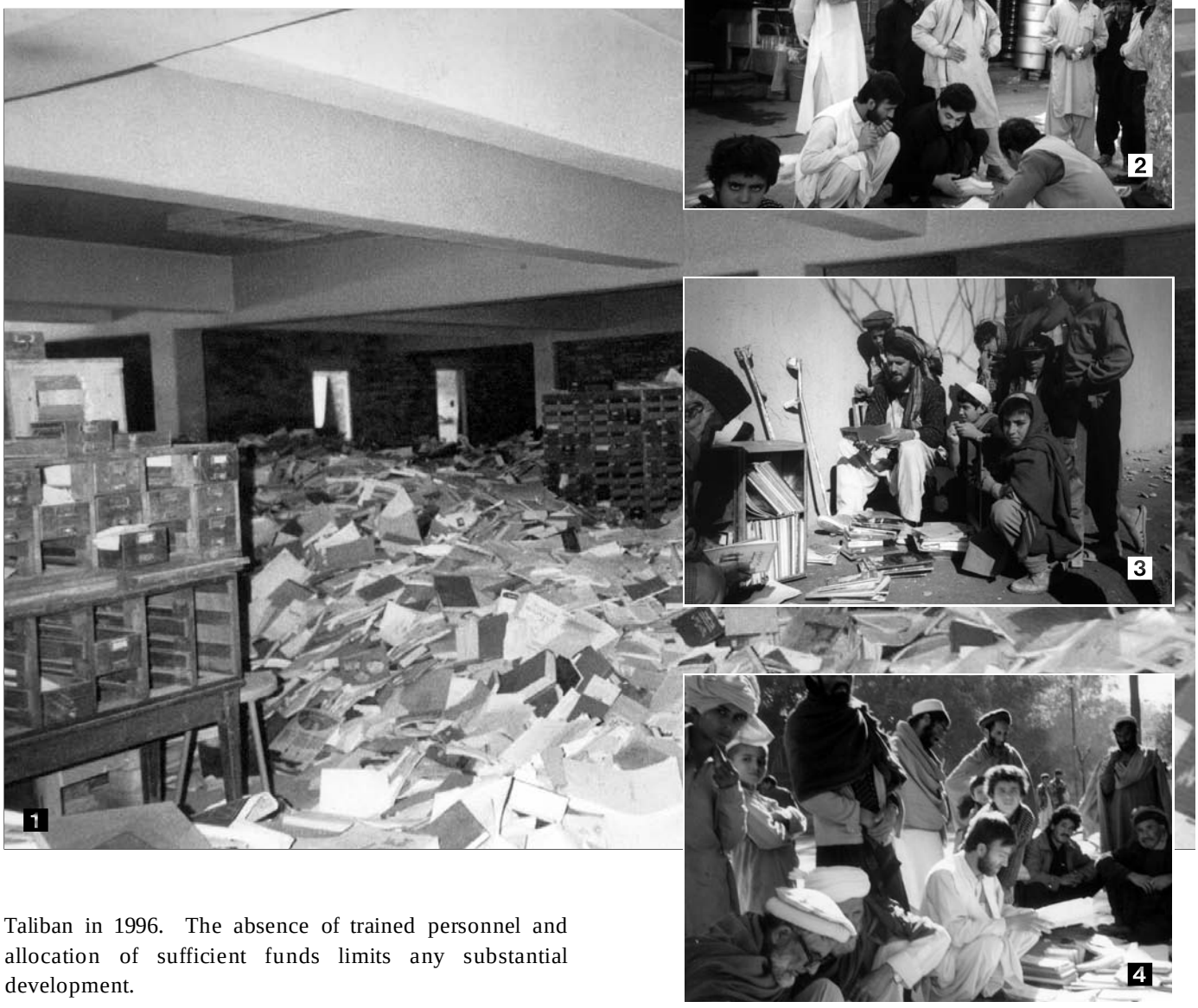
fghanistan



Taliban in 1996. The absence of trained personnel and allocation of sufficient funds limits any substantial development.

Conditions in the provinces varied. The Herat Public Library was open for women in the mornings and for men in the afternoons in August 1994. It was comparatively neatly organized with all books shelved and attended by five female librarians. However, there was no catalogue, no inventory and the untrained girls had no clue as to what might be in the collection.

The Public Library in Jalalabad, visited on several occasions during 1993-1994, was in a deplorable condition with no glass in the windows and books piled on tables full of dust. There were about one thousand antiquated volumes in Dari and Pashto and bound collections of newspapers, including a superb collection of old newspapers. These should excite scholars, but they did not

1 *Kabul Univesity Library, May 1995. Photo: Nancy Hatch Dupree.*

2 **4** *Sidewalk bookstore, Jalalabad, November 1994. Photo: Nancy Hatch Dupree.*

3 *ABLE Custodian and Users, Khost Province, March 1997. CARE International (USA NGO) community school. Photo: Mohammad Rafi.*

ABLE Users, Logar Province, December 1997
AFRANE Community Centre, Amitié Franco-Afghane Aide Humanitaire et Information (NGO) - Photo: Mohammad Rafi.

draw general readers. In the basement there was an antique press which belongs in a museum. All official documents and newspapers were being handset on this venerable machine. The Director in November 1994 had a marvelous attitude saying that he wanted to encourage people "to pick up a book instead of a gun". He had secured funds for new acquisitions but had no access to sources; he had tables but no chairs. This type of haphazard support from the authorities was, and still is, typical of the problems that plague all the libraries. In the event, personnel was entirely replaced in 1996 with the arrival of the Taliban who keep the library open with minimal support.

National archives

The National Archives, **Arshiv-i-Milli,** was officially opened at the Kabul Public library on 12 September 1974 with an original collection of one thousand documents. These documents were later transferred to their permanent home in a restored palace built circa 1890 by Prince Habibullah (later Amir, 1901-1919). By the time it was decided to renovate the building for the Archives it was much deteriorated. Restoration measures were officially inaugurated in November 1974 and had just been completed when the 1978 coup occurred.

The building is in good condition, having suffered only a minor rocket attack and no looting. The fine collection, numbering some 20,000 items by 1978, contains illuminated manuscripts dating from the 16th and 17th centuries.

After the 1978 coup large numbers of the books and documents collected from the houses of the deposed royal family were deposited at the Archives. The Archives was equipped with microfilming facilities, but it is not known how far this work had progressed, nor the present status of the microfilm equipment.

A few months before the 1978 coup d'etat the Archives had contracted the purchase of the Sardar Khalilullah Enayat Seraj (KES) Collection of Vintage Photographs, consisting of 3000 images dating from 1880 to 1929. The prints were catalogued. The original KES prints, however, had not yet been physically turned over by the time the coup occurred and their whereabouts are now unknown (2).

The National Archives building has been sealed since 1993 and the condition of the manuscripts is unknown. The display cases hold only photocopies of selected manuscripts. The originals are said to be safely stored in the basement where, however, climate control facilities ceased to function years ago. There have been unconfirmed rumours that much of the collection has disappeared.

Several bibliographies were published, including a list of historical documents (1985), Pashto manuscripts (1986), Korans (1987), and manuscripts in general (1988). Here at least a check can be made after the doors are unsealed. A proposal to obtain international assistance to assess the current condition of the manuscripts did not meet with success. It was feared that the removal of the seals would place the collections in danger of further losses. Deterioration from humidity, lack of ventilation and insects represents a more likely menace.

University libraries

In 1995 six universities were functioning. All maintained libraries, but all were woefully out of date and none had funds for acquisitions. Trained librarians were rarely available so there was no one to guide students in the use of even the outdated materials that were available. Books were often found piled helterskelter on tables and floors in total disarray under layers of dust. When shelved, they stood upside down and backwards, spines bent and broken as in Kabul's Public Library.

The Kabul University library was affected most disastrously. Here a professional librarian employed since before the war estimated that 50 percent of its once truly great collection was looted or burned by fires set by rockets. By some reports this amounted to 150,000 books, and 6000 periodicals.

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(2) Negatives taken of the original prints by Louis Dupree are available in the United States. Only a partial summary catalogue has as yet been prepared and photocopied: The KES Collection of Vintage Photographs, Khalilullah Enayat Seraj/Nancy Hatch Dupree, Occasional Paper # 17, Afghanistan Council, The Asia Society, N.Y., 1979.

The audio-visual section formerly supplied with high quality technical equipment, the photo laboratory, and the binding and catalogue sections were completely gutted and useless. The airconditioning and heating units, furniture, filing cabinets, sanitary fittings, kitchen equipment, lighting fixtures - even the metal stair treads - had been systematically stripped.

Needless to say, the once thriving publication department and research centre no longer functioned.

As distressing as the destruction of the Kabul University was, it was as nothing compared to the stark ruins of the Soviet-assisted Kabul Polytechnic Institute which had opened in May 1969. Its library once housed 68,000 books.

In 1993 the Medical College Library in Jalalabad which had once held 7000 titles had only 2000 left, and what remained was in deplorable condition, hopelessly out of date and largely in English. Students complained that it was impossible to find books midst the chaos; most went to Peshawar to borrow books.

A one-month course for the custodian was organized by ARIC. The authorities seemed more interested in expensive physical renovations, which they subsequently obtained from the Arabs. A year later a brand new library was ready. The trained librarian, however, had disappeared.

The Ningrahar Islamic University Library in Jalalabad had about 18,000 books and monographs and 8000 individual periodical issues lavishly provided by funds from the United States in the 1960s. In 1995 there were still sets of multiple copies of expensive scientific textbooks in pristine condition, neatly shelved but never used. The same was true of later books in Russian. These multiple copies, up to 20 in some cases, which should have been circulating in the hands of faculty members and students were jealously guarded by the caretaker. This tawildar (storekeeper) complex has pervaded the government system for years.

In the past, exchange programmes with international libraries, including the Library of Congress, Leningrad Library, Tehran and others were generous. These programmes no longer function. Replacement and updating of materials in all libraries is an urgent requirement, particularly at universities. Conventional methods will probably not be sufficient and certainly very expensive. Modern electronic information sharing techniques must eventually be considered throughout the system, even if it will take a long time.

The very grave problem of professional human resources must also be tackled. Previously a minuscule number of librarians studied abroad and a few introductory courses for librarians were held at Kabul University and in the Teachers Training Academy. Most of these professionals and semi-professionals left during the war. Training will be an urgent need for the future.

ABLE Users, Kabul City, December 1997
FEW Home School for Girls [FEW = For Empowerment of Women (Afghan NGO)]
Photo: Mohammad Rafi.

Institutional and Ministry Libraries

Other institutions and all ministries kept libraries. Kabul Museum Library, the Herat Museum, Historical Society and many others are affected by the same evils and need to be taken care of.

The Herat Museum opened in 1994 in new premises. From cursory observations in August 1994 there seemed to be easily over a hundred fine manuscripts on display, some with miniature illustrations, and Korans, some with gilding. One case contained a hand-copied leather scroll of the Torah. All the manuscripts are damaged by mould, water marks and damp. There was no one knowledgeable and there seemed to be no formal inventory. Conservation work is urgently required here.

