowers cards on a template on the computer - white for student, blue for staff, green for external- ready made plastic ones could only have been ordered from abroad and were far too expensive to consider. In order to purchase more we had to have money and therefore we decided to charge every borrower a token

sum of 500 lei (25 cents) - now raised to 1000 lei because of inflation - which would help us to maintain the supply of these. If readers lost their borrowers cards then they had to also purchase another. We were both pleasantly surprised at the readiness that this was accepted by everyone - long queues were frequent with students proud to have their borrowing card as evidence of being a medical student.

Medline printouts

In our library we have *Ovid Medline Plus*, *Biosis Abstracts* and *Bookbank*. With the former we have as yet no printers attached to the computers. Readers are allowed to download their references onto diskettes but many of the readers do not have ready access to computers themselves. There were frequent requests to print these references out. We therefore made this a fee-paying service - 10 cents per page - because of the time involved and the cost of the paper. This again has proved very successful firstly because we compel the reader to be more selective in what he/she requires and secondly they appreciate the possibilities of being able to take away the information.

International document delivery service

In the past the only method of obtaining articles from abroad was scouring *Current Contents*, *Clinical Medicine* and *Life Sciences* for relevant articles and then writing to authors for offprints. The prohibitive cost of Romanian postage in relation to current salaries has almost halted this practice and in addition many journals have stopped giving free copies of articles to submitting authors. Our library was the first Romanian library to initiate an International Document Delivery Service linking with the British Medical Association Library in London. They charge £3.60p - \$5.50 for each article, offering a splendid seven day delivery service. Title of journal, volume number, year, page numbers and author are faxed over. The library charges the full cost to the requester but bears the cost of the fax itself and this is now a well established and popular fee-paying service. However the availability of articles is limited to the periodical holdings of the BMA library which has around 360 titles and at present I with the Library Association of Great Britain am in negotiation with the British Library Boston Spa to make their extensive periodical holdings available for Document Delivery at the same price as the BMA library. Boston Spa currently charges £15/\$22 per article which is completely out of reach to all Romanians whose current salary is around \$60 per month.

Fines

Fines are charged for overdue loans, lost books and disregard to library regulations. These fines are symbolic to commence with but increase with the severity of the offence. For instance, it may be from 1500 lei (30 cents) for 4 days overdue to 30,000 lei (approx 11 dollars) for 3 months overdue. There are also set fines, e.g. 5000 lei (almost 2 dollars) for failure to report to the desk before entering the open access shelves area. Though fines would seem to be the quickest way of making money, the keyword of our policy is flexibility, which means that we very seldom fine a user on the first offence and we try to differentiate between deliberate and unintentional offence. After all, we want to offer better service not to treat users as criminals.

Results and discussion

These ideas have not been accepted easily in practice and a big factor of this reluctance was that old mentalities continue to persist both within the library staff and by its users. In the Communist times and still now in the supposedly Post-Communist era, self-financing schemes and user-paid schemes meant lining the pockets of the director or the person who inaugurated them. There was no consideration of loyalty to the library only the thought of an easy method to obtain money by fleecing the hand that pays the salary. Our readers were very suspicious and initially perceived the changes as only a method of the Library Staff making money on the side. The Library Staff too thought of it initially as a way of making extra money for themselves and then when we insisted on receipts being given and proper books being kept they became wary of us. Where was the money going? There were also complaints from the senior staff of the Medical University: (a) because they felt that their senior position gave them privileges of borrowing journals; (b) they also expected free photocopying and free user cards; and (c) they also asked where the money was going.

However, the solution was to show ostentatiously that money obtained was for the benefit of the library. Therefore meticulous accounts were kept and shown at each library meeting. A new switchboard was purchased with some of the self-financed money so that instead of only two telephones in the library there were another four extensions giving a benefit to all the staff. A new carpet was bought for the protocol room. One room was given to Periodicals and for the first time periodicals were put on open access. Periodical display furniture was therefore necessary and though we could not order ready-made from abroad because of the high price involved, we commissioned from a local joiner in a nearby village five periodical display cupboards in pine. Six months later a further two were added

bringing the total number of available space for display to 140 titles. A newspaper rack display cupboard was commissioned also. Total cost for all of these was only \$565. Binding material was also bought to strengthen the spines of the heavily used Romanian medical manuals and the staff at the issue desk repair these over the summer vacation.

The major advantage of having our own self finance means that services are maintained without any delays for replenishment of materials. Many a service initiation in the past has fallen by the wayside for lack of continuous investment or cash flow.

