

# INTERNATIONAL PRESERVATION

A Newsletter of the IFLA Core Programme on Preservation and Conservation

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# NEWS

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editorial

A striking coincidence: just as ICBS (the International Committee of the Blue Shield) was invited to sign the 2nd Protocole to the 1954 Hague Convention for the Protection of Cultural Heritage in the Event of Armed Conflict, thousands of Kosovars were being expelled from their homes, villages and country and NATO planes started bombing Yugoslavia. Men never learn from experience...

We all have in mind the tragic and frightful images of the National Library of Sarajevo in flames and fear that something identical might happen again in Kosovo. But worse, we have heard from various testimonies that entire pages from the archives had been torn out, thus deleting the proof that men and women were born or had even ever existed. More serious still, before they could walk through the frontiers, refugees were deprived of their passports or of any other official identity paper. All of a sudden they existed no longer, there was no proof, no testimony of their ever having lived at all. Losing one's life is certainly irreversible and cruel but losing one's identity is nearly as fatal. Losing one's cultural heritage is like losing one's memory and we know that we cannot build a future without having roots in the past.

I do hope that by the time this Newsletter is published a peaceful solution will have been found. Nevertheless I'd like to take this opportunity to urge anyone of you to help us organize locally Blue Shield structures and create National Blue Shield Committees, so that we get ready in the event of any forthcoming disaster.

I trust that the library and archive community as well as our colleagues from the museums, monuments and sites all wish to join us in preventive activities to protect our common heritage whether during armed conflict or peace time. And let us not forget that Kosovo is not, unfortunately, the only place in the world where human lives and cultural heritage are at risk. Recently news from Guinea Bissao, Afghanistan and Central America also claims our attention. ■



Marie-Thérèse VARLAMOFF  
PAC Director

## éditorial

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*Tragique coïncidence : au moment même où le CIBB (Comité International du Bouclier Bleu) était invité à signer le deuxième Protocole de la Convention de La Haye (1954) sur la Protection des Biens Culturels en cas de Conflit Armé, des milliers de Kosovars étaient chassés de leurs foyers, de leurs villages et de leur pays et les avions de l'OTAN commençaient à bombarder la Yougoslavie. Décidément les hommes ont la mémoire courte...*

*Nous avons cependant toujours à l'esprit les images tragiques de la Bibliothèque nationale de Sarajevo en proie aux flammes. Il est malheureusement à craindre que des événements tragiques se produisent également au Kosovo. Nous avons appris de sources diverses que des pages entières des registres d'état civil avaient été arrachées, détruisant ainsi toute preuve de filiation ou d'appartenance à ces hommes et à ces femmes kosovars. Mais il y a tout aussi grave : avant de franchir la frontière les réfugiés se sont vu arracher leurs passeports et leurs papiers d'identité. En un instant toute preuve de leur existence se trouvait effacée. Si perdre la vie est irréversible et cruel, perdre son identité est presque aussi fatal; de même que la perte de son patrimoine culturel est pour chacun d'entre nous comme la perte de sa mémoire et nous savons tous qu'il est impossible de bâtir le futur sans l'avoir auparavant enraciné dans le passé.*

*Je forme l'espoir que lorsque cette lettre paraîtra ces événements tragiques auront trouvé une issue pacifique. Et je voudrais vous inviter tous, à l'instar de la Belgique, du Canada et de la France notamment, à vous regrouper localement pour former des Comités nationaux du Bouclier Bleu, prêts et opérationnels dans l'éventualité de possibles catastrophes. J'ai la conviction que la communauté des bibliothèques et des archives ainsi que celle des musées, des monuments et des sites souhaite collaborer pour prévenir les catastrophes et préserver notre patrimoine commun, en temps de guerre comme en temps de paix.*

*Mais rappelons-nous que le Kosovo n'est malheureusement pas le seul endroit au monde où les vies humaines et le patrimoine culturel soient en danger. De Guinée Bissao, d'Afghanistan, d'Amérique Centrale aussi, des nouvelles alarmantes nous sont parvenues récemment. Nous nous devons d'y répondre. ■*

## ICBS

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# International Committee of the Blue Shield

## Appeal for the Protection of the Cultural Heritage in Yugoslavia

The International Committee of the Blue Shield (ICBS) urges all parties in the present conflict in the Balkans to comply with the international treaties relating to armed conflicts, especially the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict and its new Second Protocol, agreed by 84 countries and two organisations (ICBS, ICRC\*) in The Hague on 26 March 1999.