The building of the Pashto Academy, Kabul, since 1967 a section of the Afghan Academy of Sciences, was obliterated by rocket fire. Now located in near-by offices it is rebuilding its reference library but is hampered from lack of funding. A great number of bibliographies were compiled by the member organizations of the Academy (3).

The library at the Jalalabad Teacher Training Institute was the best of the four libraries functioning in Jalalabad in

(3) Established on 15 October 1967, the Academy includes the Historical Society, the Ariana Encyclopedia Department, the Book Publishing Institute, the Public Libraries Department, the Press Awards Bureau. The Academy comes under the jurisdiction of the Ministry of Information and Culture.

1993. Its collection consisted of excellent but by now outdated books supplied mainly by the Asia Foundation in the 1960s. This library had not been looted and was in the charge of an untrained but enthusiastic young custodian. He was the most receptive of the caretakers to whom ARIC provided a one-month training course. But he, like the other trained librarians, was replaced after the arrival of the Taliban in 1996.

Every ministry in Kabul had its own library containing documents of inestimable importance. These collections have suffered grievous losses. During the several periods of government changeovers when the ministries were sparsely occupied and there was no heating in the buildings, the guards on duty used the documents for fuel in stoves designed to burn wood that was unobtainable. Other documents were sold in bulk weight for the making of bags used by shopkeepers in the bazaar. Books looted from libraries were torn up for the same purpose.

Private libraries

There were many fine libraries owned by private individuals in Kabul. After the 1978 coup some were confiscated and dispersed to various locations such as the National Archives. Some were looted. A few still remain in Kabul. Others have been transferred abroad by their owners or broken up and sold piece by piece to dealers or sold for a pittance on sidewalks. ARIC has purchased some of these books, especially those published by Afghan authors which are no longer available elsewhere. They will be returned to Afghanistan eventually along with the ARIC collection, but ARIC does not have the funds to purchase the more expensive volumes. These are fast disappearing, often to foreign buyers who buy in large quantities, such as the Library of Congress and the Iranian Cultural Center.

The Taliban attempt to stop books from leaving Afghanistan and have confiscated many caches at the Pakistan border. There are also reports, however, that the Taliban have purged libraries, substituting religious works published in Pakistan, Iran and Saudi Arabia. In November, 1997 Iran's Ambassador and Permanent Envoy to UNESCO accused the Taliban of burning 55,000 books, including rare manuscripts, in Pul-i-Khumri, a small industrial town at the northern foot of the Hindu Kush. UNESCO's Director-General responded with a condemnatory statement. The facts, however, are by no means clear. Certainly there is a real need for serious investigations by professionals at all library locations in Afghanistan.

Afghan libraries in Peshawar, Pakistan

During the war years there was a tremendous amount of information collection, publication and distribution in Pakistan. Each political party had busy public relations departments, but few had libraries nor even attempted to keep a record of what they published. The Cultural Council of Afghanistan Resistance, based in Islamabad and largely funded by the US government, had a large collection of party printed materials, as well as masses of their own publications. The Council published a bibliography in 1986. Their activities ceased soon after the mujahideen took over Kabul in 1992 and the collection subsequently came to the IRFAN Cultural and Information Center, an Afghan NGO in Peshawar which has a library of some 6000 volumes. In addition, the Writers Union of Free Afghanistan (WUFA) published a list of jehadi publications (1990) and ARIC has also purchased a sizeable collection of party newspapers, magazines and posters.

All NGOs in Peshawar University and UN offices in Islamabad have their own libraries. ARIC has for some time been attempting to set up a common database. This is proving to be difficult, and time consuming, as individual offices are slow, perhaps reluctant to provide copies of their inventories.

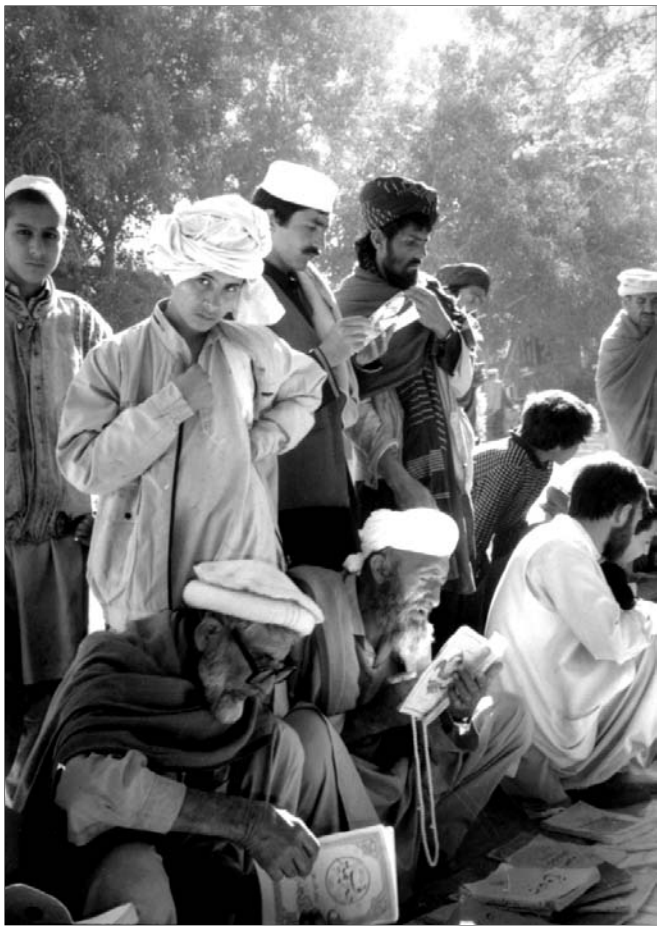
Probably the most active and most used libraries in Peshawar belong to the Sanayee Institute of Education and Learning (SIEAL). Its Kabul English Language Centre is a busy hive of activity with a current enrolment of 1700 (350 girls) students. It has already graduated 4330 students (970 females). Both sections maintain libraries, with 2,600 books in the boys' section and 3000 volumes in the female section which has just received a generous grant for the purchase of more books. SIEAL also runs a library inside Afghanistan, in Ramaka Village, Ghazni Province, with a current inventory of 600 books.

The Afghan Islamic Cultural Center established in 1990 has a collection of 6000 documents covering Islam, history, literature and poetry, in Dari, Pashto, Arabic and some English. There are also some special libraries such as the Faizani Library, whose collection of 5000 works in Dari, Pashto, Arabic and English is devoted to the writings of Alama Faizani and religious subjects.

And finally, the Area Study Centre (Central Asia) at Peshawar has a fine collection of 13,500 books and 60 different journals, many of which deal with Afghanistan. Their collection of newspapers from Afghanistan is particularly noteworthy.

ARIC

The ACBAR Resource and Information Centre in Peshawar has been described as the most comprehensive, centralized database of published materials on Afghanistan



Sidewalk bookstore, Jalalabad, November 1994.
Photo: Nancy Hatch Dupree.

in the region. ARIC was established in 1989 and is managed and operated by a staff of five, with one consultant. The centre collects and disseminates documents generated by all assistance providers to Afghanistan and Afghan refugees in Pakistan, including all members of the UN system active in Afghanistan. It publishes the monthly *ARIC Bulletin* of current acquisitions which is circulated to libraries in Europe, Scandinavia, the United States and Australia.

The ARIC collection contains books, reports, newspapers and journals, including a sizeable collection of the mujahideen press, maps, posters, and ephemera, such as calendars with Afghan themes. It also maintains a Reference section. As of January 1999 the collection contained a total of 7739 titles: 4237 works in English, 2387 in Dari, 905 in Pashto and 210 in other languages such as French, German, Swedish and Norwegian. The catalogue system is based on the Library of Congress subject headings, with adaptations.

Les bibliothèques en Afghanistan

L'article de Nancy Dupree traite les divers aspects de la situation complexe des bibliothèques en Afghanistan. L'état chaotique et souvent désastreux des collections des bibliothèques publiques et privées reflète la confusion générale dans laquelle se trouve le pays après avoir traversé des années de guerre civile, l'invasion russe et le régime des Talibans.

Le degré de destruction des collections varie selon les cas, mais toutes les bibliothèques sont sujettes à des actes de vandalisme, au pillage et toutes sont touchées par la guerre et souffrent du manque aigu de financement et de personnel qualifié.

Malgré ces difficultés, on ne peut pas ignorer les progrès et les développements positifs, tel qu'un fort intérêt pour la lecture, non seulement dans les villes mais aussi dans les zones rurales. Néanmoins, il reste encore beaucoup à faire en Afghanistan, notamment dans le domaine de la conservation.

Dans son article, Nancy Dupree nous fait part de la destruction de certaines bibliothèques publiques (Kitab Khana-i-Milli, la Bibliothèque Nationale, la Bibliothèque de Jalalabad) et de l'état incertain de leurs collections. Par exemple, la jadis riche collection de la bibliothèque de Kaboul, comportant des volumes rares en Arabe, Persan, Anglais et Russe se trouve dans le désordre le plus total. Les livres sont empilés par terre et nul ne connait le nombre exact de volumes disparus, estimé à 8000.

La situation est semblable aux Archives Nationales. Elles sont fermées depuis 1993 et on ne sait rien de l'état des manuscrits.

Les bibliothèques universitaires n'ont pas été épargnées non plus par la dégradation.

En 1995, six bibliothèques universitaires fonctionnaient en Afghanistan. Ici nous rencontrons les mêmes types de difficultés: absence de formation du personnel, livres rangés n'importe comment et dans la plupart des cas gravement détériorés. C'est la Bibliothèque universitaire de Kaboul qui a connu les pertes les plus importantes. La moitié de ses richissimes collections d'avant-guerre a été pillée ou brûlée pendant les bombardements. Selon certaines sources ces pertes s'élèveraient jusqu'à 150 000 volumes.

Une initiative originale et efficace a été lancée par ARIC (Centre de Ressources et d'Information de l'ACBAR) (1) en collaboration avec certains ONGs et les Nations Unies. Le projet, intitulé ABLE Project, vise à fournir des livres en créant des "bibliothèques ambulantes". Chaque bibliothèque consiste en une caisse métallique (hauteur 60 cm, largeur 48 cm et profondeur 30 cm) comportant une étagère où sont disposés près de 200 volumes en Dari et Pahto, ainsi que des journaux, brochures et livres pour enfants. Ces bibliothèques sont montés sur des roues et peuvent ainsi circuler à travers le pays. Les ouvrages sont prêtés et récupérés quelques semaine plus tard. Aujourd'hui, il existe 30 bibliothèques mobiles couvrant 22 provinces sur les 32 existantes en Afghanistan. Il y a près de 331 titres disponibles représentant 9 236 livres et journaux. Ces caisses sont placées dans divers endroits publics (écoles, cliniques, mosquées et bazars) à travers le pays.