We also tried to instill in our staff better public relations, this latter induction being one of the most difficult to introduce. In Romania as in many Eastern European countries one treats the reader according to rank in the University, or whether the reader is a friend or relation. How could we introduce fee-paying services for every reader without the courtesy to accompany them. We had to convince the Library Staff that all new fee-paying services were above board, that they were benefitting the library and readers. After a year, pride and trust in the management has been introduced into the library: morale both inside and outside has been heightened and at long last there is a sense of working together in the library. The University staff are becoming fulsome in their compliments of the library and anxious to use all the services within it. Rectors from other Romanian Medical Universities and Medical Librarians are asking us to assist in installing these ideas in their libraries. We have already held a conference in Craiova for all Medical Libraries that we were asked to organise which has promulgated our example throughout the country. However, one has to be aware that there is no specific law sanctioning self-financing in libraries, and universities have to make their own decisions about the matter, within the newly acquired academic autonomy.

Conclusions

Introduction of fee-based services represent a very good method of improving library service in Romania, a country with heavy constraints on the government budget and in which libraries are far from the top of the money allocations list.

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USING THE INTERNET TO SHARE INFORMATION BETWEEN CHINA AND THE WEST*

Newton X. Liu

Abstract: China and other developing countries need full access to information, including the contents of scientific journals and reference works. However, the costs of knowledge in these forms has risen beyond the ability of all but the wealthiest to afford it. The Internet can help transport journal articles (and numerous other forms of information) to China from the West, efficiently and at low cost.

Yet the new technology is not a perfect solution and has affordability problems of its own. These include, for users in developing countries, high costs of access to the networks, and limited availability of full-text.

Bridge to Asia is creating several Internet-based "Information-transfer Stations" (ITS) that help users in China overcome these limitations, and exploit the full potential of networked information. An ITS adds people to the technology -- information specialists and on-line experts -- who work worldwide).

The operation of an ITS is described below, including its document-delivery and on-line consulting services, together with examples of requests from China and responses from the West.

Introduction:

Bridge to Asia is an international nonprofit organization, based in California and Hong Kong, that supports research and education in developing countries in Asia. In our main effort, we use the Internet to help institutions and individuals gain access to knowledge worldwide. In related efforts, we send donated books, journals and other hard-copy materials to universities and research institutes.

We cooperate with partners in China including the State Education Commission, Institute of Medical Information of the Chinese Academy of Medical Sciences, and the Science and Technology Council of the Ministry of Construction, among

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others. We also partner with Western universities including the Chinese University of Hong Kong, the University of California, MIT, and UCLA.

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Limitations and barriers to access:

The need in developing countries for access to knowledge bases in the West is critical. The Internet and new information technologies make it possible to retrieve much of the knowledge that is needed; however, they present new challenges that require new solutions.

The information contents of the networks are so great and disorganized that searches can consume more time and funds than the results are worth. Most databases on the Internet are static, while many questions are dynamic (open-ended and evolving, often requiring consultation with an expert).

In addition to problems of access and utilization, there is an underlying issue which the Internet, for all its virtuosity, cannot resolve: control of published information by the knowledge industry. The new technologies help drive down the costs of published information, but the rule is that if a user cannot afford hardcopy materials today, she probably will not be able to afford electronic versions tomorrow.

The spread of the networks to China has increased the demand for low-cost and efficient access to information, and for supplementary services including person-mediated support which help to make access to contents of the networks fully available. Without such access and services, most users may remain as information-isolated in the future as they have been in the past, research and development will continue to lag, and the knowledge gap may open rather than close.

Information-transfer stations (ITS):

The ITS is designed to overcome most of these barriers and limitations. It adds people to the technology, including the information specialists who operate the stations, and teams of experts who provide consultation. It also adds low-cost copies of journal articles (photocopies from libraries at the University of California and the Chinese University of Hong Kong, among others), together with other research and information resources.

An ITS consists of:

- an information specialist -- a (combination) subject
- specialist, research expert, and Internet navigator
- a team of advisors who are experts in the target field
- research assistants
- PC, modem, and software
- link to the Internet
- electronic databanks
- paper libraries
- other information resources

An ITS in California or Hong Kong is linked to a companion station in Beijing or elsewhere in China. The companion station includes a research assistant, PC and modem, link to the Internet, and phone lines; it is a service center where users forward requests and receive responses from an ITS in the West.

An ITS performs several functions. It receives requests from users and refines the requests as needed; it locates sources of information and points users to the sources; it retrieves information electronically from databanks and on-line conferences, or manually from paper libraries; finally it forwards information to users. The ITS also provides current awareness services, and hosts archives of frequently requested information.

We are building a total of five ITS projects, one each in a field critical to development (medicine, law, planning & architecture, environmental science, and investment & trade). The stations in medicine and planning & architecture are installed in Hong Kong and the United States with companion stations in Beijing.

The station in medicine is linked to CMINET (China Medical Information Network), the new national network that links eleven medical universities to each other and to the global Internet. The station in planning & architecture connects the Ministry of Construction with the Department of Architecture at the Chinese University of Hong Kong and the School of Architecture and Planning at MIT.

Additional stations will follow soon, including the station in investment & trade which will be operated as a commercial service to generate revenue for the other, non-profit projects.

Much of the information that is provided to China will be useful elsewhere, and the projects are being extended to other countries whose needs for knowledge are similar.