Attention has been paid to the human suffering: civilians have been killed or wounded and hundreds of thousands of people have been forced to leave their homes and become refugees. The International Committee of the Blue Shield expresses its sincere sympathy for all those who suffer under this violence.

Cultural heritage constitutes a fundamental part of the identity and dignity of peoples and is always a victim during armed conflicts. The ICBS expresses its serious concern about all damage to the cultural heritage of the peoples of Yugoslavia resulting from military action or other deeds of violence by all sides in the conflict.

The ICBS therefore calls upon all parties in the conflict to do everything within their power to protect museums, archives, libraries, monuments and all other sites that are expressions of the history and the right of existence of the peoples in this region.

The mission of the ICBS, which has taken up the emblem of The Hague Convention of the 1954 for the Protection of Cultural Property in the Event of Armed Conflict, is to collect and disseminate information, and to co-ordinate action in emergency situations affecting cultural heritage, such as armed conflicts or natural disasters.

The ICBS was founded in 1996 by four non-governmental organisations:

ICA: International Council on Archives

ICOM: International Council of Museums

ICOMOS: International Council on Monuments and Sites

IFLA: International Federation of Library Associations and Institutions

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\* ICRC: International Committee of the Red Cross

## CIBB

# Comité International du Bouclier Bleu

## Appel pour la protection du patrimoine culturel en Yougoslavie

*Le Comité International du Bouclier Bleu (CIBB) demande à toutes les parties impliquées dans l'actuel conflit dans les Balkans de respecter les accords internationaux relatifs aux conflits armés, notamment la Convention de La Haye de 1954 pour la protection des biens culturels en cas de conflit armé et le nouveau Protocole de ladite Convention adopté à La Haye, le 26 mars 1999, par 84 Etats et 2 organisations (ICBS, CICR\*).*

*Les souffrances humaines sont largement reconnues : des civils ont été tués ou blessés et des centaines de milliers de personnes ont été chassées de leurs maisons et déplacées. Le Comité International du Bouclier Bleu (CIBB) exprime toute sa compassion à tous ceux qui souffrent de ces actes de violence.*

*Le patrimoine culturel qui constitue une part fondamentale de l'identité et de la dignité de tous les peuples est toujours victime lors de conflits armés. Le CIBB exprime sa grave préoccupation au sujet des dommages subis par le patrimoine culturel des peuples de Yougoslavie résultant d'actions militaires ou d'autres actes de violence commis de tous côtés.*

*Le Comité International du Bouclier Bleu incite toutes les parties du conflit à tout mettre en œuvre pour protéger musées, archives, monuments, bibliothèques et tout autre site qui sont les témoins de l'histoire des populations de cette région et constituent une preuve de leur identité.*

*La mission de CIBB, reprenant l'emblème de la Convention de La Haye de 1954 pour la protection des biens culturels en cas de conflit armé, est de rassembler, diffuser l'information et coordonner les actions lors de catastrophes naturelles ou de conflits armés pouvant affecter le patrimoine.*

*Le CIBB a été fondé en 1996 par quatre organisations non gouvernementales :*

*CIA : Conseil International des Archives*

*ICOM : Conseil International des Musées*

*ICOMOS : Conseil International des Monuments et des Sites*

*IFLA : Fédération Internationale des Associations de Bibliothécaires et des Bibliothèques*

ICA  
<http://www.archives.ca/>  
Tel. 33 (0)1 40 27 63 06  
Fax 33 (0)1 42 72 20 65

ICOM  
<http://www.icom.org>  
Tel. 33 (0)1 47 34 05 00  
Fax 33 (0)1 43 06 78 62

ICOMOS  
<http://www.international.icomos.org>  
Tel. 33 (0)1 45 67 67 70  
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Fax 33 (0) 1 47 03 77 25

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\* CICR : Comité International de la Croix-Rouge

# New International treaty to strengthen of cultural property in the event of ar

After two gruelling weeks, 15-26 March 1999, during which things often looked very bleak because of deep-seated differences between States, a new 2nd Protocol to the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict was adopted by unanimous consensus on the evening of Friday 26 March in The Hague.