Ce système de bibliothèques mobiles permet d'atteindre une grande partie de la population rurale y compris les femmes. Le nombre des utilisateurs ainsi que l'assortiment des ouvrages augmentent constamment, la population est très enthousiaste. Les "bibliothécaires" essayent de sensibiliser les gens aux problèmes de la préservation des livres et de leur apprendre à les manipuler correctement.

Hard copies of the catalogue are available for those without access to computers. The ARIC Bibliographic Database is also available on CD-Rom and the database is currently being processed for Web sites.

ARIC conducts short courses for NGOs and UN agencies. The aim is to set up as standardized a system as possible so that all sources can be readily accessed by its users who come from NGOs and the UN, Pakistani students and researchers, visiting scholars, journalists and the Afghan community in general.

The ABLE Project: mobile box libraries

The historical discussion has shown that the pre-war network of libraries in Afghanistan was of considerable size and variety. However, it did not reach the great bulk of the population living in the rural areas. This rural population was not only overwhelming non-literate but in many areas indifferent to or even actively hostile to secular education, even though respect for learning and for books was widespread.

Although the aversion to modern education intensified after 1978 as the Russians heavily sovietized the system, during the long years of exile this attitude changed. On repatriating they have begun to demand schools and to look for reading materials. Nevertheless, the primary and adult education programmes avidly funded by donors because they are relatively cheap and fit into short time-frames are virtually useless in many instances because graduates are given nothing to read to sustain their newly acquired skills.

The need to supply reading materials is not fully understood yet. Some, although not enough, reading material is being published, but there is no distribution system beyond limited project areas.

To address this problem ARIC in September 1996 launched ABLE, the ARIC Box Library Extension project, in cooperation with NGO and UN partners. Most of the NGOs are directed and run by Afghans. The Ministry of Information and Culture and the Afghan Red Crescent Society are also active partners.

Each box library consists of a self-contained box made of sturdy galvanized iron 60cm high, 48cm wide and 30cm deep. Each box opens lengthwise and has two shelves so that no other shelving is needed. Every box is initially filled with approximately 200 Dari and Pashto books, magazines, pamphlets and posters, on subjects ranging from administration to agriculture; mother-child health to animal welfare; Islam; history, literature and folktales; children's stories, games and toy making; and a variety of vocational subjects such as carpentry and masonry. The aim is not only to provide instructional materials but to spread the word that reading is entertaining.

By the beginning of 1999 there were 30 mobile libraries operating in 22 out of 32 provinces with a total of over 331 titles (9,236 books and magazines) in circulation. Periodic updates with new documents, usually 150-200 books each time, consistently increases this number. The boxes are placed in a variety of settings, including, schools, clinics, community centers, public libraries, a remote embryonic university, orphanages, mosques and bazaar shops. Custodians vary accordingly, none of whom are trained librarians. The ABLE field supervisor instructs these neo-librarians in the mysteries of keeping registers and report writing.

From the reports received we can determine that at least 22,074 transactions have taken place. Probably the number of users can be safely doubled, or more, as numbers of reports for 1998 have yet to reach us. Enthusiasm for various subjects naturally varies according to whether the locations are more urban or rural in character.

One partner came up with an imaginative way to involve women. Since the boxes are located in places women do not normally visit, this NGO circulates copies of the lists provided with each library update. The women check the books they want which are then brought to them by male family members.

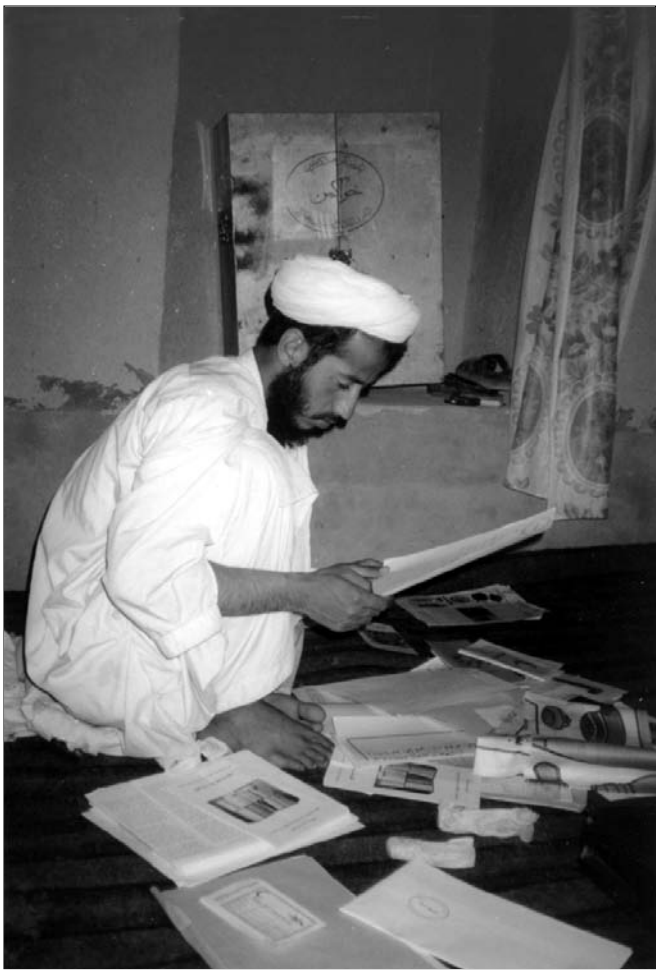
The majority of users are students and teachers. Technicians, such as tractor drivers, shopkeepers and farmers are also listed as frequent users, as are local government officials and NGO staff members. Professionals who have returned to their villages because living conditions in the cities has become increasingly uncongenial are frustrated by the lack of reading materials. They are particularly appreciative about ABLE's services. The diversity of the readership is very evident and reading levels are extremely broad.

Books for ABLE are purchased in the bazaar, from NGOs and UN agencies or photocopied from ARIC's collection. But suitable publications are hard to find. ABLE therefore pursues an aggressive advocacy campaign to prod both agencies and donors into producing more materials.

Skeptics predicted that by introducing lending libraries ABLE must certainly experience extensive damages as well as massive losses and soon be left without any books. Neither of these dire predictions has come true. Each book carries a notice to readers pointing out that the book belongs to the community and should be cared for and returned on time for other users to enjoy. These seem to be effective.

To keep the ABLE libraries relevant users are encouraged to send in requests, and its publications component produces books on subjects not otherwise available.

ARIC does not have the space nor the staff nor the funds to expand beyond the thirty boxes now in the field. The next phase will focus on in-depth studies of users, on management and on providing guidance and assistance to



ABLE Custodian, Nimroz Province, March 1998
Afghan Red Crescent Society Clinic (Afghan government)
(library box in background). Photo: Mohammad Rafi.

others wishing to use the ARIC model. This appears to be working well. Numbers of camp communities are independently establishing libraries. BEFARe (4) has six mobile libraries in refugee camps in the vicinity of Peshawar and plans to increase the number to twenty-six; SCF-USA (5) and UNOPS (6) plan by the end of 1999 to place 120 box libraries in refugee camps and inside of Afghanistan. Furthermore, numbers of refugee communities are independently establishing libraries.

These efforts will strengthen the learning environment and hopefully form the basis of a national information network once peace has been established. Afghan communities have responded magnificently. We should not disappoint them. ■

Nancy Hatch Dupree.

(4) BEFARe - Basic Education for Afghan Refugees, an NGO funded by Germany.

(5) SCF-USA - Save the Children U.S.A.

(6) UNOPS - United National Development Programme Office for Project Service.

Las bibliotecas en Afganistán

El artículo de Nancy Dupree trata los diversos aspectos de la compleja situación de las bibliotecas en Afganistán. El estado caótico y con frecuencia desastroso de las colecciones de las bibliotecas públicas y privadas refleja la confusión general en la que se encuentra el país después de haber atravesado los años de la guerra civil, la invasión rusa y el régimen de Talibán.

El grado de destrucción de las colecciones varía según los casos, pero todas las bibliotecas están sometidas a actos de vandalismo y pillaje; todas se ven afectadas por la guerra y sufren la grave falta de financiamiento y personal adecuado.

A pesar de las dificultades, no podemos ignorar el progreso y desarrollo positivos, como el gran interés en la lectura, no sólo en las ciudades donde es más atendida, son también en las zonas rurales. Sin embargo, quedan muchas cosas por hacer en el campo de la conservación en Afganistán.

En su artículo, Nancy Dupree nos hace partícipes de la destrucción de ciertas bibliotecas públicas (Kitab Khana-i-Milli o la Biblioteca Nacional, la biblioteca de Jalalabad) y el estado incierto de las colecciones. Por ejemplo, la antiguamente rica colección de la biblioteca de Kabul, que contiene volúmenes raros en árabe, persa, inglés y ruso se encuentra en absoluto desorden. Los libros están apilados en el piso y nadie conoce el número de volúmenes desaparecidos. Se calcula que de 30.000 títulos, 8.000 han desaparecido.

La situación en los Archivos Nacionales es similar, ya que están cerrados desde 1993 y el estado de los manuscritos sigue siendo desconocido.

Las bibliotecas universitarias no han quedado exentas de la degradación.

En 1995, seis bibliotecas universitarias funcionan en Afganistán. Aquí encontramos los mismos de dificultades: falta de formación del personal, libros almacenados en desorden y, en la mayoría de los casos, gravemente deteriorados. La biblioteca universitaria de Kabul ha sufrido las pérdidas más importantes. La mitad de las valosísimas colecciones del período anterior a la guerra ha sido desde entonces saqueada o quemada bajo los bombardeos, algunas fuentes cuentan sus pérdidas en 150.000 volúmenes. Posteriormente, este artículo nos presenta la visión catastrófica del estado de las colecciones de otras bibliotecas académicas, institucionales y privadas.

A pesar de ello, el ARIC (Centro de Recursos e Información del ACBAR) (1) ha lanzado una iniciativa original y eficaz, conjuntamente con organizaciones no gubernamentales y las Naciones Unidas. Este proyecto, llamado ABLE Project, tiene por objetivo dar acceso a la lectura a quien lo desee. Se trata de la creación de las "bibliotecas ambulantes". Cada biblioteca está representada por una caja metálica (60 cm de alto, 48 cm de largo y 30 cm de profundidad) con un anaquel, dentro de la cual se encuentran cerca de 200 volúmenes en las lenguas dari y pashto, así como revistas, panfletos y libros para niños. Estas bibliotecas son colocadas sobre ruedas, de manera que puedan circular dentro del país. Prestan las obras y las recuperan algunas semanas más tarde. Actualmente, existen 30 bibliotecas móviles que cubren 22 de las 32 provincias afganas. Existen cerca de 331 títulos disponibles, de los cuales están en circulación 9.236 libros y revistas. A través del país, estas cajas son colocadas en distintos lugares públicos (escuelas, clínicas, mezquitas y bazares).