We have tested the ITS model for two years with small groups of law scholars and physicians in Beijing, and confirmed the efficiency and utility of these new and urgently needed services.

Examples of requests from China and Russia:

EXAMPLE 1: SOS request for consultation, sent by e-mail by physicians in Beijing. (This was the first such use of the Internet to save a life in China.)

Date: Thu, 09 Feb 1995 09:58:08 +0800
From: huangxd@bepc2.ihep.ac.cn
To: asianet@well.sf.ca.us
Subject: Please post the message for me on the Net. Thank you.

Call For Help! A young Chinese girl is slowly being eaten away by a strange disease.

Non-infection Necrosis? Infectious necrosis? or Localized manifestation of an unknown systemic disease?

A young Chinese girl suffering from a mysterious infection that causes progressive necrosis of her right forearm and left hand is arousing great concern in the whole country. After fighting the disease for nearly four months without any success, doctors in Beijing are appealing for emergency failed to response to any existing antibiotics and hyperbaric oxygen help from colleagues around the world.

The thirteen year old girl, Ying, comes from a poor farm family in Shangdong province in east China. The girl has been tortured by the mysterious disease for 8 months. The disease first began as a black spot under a finger nail of her right hand suspected by a local clinic as a stab wound caused by small stick or barb. A local doctor tried to get something out of the black spot, but thing got worse. She began to suffer from paronychia and the infection soon spread to the whole right forearm and the mid-finger on her left hand.

After treatments in five different hospitals in provincial capital Jinan had all failed, the girls parents took her to Beijing. She has hospitalized in a Beijing military hospital since early November, but the disease continued to progress despite all out efforts by the

city's most elite doctors. The doctors have to amputate one third of her right forearm and three fingers of her left hand. Although the spread of the infection seems a little bit slower, still there was no sign the infection will stop.

What puzzled the whole medical community is that from the appearance of the affected surfaces it looks like an infection, but the infection have failed to response to any exsiting antibiotics and hyperbaric oxgen treatment. Bacterior cultures have always been negtive.

Officals of the city public health bureau have invited experts to probe into the mystirous disease and welcomes any suggestions from doctors arround the world.

We will continue to update information on Ying's condition. If you have any suggestions, please send e-mail to the following address:

Huangxd@BEPC2.IHEP.AC.CN

Dr. Xiangdong Huang
Institute of Medical Information,
27 Taiping Road,
Beijing 100039,
China.
Tel:86-1-8215603
Fax:86-1-8213044

Bridge to Asia immediately forwarded this case to physicians, public health experts and research centers in the United States (National Library of Medicine, Centers for Disease Control, University of California at San Francisco, and the National Science Foundation, among others). We also sent the case to physicians in Hong Kong and Europe.

First responses came within hours. More than 300 responses came within weeks (after a second, more detailed medical history was prepared by physicians in Beijing, sent to Bridge to Asia, and relayed by BTA over the Internet to these groups plus others).

Date: Sun, 26 Feb 1995 16:59:09 +0800
From: huangxd@bepc2.ihep.ac.cn
To: jasmith@well.sf.ca.us
Subject: RE: Progress on treatment for Ms.Ying.

Yesterday, I was notified by doctors responsible for the treatment of Ying that infection was finally put under control after adjustment in antibiotic treatment. The diagnosis is still not clear although latest culture of local necrotized tissue gives out an anaerobic bacteria (exact name still not available). Skin grafting was carried

out 3 days ago and preliminary results was very promising. If the skin grafts survive and local infection does not relapse, the hospital will hold a newsbrief to announce the complete recovery of Ms. Ying and expresses gratitude for all those who have contributed to save the girl's life, including those who have sent helpful information and suggestions from Internet.

Up to now, I have received more than 300 messages from around the world, most of them are very informative. I would like to thank all of you but there are a few I would like to mention here because of their special contributions. They are: (14 physicians and public health experts from throughout the world)

Dr. Huang Xiangdong
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27 Taiping Road,
Beijing 100850,
China

EXAMPLE 2: Request for articles, received by e-mail from librarians at a higher education information center in Moscow.

1. Information Insider
Boeri, Robert J.
Hensel, Martin
CD ROM Professional
AUG 01 1996 v9 n8
52p
2. The Internet Information Delivery Revolution
Ercelawn, Ann
The Serials Librarian
1996 v28 n1/2
7p
3. ProQuest Direct: Document Delivery (with Images) to the Desktop
Basch, Reva
Online
MAR 01 1996 v20 n2
38p
4. Is Electronic Commerce Ready for the Internet?
Cooper, Lawrence K.
Duncan, Dennis J.
Whetstone, John
Information Systems Management

Sumr 1996 v13 n3
25p

5. Captilizing on Electronic Commerce
Senn, James A.
Information Systems Management
Sumr 1996 v13 n3
15p
6. The Stage is SET
Loeb, Larry
Internet World
AUG 01 1996 v7 n8
54p

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