So far as I could see the Heads of all 84 national Delegations taking part signed the "Final Act" of the Diplomatic Conference - though this does not commit any State to sign and ratify the new treaty itself: this will depend on often prolonged consideration and major new primary legislation at the national level in each case.

The new Protocol represents much the greatest advance in international cultural protection measure for decades - certainly since the 1972 World Heritage Convention, and probably since the original 1954 Hague Convention. It is also the most substantial development in the field of International Humanitarian Law since the Geneva Convention Additional Protocols of 1977. Both the World Heritage Convention and the 1977 Additional Protocols offered significant precedents for many of the innovations in the 1999 2nd Protocol just adopted, coupled with the long, and sad, experience of the failure of the original 1954 Convention to prevent great losses of important cultural property over the past 45 years, especially in the sort of "dirty" armed conflicts such as civil wars that have been a constant feature of the post-war world.

For those who are familiar with the 1998 Vienna Draft and the UNESCO Working Draft which the March 1999 Diplomatic Conference took as its starting point, (and indeed my original UNESCO report of 1993 which was perhaps the starting point of this whole process), on virtually every key area except one the final version of the new 2nd Protocol has accepted the basic argument for change and improvement (though the final language may look quite different in places - not least through the careful attempt to use established "Geneva" wording wherever possible).

In summary, the provisions of Hague 1954 in respect of "protection" in general have been greatly clarified and amplified, in the new Chapter 2. This offers much clearer explanations of, for example, the very limited cases in which "imperative military necessity" can be claimed in order to allow an attack on cultural property - in effect substantially reducing the possible use of this, (a long-standing problem dating back to the original 1899 and 1907 Hague Laws of War).

The obligations of States in relation to peacetime preparation and training have been expanded. The Chapter also clarifies (and limits very considerably) what an occupying power may do in relation to cultural property within occupied territories, placing very narrow limits on archaeological excavations and the alteration or change of use of cultural property, and requiring the occupying power to prohibit and prevent all illicit export, removal or change of ownership of cultural property.

The new Chapter 3 creates a new category of "Exceptional Protection" for the most important sites, monuments and institutions. This will be an international designation, approved by a new Intergovernmental Committee established by the 2nd Protocol, and publicised in advance (modelled on the procedures for the World Heritage List). The detailed provisions restrict even further than the new Chapter 4 provisions the 1954 "Imperative Military Necessity" exemption: even in the case of gross misuse by the enemy, it will be lawful to attack or retaliate only if the cultural property is currently being actually used in direct support of the fighting etc., and even then any response must be strictly proportionate and limited.

One of the two areas in which there is a very major advance in international humanitarian law and international criminal law is the new Chapter 4. While emphasising both individual and command and control criminal responsibility under existing provisions (such as the Geneva Conventions and Protocols and customary international law), the new 2nd Protocol establishes a range of new explicit war crimes.

These cover breaches of cultural protection and respect contrary to either the original 1954 Convention, the new 2nd Protocol, or the cultural protection provisions of the 1977 Additional Geneva Protocols. Examples include making cultural property the object of a

# protection ed conflict

prohibited attack or mis-using it in support of military action, extensive destruction or appropriation of cultural property, together with theft, pillage and vandalism of cultural property, and with specially severe provisions in relation to crimes against the Enhanced Protection regime.

States Parties will have to legislate for these and in normal cases will be expected to prosecute such crimes in their normal civilian or military courts. However, there is also provision for both extradition for all "cultural" war crimes and universal international jurisdiction in respect the most serious crimes.

Chapter 5 deals with non-international conflicts, and aims to clarify and strengthen considerably the 1954 provisions in relation to civil wars and other non-international armed conflicts (where much the greatest problems - and cultural destruction - have occurred over the past 44 years).