El sistema de bibliotecas móviles permite llegar a una gran parte de la población rural dentro de la que se incluye a las mujeres. El número de usuarios, así como la variedad de las obras aumentan constantemente, la gente nuestra un gran entusiasmo. Los "bibliotecarios" tratan de sensibilizar a las personas en cuanto a los problemas de preservación de los libros y de enseñarles las bases de la manipulación correcta de los mismos.

Esperamos que con el apoyo de la comunidad extranjera, las iniciativas positivas emprendidas por el ARIC en Afganistán puedan desarrollarse y evolucionar y podamos así salvar las colecciones de las bibliotecas que se encuentran en estado catastrófico.

ring
r bibliolithes

Although there are very few publications about the restoration of paper bibliolithes (since most of them concern parchments), librarians do come across them ocasionally. Most often these books are found in the ground. Their leaves are strongly stuck together and sometimes destroyed by microscopic fungi. These books resemble pieces of rotten wood, but when tapped on, sound like a solid wooden board.

Splitting up these books without damaging the text seemed impossible until 1976 when the separation of the 600 engravings found in the Barents sea camp (Novaya Zemlya) in 1871 was accomplished with the help of enzymes in a water-spirit medium.

In 1978, due to the use of electric field, the Research Center of Conservation, Russian State Library, developed its own method of restoring paper bibliolithes.

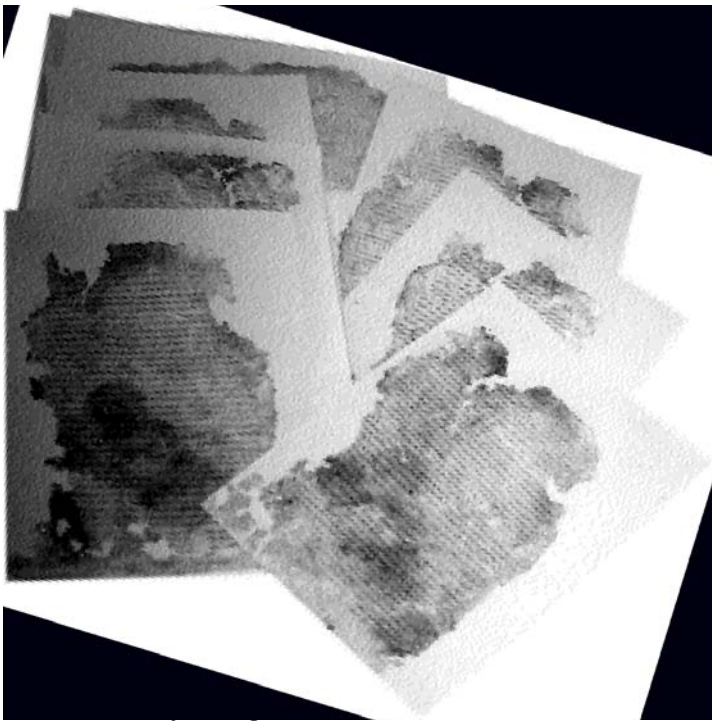
The first book we worked on was a manuscript offered to the Rumyantsev Museum in 1876. It was unearthed during archaeological diggings in the mountains of Armenia. Together with other manuscripts and parchments it was found under a large stone plate. We can suppose that these books were hidden by the Armenians during the centuries of persecution by the Turks and Persians. The cover of the book has been lost. The book is about 70 mm thick, 245 mm long and 145 mm wide. All the edges of the sheets have been damaged by fungi. Probably, it had remained under the stone plate for a very long time and it was constantly washed out by rain, as the upper left corner is rounded. The leaves of the lower right corner are cemented so firmly that it is impossible to slide a scalpel between them.

The continuous pressure of both the ground and stone upon the damp paper has created ideal conditions for the penetration of cellulose macromolecule segments and/or polymer (protein or polysaccharide) which then seized the adjacent sheets. This induced an inter-sheet link adhesion that can be stronger than that between the inter-fiber links within a sheet.

It is known that adhesive attraction can be destroyed by intensifying the thermal movements of molecules in the presence of water, which weakens the mutual attraction. If an alternate current is run through the damp block, the oscillation of water dipoles in an electromagnetic field with the frequency of pole change will warm up a damp paper. Although for disinfecting and drying of documents, a high frequency current (3.5 to 2450 MHz) is commonly used, we usually work with a low frequency current.

In more detail, the method can be described as follows. The edges of a damaged book are first moistened with a mixture of water and alcohol. It is then wrapped in several layers of wet filter paper, clutched between the steel plates of electrodes and insulated with marble plates. A load is placed on it and a current (50Hz and 220V) is run through it. As the filter paper dries, it is replaced by a new one. The block becomes damp, the internal warming takes place and ties between the leaves become loose. The process of sheet separation is monitored and the sheets are gradually separated into thinner fragments. However, these fragments should not be split up into separate leaves until all the stiff sections have been taken out.

Throughout the process, the paper is saturated with a gelatin solution (prepared in advance) which strengthens it without glueing the leaves together. This approach is based



dissolve in water/alcohol mixtures:
Typically, 1g of gelatin is dissolved in 45 ml of water in a water bath, then 56 ml of ethanol is gradually added with constant stirring, then put aside for several hours. Under such conditions about one third of the initial gelatin is dissolved.

The solution looks like an opalescent liquid. The gelatin fractions that have failed to dissolve form a deposit. The final solution is diluted in the ratio from 1:5 to 1:1 using an alcohol/water mixture or just water. The block is impregnated with these solutions several times, usually starting with a small concentration of gelatin and increasing it gradually. Due to low viscosity and small surface tension, the solution immediately penetrates the hydrophobic paper and impregnates the lower leaves. Paper absorbs a large

Restauration des bibliolithes en papier

Bibliolithes - tel est le nom donné par des chercheurs russes, par analogie avec les mégalithes, aux très vieux volumes (papiers ou parchemins) dont les feuilles sont collées ensemble. Souvent et trop longtemps enfouies sous la terre les feuilles finissent par être “cimentées” et former un bloc humide.

Une méthode de séparation de ces bibliolithes par un courant électrique a été inventée par le Centre de Recherche sur la Conservation à la Bibliothèque d'Etat de Russie en 1978.

Pour élaborer cette méthode, les chercheurs se sont appuyés sur le raisonnement suivant : la pression de la terre et des pierres sur le papier humide crée des conditions favorables à la pénétration de macromolécules de cellulose et/ou de polymères (protéines ou polysaccharides) dans des feuilles adjacentes. Ce qui crée des liens entre les feuilles qui peuvent être plus forts que les liens entre les fibres.

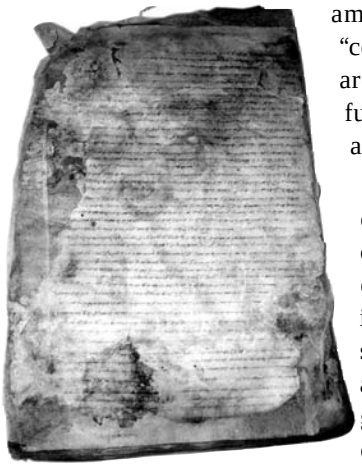
On sait que de tels liens peuvent être rompus en intensifiant par la chaleur le mouvement des molécules dans l'eau. Un courant alternatif est envoyé à travers le bloc humide, les oscillations dues à la fréquence des changements de pôles réchauffent le papier. Pour cela on a recours à des courants électriques de basses fréquences (50 Hz), par contre, pour désinfecter et sécher les documents on utilise des hautes fréquences (3,5-2450 MHz).

Tels sont les principes de la méthode de séparation des livres-bibliolithes: les côtés du livre endommagés sont d'abord mouillés avec un mélange d'eau et d'alcool (1:1), ensuite le livre est enveloppé dans plusieurs couches de papier filtre ; puis fixé entre les électrodes et mis sous presse. On fait alors passer un courant électrique de 50HZ-220V ou inférieur, selon l'épaisseur et l'humidité du bloc. Une fois que le papier filtre est sec, il est remplacé. Ainsi le bloc s'humidifie et se réchauffe, les liens entre les feuilles deviennent plus tenus, puis se rompent et enfin les feuilles peuvent être séparées.

Pendant tout le processus les feuilles sont imprégnées d'une solution de gélatine qui renforce les feuilles sans les coller (1g de gélatine : 45 ml d'eau, puis 56 ml d'éthanol ajouté par petites doses). La gélatine non diluée forme un dépôt. Cette solution opaque est ensuite diluée dans l'eau et l'alcool ou seulement dans l'eau, et le bloc est imprégné par ce liquide.

e bloc est très déformé et ne peut être fixé entre les des sans risque de se casser, il est préalablement traité ne solution de gélatine (1 : 8). Afin d'éviter une éventuelle ure, les feuilles doivent être séparées du bloc pendant t encore légèrement humide.

te méthode convient non seulement pour la séparation liolithes, mais aussi pour la séparation de feuilles collées moisissures.



amount of this liquid and "comes back to life". If there are any living microscopic fungi, formalin should be added to the solution.

If the block is badly deformed, it is impossible to clench it between the electrodes without breaking it. In this case it is strengthened beforehand and moistened with a gelatin solution with a dilution of 1 to 8. Then it is straightened very carefully with the help of small sandbags.

The leaves are separated from the block while they are still slightly damp. But before that, the most fragile ones are pasted on strengthening paper. As the glue has dried up along the edges and the entire leaf is still somewhat damp, it is separated from the adjacent leaves by carefully pulling off the margins jutting of the strengthening paper. Afterwards, the strengthening paper is removed from the leaf and an electric current (voltage 30 V) run for about 15-20 minutes. Finally, leaves are moistened with an undiluted alcohol/water/gelatin solution.

This method is suitable not only for opening bibliolithes but also for separating leaves that are stuck together in the areas destroyed by microorganisms.

Two bibliolithes have been opened and the sheets of several books were successfully separated using this simple procedure. ■

L. Shmeleva, Chemist
V. Simoutina, conservator
Research Centre for the Conservation of Documents
Russian State Library, Moscow

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Restauración de bibliolitos de papel

Bibliolitos es el nombre dado por los investigadores rusos, por analogía a los megalitos, a los volúmenes muy antiguos (papeles o pergaminos) cuyas hojas están pagadas entre sí. Frecuentemente y durante largo tiempo estas hojas han estado enterradas, por lo que se han "cementado", formando un bloque húmedo.

El Centro de Investigación sobre Conservación de la Biblioteca Estatal de Rusia inventó en 1978 un método de separación de estos bibliolitos mediante el uso de corriente eléctrica.

Para desarrollar este método, los investigadores se basaron en el siguiente razonamiento: La presión de la tierra y las piedras sobre el papel húmedo crea condiciones favorables a la penetración de macromoléculas de celulosa y polímeros (proteínas o polisacáridos) en las hojas adyacentes. Esto forma uniones entre las hojas que pueden ser más fuertes que las uniones de las fibras.

Se sabe que dichas uniones pueden romperse intensificando el movimiento de las moléculas de agua mediante el calor. Se envía una corriente alterna a través del bloque húmedo, las oscilaciones producidas por la frecuencia de los cambios de polos calientan el papel. Para ello se recurre a corrientes eléctricas de baja frecuencia (50 Hz). Por el contrario, para desinfectar y secar los documentos se utilizan frecuencias altas (3,5-2.450 MHz).

A continuación se presentan los principios del método de separación de los libros-bibliolitos: los cantos del libro que se encuentran dañados son, en primer lugar, humedecidos con una mezcla de agua y alcohol (1:1), luego el libro es envuelto en varias capas de filtro de papel. Posteriormente, es fijado entre los electrodos y colocado en una prensa. Se hace pasar entonces una corriente eléctrica de 50Hz-220V o menor, según el espesor y la humedad del bloque. Una vez que el filtro de papel se seca, es cambiado por uno nuevo. Así, el bloque se humidifica y se calienta, las uniones entre las hojas se aflojan, luego se rompen y, finalmente, las mismas pueden ser separadas.

Durante todo el proceso, las hojas son impregnadas con una solución de gelatina, que refuerza las hojas sin pegarlas entre sí (1g de gelatina: 45 ml de agua, a los cuales se van añadiendo 56 ml de etano en pequeñas dosis). La gelatina no disuelta forma un depósito. Esta solución opaca es luego diluida en agua y alcohol, o sólo alcohol, y el bloque es impregnado con este líquido.

Si el bloque está muy deformado y no puede ser fijado entre los electrodos sin riesgo a romperse, debe ser tratado previamente con una solución de gelatina (1:8). A fin de evitar una eventual rasgadura, las hojas deben ser separadas del bloque mientras el mismo aún se encuentra ligeramente húmedo.

Este método es recomendable no solamente para la separación de los bibliolitos, son también para la separación de las hojas pegadas debido al moho.

PAC Regional Center in Russia: networking as a style and principle

Networking as a philosophy of existence should be practised every day to bring tangible results. This everyday exercise in an environment in which people are aware of networking, but unused to working together requires consistency, willingness to help, ability to remember all the requests from different institutions and to answer them in time. The list is endless and reflects many human components of networking. Here I would like to illustrate the networking accomplishments of the IFLA PAC Regional Center for Eastern Europe and the CIS over the last year.

A Regional Center for Eastern Europe and the CIS was set up in 1997 in the Library for Foreign Literature in Moscow as a response to a new economic social and political situation in this vast heterogenious geographical area. The differences between countries, groups of countries or rather between cultures are so obvious that it will take time for the Center to be of equal help to each of them with their specific ethic, ethnic and economic circumstances.

A role of universal link beneficial for all the libraries and affiliated to library institutions was assigned to *International Preservation News*. The scope of its distribution is 250 addresses throughout Europe and Asia. The flier with a Russian summary of articles published in IPN and the CLIR* Newsletter has proved to be another working link for those whose networking capabilities are limited by lack of knowledge of foreign languages.

Distribution of materials related to preservation plays an essential role in sharing preservation expertise in the region, bearing in mind its size and difficulties in attending meetings under current tough economic conditions. The IFLA/UNESCO "pack", as we call it, consisting of Russian translations of 3 titles, had an almost world-wide response once information on its availability was mounted on the home page of the European Commission on Preservation and Access.

Translation projects in general are of key importance to some countries in the region. Therefore partnership between CLIR, the IFLA PAC Core program and the IFLA PAC Regional Center resulted in the appearance of a Russian version of IFLA *Principles for the Care and Handling of Library Material* which is a solid basis for continuing education of library staff in CIS countries.

Apart from this "paper" pack the Center has been distributing a "video" pack of films on disaster preparedness, handling practices, environmental conditions both in English and in Russian. The hit of the last season was a video "Into the future" generously given by the Council on Library and Information Resources. It was shown during a number of seminars and got unanimous approval from librarians who have an instinctive fear of instability of electronic files but no strong arguments to stand against computer specialists in their libraries. Moreover, they themselves are in no position to conduct fairly expensive research and it is unlikely that its results on the longevity of electronic media would be easy to obtain. Due to this film as well as to printed information in IPN, CLIR Newsletter and IFLA reports, the battle for preservation microfilming and a hybrid approach to preservation and access has been won in a number of cases.

Networking would be dead without direct human communication. The Regional Center has done its utmost to bring people together to discuss common problems and share their experiences on tackling them. In 1998-1999 the Center, in cooperation with other libraries and the Open Society Institute - Russia, organized a number of meetings, namely:

- a seminar in Vladimir on disaster preparedness for 25 Russian Regional Libraries (the Polish experience was intensively used),
- workshops on minor repair in Ekaterinburg and Briansk,
- a seminar in Kemerovo on preservation management for Siberian libraries,
- a round table in Moscow on preservation and access to newspapers.

RC director also visited Moldova and Mongolia to assess the situation in these countries and the help in compiling National preservation strategies.

As well as the seminars and conferences, a policy of "question-answer" is helping to strengthen the links to other institutions. A very rough analysis of the questions shows that the concern of the majority of them is: compiling of an integrated preservation program, finding and buying preservation equipment, writing a grant proposal. Answering requests is very effective in building connections with suppliers and sponsoring institutions as well as with libraries .

The future activity of the Center is viewed only through the prism of networking. It will highlight activities leading to the development of effective and mutually beneficial ties with countries outside the borders of the former Soviet Union. Two years is too short a period to find stable ground for common interests of such a network. ■

Galina KISLOVSKAIA,
Director
IFLA PAC Regional Center
for Eastern Europe and CIS

*CLIR : Council on Library and Information Resources.

Aging and stabilization of alkaline paper

It has been observed that some acid papers may be destabilized as a result of deacidification treatment. Understanding the main degradation processes which operate during aging under alkaline conditions, is an essential step towards the development of better stabilization treatments.

The main factors, leading to the deterioration of deacidified paper made from bleached pulp are listed and their importance in the degradation of paper is considered, including the pH, carbonyl groups, and transition metal content. It is proposed that stabilization should involve the removal of functional groups capable of initiating radical reactions and the addition of antioxidants. Paper (1) samples were treated with solutions of glucose, ethylene-diaminetetraacetate (EDTA), diethylenetriaminepentaacetate (DTPA), inositol-hexaphosphate (phytate), iodide and hindered phenol (BHT), and the results of subsequent aging experiments are discussed in detail.

It is observed that a pronounced stabilization of deacidified paper can be achieved by either a sodium borohydride reduction treatment or by the addition of potassium iodide to the deacidified paper.

Introduction

It is well documented that acid hydrolysis of cellulose and related carbohydrates is one of the key factors responsible for the degradation of paper during aging (1). A number of deacidification techniques have been developed to reduce the acidity and thus lower the deterioration of paper. However, while most treated papers degrade less rapidly, some results from the accelerated aging experiments show an increased degradation of papers whose pH has been changed from acidic to alkaline using deacidification treatments (2) (3). This behavior suggests the importance of degradative mechanisms other than acid hydrolysis. Although atmospheric oxidation has long been recognized as a significant factor influencing the permanence of paper, research on the subject is limited.

It has been shown that the degradation of paper is significantly slower with the absence of oxygen (4). Arney et al. demonstrated that strength loss of paper during accelerated aging increased linearly with the partial pressure of oxygen (5). Kleinert and Marraccini proved that peroxides are produced during the accelerated aging process (6). Higher levels of these were formed during aging of bleached pulp at higher humidity than in a less humid environment (7). Formation of peroxides during natural aging was monitored using photographic film (8). It has been suggested that chemiluminescence of paper is related to radical formation (9). During ESR studies, radicals were detected in lignin containing paper (10) as well as in bleached kraft pulp (11). The intention of this work is to survey the key factors which could promote deterioration of alkaline cellulose during aging and evaluate the effect of certain treatments and additives on the stability of bleached paper during accelerated aging.

The mechanism of light-induced degradation of cellulosic and lingocellulosic material is not reported herein but can be found elsewhere (12) (13).

Considering the chemistry of oxidative reactions of carbohydrates in aqueous solutions or suspensions, which has been extensively studied (14) (15) (16), the following factors for promoting the autoxidative degradation of cellu-

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lose during aging may be identified: high pH, transition metal ions and groups capable of the initiation of radical reactions (17).

High pH

In a cellulose molecule, the reducing terminal groups are most easily oxidized and may initiate autoxidative radical reactions (18). The reaction is promoted by ionization of the aldehyde in the alkaline media.

In our earlier work we demonstrated that the presence of calcium carbonate stabilizes cellulose during aging, while the addition of magnesium carbonate promotes its degradation, compared to the untreated pulp (2). It was suggested that a rather high pH value paper containing magnesium carbonate ca. 9.9 increased oxidative degradation. However, sizing agents and additives can lower the pH of deacidified paper, hence modern paper containing magnesium carbonate does not necessarily degrade faster than that containing calcium carbonate (3).

Transition metal ions.

The deleterious effects of iron and copper ions on the aging stability of cellulose and paper have been well documented (19) (20). While transition metal ions Mn+, Mn+1 may participate in a number of different reactions, the most important one involving Fe2+ or Cu+, is the formation of complexes with peroxides, which are then further decomposed into free radicals and ions. The most studied reaction is the Fe2+ decomposition of hydrogen peroxide, the Fenton reaction (21). Reduction of Fe3+ by many organic compounds, superoxide and even peroxide allow these reactions to be repeated in a cyclic fashion, resulting in extensive oxiradical damage.

Substances capable of initiation of radical reactions

The presence of carbonyl groups may decrease the aging resistance of alkaline paper in several ways. However, while the negative effect of beta-alkoxy degradation on the aging stability of paper has been stressed before (22), the contribution of reducing groups to the aging of paper has not been sufficiently emphasized. In addition to initiation of radical reactions, they are also able to reduce Fe+3 to Fe+2 and thus compete with superoxide. The degrading effect of glucose during aging of alkali cellulose (23) and oxygen-alkali bleaching of cellulose (24) has been well established. It is important to note that while some of the aldehyde containing substances are removed during washing and aqueous deacidification, this does not happen during most non-aqueous treatments. As a consequence, aqueous deacidification may result in a better stabilization of cellulose and paper than non-aqueous.

The role of lignin during aging of paper is somewhat ambiguous. It is known that lignin is capable of autoxidation and the reaction is promoted by the alkalinity of the solution (25). It has been demonstrated that oxygen consumption of groundwood containing paper during light irradiation increases after the deacidification treatments (26). Despite these results, the stabilizing effect of lignin on the thermal stability of papers has lately been observed (27) (28) (29).

Based on the understanding of the main factors which influence alkaline degradation of paper, some of the possible stabilization treatments are tested in this work.

Materials and methods

Throughout the experiment, notebook paper of 1970 made of bleached pulp 60% magnefite spruce, 40% sulfate birch, determined according to TAPPI T401 on-93 was used. Viscosity was determined in copper II-ethylenediamine solution Carlo Erba, Milano, IT according to the SCAN-Cm 15:88 standard after the samples had been reduced in 0,01 mol L-1 NaBH4 for 12 hours, washed, dried and weighted. All aging experiments were conducted at 80°C and 65%RH.

All treatments were conducted using 1g of paper sample per 100 ml of the corresponding treatment solution. Reduction of samples was done by immersion into 0,01 mol L-1 solution of NaBH4 prior to the deacidification. In experiments with chelating agents the samples were immersed in solutions of ethylenediaminetetraacetic acid, disodium salt Na2EDTA, 1% w/w, diethylenetriaminepentaacetic acid, pentasodium salt Na5DTPA, 1% w/w and dodecasodium inositol-hexaphosphate phytic acid, dodecasodium salt, Sigma, St. Louis, USA, 2.5% w/w for 15 min. The samples were washed in MilliQ water for 30 min. and then deacidified by immersion in 0.04 mol L-1 solution of MgHCO32 for further 30 min. The average content of Mg2+ in the samples was 0.17 mmol g-1. One

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sample was prepared according to 559, where the paper was transferred directly from the phytate solution into the magnesium bicarbonate one. Where indicated, dry deacidified paper samples were subsequently immersed into solutions of glucose 1%, 2.5%, 5% w/v or KI 1%, 5%, 10% w/v in water, or of BHT 2,6-di-tert-butyl-4methylphenol, Aldrich, Gillingham-Dorset, UK in acetone 1%, 5%, 10% w/v for 10 min.

Reducing sugars expressed as glucose in paper extract obtained by sonification in MilliQ water for 3h, were determined by the 2,3,5 -triphenyltetrazolium chloride Merck, Darmstadt method: to 0.5 ml sample, 0.5 ml of 0.5 mol L-1 KOH solution and 0.5 ml 0.5% w/w 2,3,5 - triphenyltetrazolium chloride solution were added. The mixture was heated to 80°C for 60 s, cooled immediately and diluted with methanol to 10 ml. The re-colored 2,3,5 - triphenylformazane was subsequently determined spectrophotometrically at 482 nm.

The carbonyl group content was determined using the hydrazine method 44.

Following the dry ashing method TAPPI T 266 on-94, iron was determined by ET-ASS on a Perkin-Elmer 1100B atomic absorption spectrometer, while magnesium was determined by FI-AAS on a Perkin-Elmer 2288B atomic absorption spectrometer.

Iodide in paper extracts, obtained by sonification in MilliQ water for 3 h, was determined chromatographically using a Dionex AS4A-SC column and a Merck-Hitachi HPLC system using conductrometric detection.

BHT was determined spectophotometrically at 278 nm in paper extracts obtained by extraction in 2-propanol in a Soxhlet apparatus for 4 h.

pH was determined in paper extract obtained by sonification in MilliQ water for 1.5 h at 25°C to ensure a thorough dissolution of all soluble paper components, taking 0.1 g of sample per 7 ml of water.

Throughout the text, all the determined concentrations are calculated per mass of dry paper.

Results and discussion

In view of the above discussion, the stabilization of deacidified paper may be achieved by the removal of groups capable of initiating radical reactions and the addition of effective antioxidants. A limiting viscosity number was used throughout the study as a sensitive indicator of the degree of cellulose degradation.

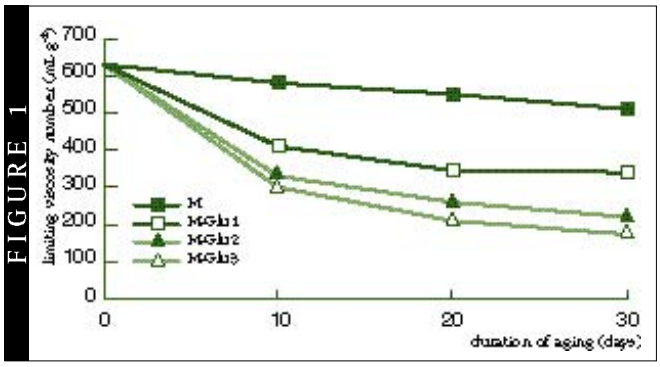
Reduction of carbonyl groups

Deleterious effect of glucose on the stability of paper during accelerated aging is shown in Fig. 1.

Number of carbonyl groups can be effectively reduced by various reductive treatments.

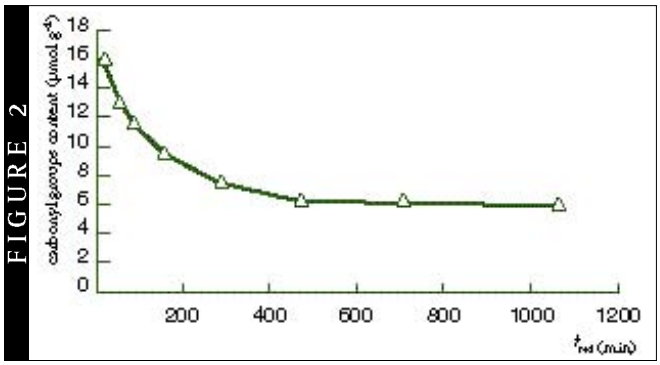
Although previous research showed that reduction using sodium borohydride made paper more durable during accelerated aging experiments (30), the treatment time in was limited to 30 min. Since the reduction of carbonyl groups on cellulose chains during sodium borohydride treatment is a slow process (Fig.2), longer reduction times are necessary to effectively minimize the amount of carbonyls.

FIGURE 1



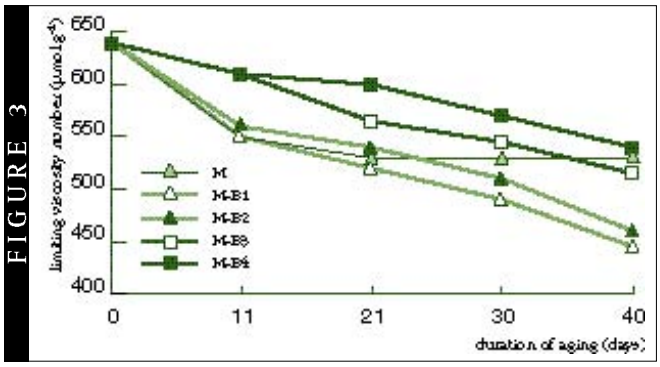
The dependence of limiting viscosity number of paper pulp on duration of aging after the deacidification treatment: M and after subsequent addition of glucose: M-Glu1 (1.5 mmol glucose g^{-1});M-Glu2 (4.3mmol glucose g^{-1});M-Glu3 (7.0 mmol glucose g^{-1}).

FIGURE 2



The dependence of carbonyl group content of the pulp on duration of the reduction treatment of paper.

FIGURE 3



The dependence of limiting viscosity number of paper pulp on duration of aging after the deacidification treatment:M (pH = 9.15) and after reduction treatment for 30 min:M-B1 (pH = 9.31);for 1 h:M-B2 (pH = 9.44);for 2 h:M-B3 (pH = 9.57);for 18 h:M-B4 (pH = 9.66) and subsequent deacidification.

The behavior of the borohydride treated paper during accelerated aging is presented in Fig. 3. Reduced paper is at first strongly stabilized during aging and the effects increases with the completeness of the reduction treat-

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ment. However, probably due to the higher pH values of reduced papers, the overall effect of the treatment is negative. It is likely that the higher pH of the samples M-B1 to M-B4 is a result of the residual sodium borate, which was not removed from the reduced paper.

Addition of preventive antioxidants

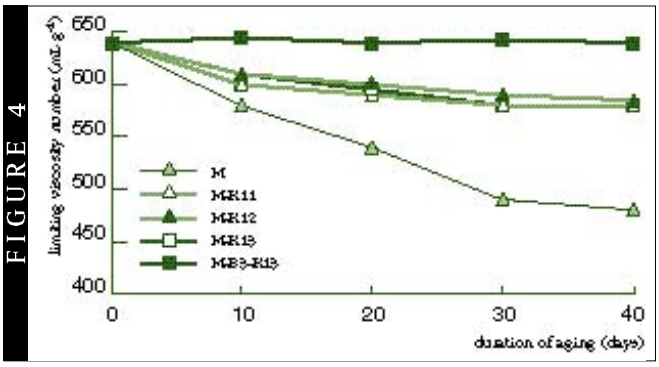
The most important preventive mechanism is peroxide decomposition in a process which does not involve formation of free radicals. Although iodide and iodine have long been established as effective radical scavengers, Minor et al. suggested that the main stabilization of cellulose by iodide in borax solution at pH 9 occurs via catalytic heterogeneous decomposition of peroxides (31) (32). It has been demonstrated that iodide functions as a catalyst to protect cellulose from degradation during humid accelerated aging (19). It also protected paper containing zinc oxide during sun-lamp irradiation in a highly humid environment (33).

The strong stabilizing effect of potassium iodide on the stability of paper Fig. 4 confirms the importance of oxidative reactions during accelerated aging. While the stabilization was not improved by an increase in iodide content, reduction of the sample M-B3-KI3 prior to the deacidification and addition of iodide completely suppressed degradation of paper during a 40 days accelerated aging period.

Besides peroxide decomposes, complexing agents, which have the ability to co-ordinate the vacant orbitals of transition metal ions to their maximum co-ordination number, are effective preventive antioxidants. The use of chelating agents such as EDTA is a popular method of controlling transition metal ions in many applications. However, EDTA is not able to completely encompass the Fe 3+ and Fe2+ ions (34), hence the complex is still able to react with peroxides (35). As a result, EDTA appeared to have a negative effect on the aging resistance of 17th century rag paper, while no effect was observed on the stability of the paper enriched with a mixture of ferrosulfate and tannin (36).

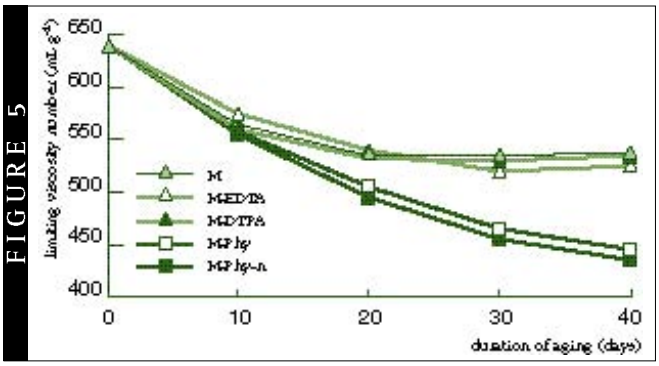
On the other hand, phytate complexes are thought to be unable of acting as catalysts for the formation of hydroxyl radicals, since they lack an open coordination site (37). It has been demonstrated that sodium phytate inhibits degradation of cellulose caused by iron-gall ink (38).

FIGURE 4



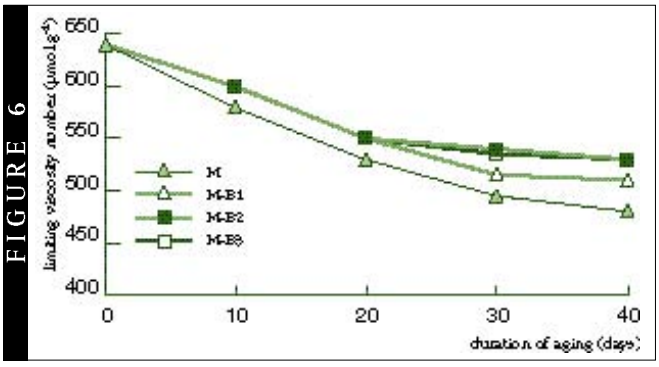
The dependence of limiting viscosity number of paper pulp on duration of aging after the deacidification treatment: M and subsequent addition of KI: M-KI1 (0.14 mol I g^{-1}), M-KI2 (0.74 mol I g^{-1}), M-KI3 (1.4 mol I g^{-1}). Prior to the addition of KI to the sample M-B3-KI3 (1.4mol I g^{-1}) it was subjected to a reduction treatment of 2 h before being deacidified.

FIGURE 5



The dependence of limiting viscosity number of paper pulp on duration of aging after the deacidification treatment:M (30.5 mmol Fe g^{-1}, pH = 9.15) and after treatment with chelating agents EDTA:M-EDTA (29.9 mmol Fe g^{-1}, pH = 9.15),DTPA:M-DTPA (28.9 mmol Fe g^{-1}, pH = 9.01),sodium phytate: M-Phy (31.2 mmol Fe g^{-1}, pH = 9.49),sodium phytate according to [59]: M-Phy-n (32.6 mmol Fe g^{-1}, pH = 9.56) and subsequent deacidification.

FIGURE 6



The dependence of limiting viscosity number of paper pulp on duration of aging after the deacidification treatment: M and subsequent addition of BHT: M-BHT1 (8.1 mmol BHT g^{-1}), M-BHT2 (18.8mmolBHT g^{-1}), M-BHT3 (39.3mmol BHT g^{-1}).

Effects of EDTA, DTPA and sodium phytate were tested in this study. The iron content of the pulps did not change as a result of the treatment. This can be attributed to the short contact time, during which only a negligible portion of the iron ions are solubilized. Due to the high Mg2+ ion content of the deacidified paper, complex formation with iron ions during the aging process is expected to be negligible. As a result Fig. 5, the treatment with EDTA or DTPA did not have a noticeable effect on the aging stability of the samples. On the contrary, the addition of sodium phytate, probably because of its alkalinity,

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increased degradation of deacidified paper. It was recently suggested, that the latter problem can be avoided by the use of magnesium or calcium phytate (39).

Addition of the radical-chain-breaking antioxidants

Radical-chain-breaking antioxidants are able to react with radicals and convert them to more stable products. Although addition of these antioxidants to inhibit degradation of bleached paper during aging has not yet been studied, the stabilizing effect of lignin on the stability of cellulose during thermal aging is thought to be similar to that of hindered phenols, which are well known chain-breaking antioxidants. Thus it has been proposed that the consumption of peroxyalkyl and alkoxyl radicals by lignin blocks most of the cellulose degrading reaction processes during aging of paper (40). Phenoxy radicals which are formed during the reaction may scavenge some reactive radicals.

A typical hindered phenolic chain scavenger BHT was used in this study Fig. 6. A positive effect during accelerated aging is indicated, yet it is substantially lower than in the case of iodide treated papers.

Conclusion

Despite limited knowledge of the mechanisms leading to the aging of cellulose under neutral or alkaline conditions, results indicate the importance of autoxidative reactions. So far, these reactions have been mainly the object of study in the fields of clinical biochemistry, paper bleaching and viscose manufacturing, however, the results of the present study indicate that these mechanisms can be successfully applied to paper aging studies. Their understanding forms the basis for stabilization studies. The results presented here indicate that treatments, such as reduction of carbonyl groups and addition of potassium iodide, can substantially retard the rate of degradation of paper in addition to deacidification.

Our future work will focus on the investigation of the effects of various antioxidants on the stability of paper during accelerated aging. ■

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Jana KOLAR.

- J. Kolar, National and University Library, Turjaška 1, SI-1000 Ljubljana, Slovenia.
- G. Novak, Pulp and Paper Institute, Bogišièeva 8, SI-1000 Ljubljana, Slovenia.
- M. Strlic. B. Pillar, University of Ljubljana, Faculty of Chemistry and Chemical Technology, Aškerèeva 5, SI-1000 Ljubljana, Slovenia.

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Vieillissement et stabilisation du papier alcalin

On a observé que certains papiers acides peuvent être déstabilisés à la suite de traitements de désacidification. Afin de pouvoir élaborer de meilleurs traitements de stabilisation, il est essentiel de comprendre les mécanismes de dégradation lors du processus de vieillissement en milieu alcalin.

Les principaux facteurs entraînant la détérioration du papier désacidifié (à base de pulpe blanchie) sont énumérés et classés suivant l'importance de chacun dans le processus de dégradation du papier. On propose que la stabilisation comprenne la suppression des groupes fonctionnels susceptibles d'initier des réactions radicales, ainsi que l'addition d'anti-oxydants.

L'article décrit les expériences sur le vieillissement du papier : des échantillons de papier ont été traités avec les solutions de glucose, d'éthylènediaminetétraacétate (EDTA), de diéthylènetriaminepentaacétate (DTPA), d'inositol-hexaphosphate (phytate), d'iodide et de hindered phénols (BHT); les résultats sont ici décrits en détail.

On observe qu'une stabilisation prononcée du papier désacidifié peut être réalisée soit par traitement de réduction de sodium borohydride, soit par addition d'iodide de potassium au papier désacidifié.

Envejecimiento y estabilización del papel alcalino

Se ha observado que ciertos papeles ácidos pueden ser desestabilizados como consecuencia de tratamientos de desacidificación. A fin de poder llevar a cabo mejores tratamientos de estabilización, es esencial comprender los mecanismos de degradación que intervienen durante el proceso de envejecimiento en un medio alcalino.

Los factores principales que implican el deterioro del papel desacidificado (a base de pulpa blanqueada) son enumerados y clasificados según la importancia de cada uno dentro del proceso de degradación del papel. Se propone que la estabilización comprenda la supresión de los grupos funcionales susceptibles de iniciar reacciones radicales, así como la adición de antioxidantes.

El artículo describe los experimentos de envejecimiento del papel: las muestras de papel fueron tratadas con soluciones de glucosa, etileno diaminotetraacetato (EDTA), dietileno triaminopentaacetato (DTPA), inositol-hexafosfato (fitato), yoduro y fenoles bloqueados (BTH); los resultados son descritos detalladamente.

Se observa que una estabilización pronunciada del papel desacidificado puede realizarse mediante el tratamiento de reducción de borohidrato de sodio o mediante la adición de yoduro de potasio al papel desacidificado.

a n n o u n c e m e n t s

23-24 September, 1999 - Paris, UNESCO
International Congress on Cultural Heritage at Risk organised by UNESCO in close cooperation with ICBS (ICA, ICOM, ICOMOS, IFLA) and other relevant organisations.

Purpose of Conference :
Throughout the history, monuments, museum objects, archives and library documents, side-by-side with human lives, have constantly been suffering from natural and human-made disasters. With an attempt to take preventive measures at the turn of the millenium, the pupose of the Conference will be :
1- To draw up an International Action Plan to enhance international collaboration and to strengthen national capacity notably in the developing countries throughout the world in prevention and rescue (the Plan will be presented to the UNESCO General Conference at its thirtieth session in October-November 1999);
2- To assemble and refine Practical Guides for preventive measures and emergency response and recovery, for practical use from 2000;
3- To identify more Partners and Resources, through international and national public and non-governmental organizations, including volunteers, who might participate in preparedness and rescue operations;
4- To set up a framework for an International and Regional Communication and Information System.
The discussions and papers will cover three major areas of topics, namely (A) cultural heritage at risk, (B) disasters, and (C) preventive measures, resources and partners.
Simultaneous interpretation in French and English.

23-24 Septembre 1999 - Paris, UNESCO
Conférence Internationale sur le Patrimoine Culturel en Danger. Organisée par l'UNESCO en coopération avec le CIBB (CIA, ICOM, ICOMOS, IFLA) et les autres organisations concernées.

Objectif de la conférence :
Tout au long de l'histoire, monuments, objets de musée, documents d'archives et de bibliothèques, ainsi que des vies humaines ont été la cible de catastrophes naturelles ou dues à l'homme. Avec le souci de prendre les mesures préventives appropriées à la charnière de deux millénaires, l'objectif de la conférence vise à :
(1) dresser un Plan d'action international pour accroître la coopération internationale et pour renforcer les moyens (aptitudes) de prévention et de sauvetage notamment dans les pays en développement (le Plan sera présenté à la Conférence Générale de l'UNESCO lors de sa trentième session en Octobre-Novembre 1999);
(2) rassembler et améliorer les Guides Pratiques en matière de mesures préventives ainsi que d'intervention d'urgence et de remise en état, afin de pouvoir les utiliser à partir de l'an 2000;
(3) identifier parmi les ONGs et les organisations publiques internationales et nationales de nouveaux partenaires et de nouvelles ressources, sans oublier les volontaires, capables de participer à la prévention et aux opérations de sauvetage;
(4) mettre en place un cadre pour un système international et régional de communication et d'information.
Les discussions et les communications couvriront trois domaines principaux, à savoir (A) le patrimoine culturel, (B) les catastrophes et (C) les mesures préventives, les ressources et les partenaires.
Traduction simultanée en français et en anglais.

For more information, please contact /
Pour toute information concernant la conférence prière de contacter :
Hideo NOGUCHI
Division du Patrimoine Culturel
UNESCO
1, rue Miollis, 75015 Paris, FRANCE
Telephone : 33 (0)1 45 68 44 18 - Fax : 33 (0)1 45 68 55 96
e-mail : <h.noguchi@unesco.org>
Site Internet : http://www.unesco.org/culture

21-24 August, 2000
Paris, Bibliothèque nationale de France
Symposium 2000 : Managing the Preservation of Periodicals and Newspapers.

An International Conference organised by IFLA's Core Programme on Preservation and Conservation, Section on Preservation and Conservation, Section on Serial Publications, Round Table on Newspapers with the support and cooperation of Bibliothèque nationale de France and Ville de Paris.
Eleven years after the First International Symposium on the Preservation of Serial Literature organised at the Library of Congress, IFLA wishes to assess the changes that have occurred since 1989. The organising Committee is currently working on the programme which will be detailed in the next issue of IPN and on the IFLANET. Sessions will concentrate mainly on preservation policies, reformatting, financial issues, electronic items and shared preservation. The last day will offer participants the opportunity to visit various preservation sites of the BnF.
Working languages will be French and English.

21-24 Août 2000
Paris, Bibliothèque nationale de France
Symposium 2000 : Gérer la Conservation des Périodiques et de la Presse

En prolongement de la Conférence de l'IFLA à Jérusalem et onze ans après le premier symposium sur la préservation de la littérature en série organisé par la Bibliothèque du Congrès, l'IFLA a souhaité faire le point sur les changements et les améliorations intervenus depuis 1989.
Le Comité d'organisation met actuellement en place un programme dont les détails seront accessibles sur IFLANET et dans le prochain numéro d'IPN. Au cours des différentes sessions les points suivants seront abordés : les politiques de conservation, le transfert de support, les implications financières, les publications électroniques et la conservation partagée. Le dernier jour sera consacré à la visite de différents ateliers de conservation de la Bibliothèque nationale de France.
Les langues de travail seront le français et l'anglais.

For further information please contact /
Informations complémentaires auprès de :
Marie-Thérèse VARLAMOFF
IFLA-PAC
Bibliothèque nationale de France,
2, rue Vivienne, 75084 Paris Cedex 02, FRANCE
Téléphone : 33 (0)1 47 03 87 26 - Fax : 33 (0)1 47 03 77 25
e-mail : marie-therese.varlamoff@bnf.fr

a n n o u n c e m e n t s

Lottery cash to save local newspapers in peril

Major Heritage Lottery Fund Grant

The LINC NEWSPLAN Panel has welcomed the announcement by the Heritage Lottery Fund (HLF) of a £5 million award to save 3, 500 fragile local and regional newspapers dating from 1800 to 1950.

This is the largest preservation grant ever made in the United Kingdom. It will fund the preservation microfilming of local newspapers which are most at risk and in danger of disintegration, in every part of the UK, and will be of enormous benefit to current and future generations.

The newspapers are housed in local and national collections in libraries and other centers throughout the UK. The huge preservation programme is expected to take between three and four years to complete. Preservation microfilming is the only recognised international standard for the archiving of newspapers.

The microfilming programme is stage one of the national *Local Newspapers in Peril* initiative, co-ordinated by NEWSPLAN Panel. The 3, 500 newspapers most at risk were identified by the ten NEWSPLAN regions, who under the aegis of the British Library , embarked in 1985 on an ambitious project to list every local and regional newspaper published in the UK and Ireland. A feasibility study in 1997, also funded by HLF, recommended that a nationally co-ordinated programme of preservation microfilming was required for the most fragile items not yet filmed to the required standard, and that a bid should be made to the HLF to save these unique sources of local history and community experience.

In addition to the £ 5 million awarded by HLF, a further £ 2.5 million is to be raised from the newspaper industry, suppliers and the library sector.

The project will install 800 microfilm readers, with disability access, in libraries throughout the UK.

NEWSPLAN is a co-operative programme for the preservation of the local newspapers by microfilming them to archival standards and for making them accessible to users. It involves public, academic and national libraries, and the newspaper industry. The British Library Newspaper Library plays a leading role in support of NEWSPLAN, and the National Libraries of Wales, Scotland and Ireland are major participants. NEWSPLAN is based on Regions corresponding to the ten Regional Library Systems of the UK and Ireland, and is a Panel of LINK, the Library and Information Co-operation Council.

For further information contact:

Dr. Ann Matheson, National Library of Scotland, Chairman, LINC NEWSPLAN Panel. Tel: + 0131. 226. 4531, fax: + 0131. 220. 6662, e-mail: a.matheson@nls.uk

John Byford, British Library, Secretary, LINC NEWSPLAN Panel Tel: + 44. 171. 412. 7362, fax: + 44. 171 412. 7386, e-mail: john.byford@bl.uk

Dr. Dennis Griffiths, Chairman, London Press Club. Tel: + 44 1753. 886. 290

Digitisation of European Cultural Heritage/Products-Principles-Techniques

21-23 October 1999, Utrecht, The Netherlands

Symposium organised by the Institute for Information Science (formerly Computer and Humanities) of Utrecht University and the Utrecht University Library.

During the last decade, successful digitisation projects from various European countries have provided access to a wealth of historical and cultural sources in electronic form. These projects show a number of different approaches, some of which represent well-known standards solutions, while others may be innovative or obscure. To explore this variety is one aim of this symposium. Nevertheless, the assumption is that these projects have a number of underlying principles in common, which together define a "European" approach to digitisation that differs from the "Anglo-Saxon" approach practiced in the United States, Canada and Great Britain.

Methodological themes are investigated in a series of plenary papers to be read by Jorgen van den Berg, Andrea Bozzi, Pedro Gonzalez, Anne R. Kenney, Frank Klaproth, Adolf Knoll, Dominique Maillet, Michael Pidd, Bas Savenije and Abby Smith. A number of projects will be discussed separately in small-group sessions with opportunities for discussion and hands-on experience. Among these projects are the ESAC Folksong Corpus, Thesaurus Musicarum Italicarum, World of Peter Stuyvesant, Illuminated Manuscripts of Dutch Royal Library, and the Norwegian Digital Radio Archive. Many other projects will be informally demonstrated.

The symposium will be held at the Jaarbeurs in Utrecht, The Netherlands. The participation fee is DFL 750 or 340 Euro; coffee, tea, three lunches, reception and the Conference Dinner are included in the fee. Accommodation can be reserved through the Congress Bureau of Utrecht University.

The programme, registration form and further information can be found at <http://candl.let.uu.nl> under the heading "events".

You can also contact Hans Mulder : h.mulder@library.uu.nl or Frans Wiering f.wiering@let.uu.nl

Practical questions should be directed to Muriel van Campen at mca@fbu.uu.nl

Centre de Conservation du Livre. Coopération-formation-prévention

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  29 septembre au 1er octobre 1999
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  Prix du stage : 2 800 FF

- *Dédoublage (Clivage) du papier (course in English/ traduction Française)*
  27 au 29 octobre 1999
  Prix du stage : 3 000 FF (fournitures comprises)

- *Preservation strategies (course in English)*
  8 au 12 novembre
  et 15 au 19 novembre 1999
  Tuition fees: Week I 2 500 FF/
  Weeks I+II 4 000 FF

- *Restauration des papiers et documents graphiques (Niveau II)*
  15 au 19 novembre 1999
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  22 au 25 novembre 1999
  Prix du stage : 2 900 FF (fournitures comprises)

- *Initiation et pratique de dorure*
  6 au 10 décembre 1999
  Prix du stage : 3 300 FF (fournitures comprises)

new publications

CLIR publishes report summarizing the challenges and accomplishments in the preservation of library materials

Washington D.C. - The Council on Library and Information Resources (CLIR) has published *The Future of the Past: Preservation in American Research Libraries*, a report by Abby Smith, Director of Programs at CLIR.

The report provides a summation of the challenges and accomplishments of the library preservation community and is targeted particularly at educators, university administrators, and scholars in order to apprise them of the issues being confronted to ensure continued access to research materials in the future. Dr. Smith encourages a collaboration between scholars, who can advise about the intellectual value of collection items, and librarians, who can make judgments about the physical risks that threaten collections.

The paper gives an overview of the preservation and management of research collections and describes the context in which the decisions are made by researches and librarians about what to preserve and how. By examining how the protagonists grappled with the first great crisis in the preservation of library materials - the pandemic loss of information printed on embrittled acid paper - it traces then development of the current consensus on how to manage large collections recorded on many media of varying stability. And the paper addresses the problem that, despite striking progress made in preservation technology and management, the difficulties of preserving original library materials have scarcely diminished over time and demand the same thoughtful cooperation between scholars and the librarians as they enter the twenty-first century as the brittle-book problem received in the 1980s. The use of new technology to digitize materials is often proposed as the obvious solution to range of preservation problems. But the author asserts that this is not necessarily the best alternative and in fact may be more problematic than traditional preservation methods using microfilm. Digitization greatly increases access to research material, but there is as yet no reliable and cost-effective means to preserve digital files of a complex nature. Research libraries should continue to devote resources to preserving their collections through the variety of tested methods available to them.

The Future of the Past is available for 15 dollars, including postage and handling, from the Council on Library and Information Resources. Orders must be prepaid. Checks should be made payable to CLIR and mailed to CLIR Publication Orders, 1755 Massachusetts Avenue, NW, Suite 500, Washington, DC 20036-2124. Credit card orders made be made by calling CLIR at 1-202-939-4750, sending fax to 1-202-939-4765, or sending email to info@clir.org. A complete list of publications may be found at CLIR's Web site, www.clir.org

Digitization for scholarly use

Washington D.C. - The Council on Library and Information Resources (CLIR) has published *Digitization for Scholarly Use: The Boswell Papers Project at The Beinecke Rare Book and Manuscript Library*, a report by Nicole Bouché, head of the Manuscript Unit at the Beinecke Library. The report provides detailed information about the digitization of manuscripts from Boswell Collection, which contains the personal papers of James Boswell, the 18th century Scottish lawyer, diarist, and associate of Dr. Samuel Johnson.

The paper describes the debate that led to a digitization strategy, the process of scanning, the production of CDs for the editors, and the rewards to the library and scholar editors.

However successful the Botswell digitization project, the Beinecke concluded that cost, preservation and access issues argue against investment in large-scale manuscript scanning. Instead, the library has chosen to focus its digitization efforts on a broad-based program to scan its holdings of visual materials that will yield a greater return for the largest number of users.

This report is one of a series that the Council on Library and Information Resources is publishing to explore strategies for integrating digital technology into the management of library print and media collections.

Digitization for Scholarly Use is available for 15 $, including postage and handling. Orders must be prepaid. Checks should be made payable to CLIR and mailed to CLIR Publications Orders, 1755 Massachusetts Avenue, NW, Suite 500, Washington, D.C. 20036-2124, USA. Credit cards orders may be maid by calling CLIR at +1 202. 939. 4750, sending a fax to +1 202.939. 4765, or sending e-mail to info@clir.org

Computerization of the archivo general de Indias: strategies and results

This report by Pedro Gonzales was originally published by the Council on Library and Information Resources (CLIR) in Washington DC, deals with digitization project of the Archivo General de Indias (AGI) in Seville, Spain. Over the past decade, the AGI digitized more than eleven million pages of documents relating to Spanish history in the New World. In addition, its system for providing access to digital documents has been in use for five years. The Archives has thus had to deal with the day-to-day practical problems of operation and longer term issues such as obsolescence of hardware, software, and storage media.

The report illustrates the range of difficult decisions that managers have faced throughout the project. Decisions often had to be made where no precedent existed. And, as always, decisions were bound by time and money, forcing choices that were not always optimal, but realistic. The report is an important case study both for its size and for its track record. The experience of the AGI, as described in this report, will be a useful case study for planners facing the myriad technical, organizational, and managerial challenges presented by their own digitizing projects.

In Europe the report is distributed free of charge by the European Commission on Preservation and Access.

Outside Europe the report is distributed by the Council on Library and Information Resources (CLIR) in Washington on its usual terms.

For more information contact CLIR,
1755 Massachusetts Avenue, NW, Suite 500,
Washington, DC 20036-2188, USA
fax +1 202 939 4765 e-mail: info@dir.org

or

European Commission
on Preservation and Access
P.O. Box 19121 NL-1000 GC Amsterdam
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