The other major advance and significant innovation is Chapter 6, which establishes for the first time institutional arrangements in respect of the application of the 1954 Convention. There will be two-yearly meetings of the States Parties (compared with a 22 year gap between the 1973 and 1995 meetings!), and the States will elect a 12 member "Committee for the protection of cultural property in the event of armed conflict" which will meet at least once a year, and more frequently in cases of urgency.

The Committee will have a duty to monitor and promote generally, and consider applications for both "Exceptional Protection" and financial assistance from a (voluntary contributions) Fund to be established under the Protocol. At an early stage in the more than five years of preparation for the March 1999 Diplomatic Conference, the UNESCO-linked world non-governmental organisations for archives (ICA), libraries (IFLA) monuments and sites (ICOMOS) and museums (ICOM) agreed to create a joint emergency coordination and response committee under the name International Committee of the Blue Shield (ICBS) - taking its name from the Hague Convention symbol for protected cultural property.

The new 2nd Protocol now formally recognises the ICBS (by name) together with its constituent "eminent professional organizations" as important partners, together with UNESCO, ICCROM and the International Committee of the Red Cross, in all aspects of the promotion and implementation of the Protocol. All will have important standing advisory roles in relation to the Committee and of the regular meetings of all States Parties, and the ICBS will be consulted on proposals for e.g. "Exceptional Protection" designation, in the same way that ICOMOS, ICCROM and the International Union for the Conservation of Nature (IUCN) are involved in the implementation of the World Heritage Convention.

Chapter 7 strengthens the 1954 provision in relation to information, training etc. about the Convention, Protocols and general principles of cultural protection. There is now a call for States to raise awareness among the general public and within the education system (non-binding because of the significant number of States where the central government does not control or influence directly the school curriculum - though an important recognition of the importance and role of "civil society" nevertheless).

In addition, each of the four constituent bodies of the ICBS were named in full in the formal "Final Act" of the Diplomatic Conference, while I was invited to sign the Final Act as Head of the International Committee of the Blue Shield delegation. (I did not realise the significance of this until one of the UK Foreign Office international law experts told me that this was the first time in modern diplomatic law that an NGO observer delegation had been allowed this privilege!)

The 2nd Protocol is now being prepared in all six UN languages (French, English, Arabic, Chinese, Spanish and Russian) in time for the formal signing ceremony in The Hague on Monday 17 May (the first day of a week of celebrations to mark the 100th anniversary of the first Hague Peace Conference and Convention of 1899).

However, it will be some time before it comes into force. A minimum of twenty States that are already Parties to the original 1954 Convention must ratify it before it comes into effect, and it is likely that in most countries this will require new primary legislation, not least because of the extension of international criminal law and jurisdiction. ■

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## Last minute

On Monday, May 17, 1999, the ICBS representatives attended the signing ceremony of the Second Protocol in the Peace Palace in The Hague, Netherlands. The following 28 countries signed:

Albania, Austria, Belgium, the Flemish Community of Belgium, Cambodia, Cote d'Ivoire, Croatia, Estonia, Finland, Germany, Ghana, Greece, Hungary, Indonesia, Italy, Luxembourg, Macedonia, Madagascar, Netherlands, Nigeria, Pakistan, Qatar, Spain, Sweden, Switzerland, Syria, Vatican, Yemen.

English and French texts are already available on the UNESCO web site:

[http://www.unesco.org/culture/legalprotection/war/html\\_eng/protocol2.html](http://www.unesco.org/culture/legalprotection/war/html_eng/protocol2.html) .)

# The traditional and modern preservation of library rare books and precious materials in China

Everybody knows that China is one of the world's oldest civilizations and has a recorded history of more than 5000 years. The history of book collecting in China can be traced back 3000 years. Literature, in the form of books and precious materials, were handed down from dynasty to dynasty. The current estimate is that there are more than 2.2 million volumes surviving which were published before 1794; 26.45 million volumes of books before 1911; more than 29,000 titles of journals and magazines, and over 7,800 newspaper titles which were published over 50 years ago (before 1949). Moreover, there are great numbers of manuscripts, rubbings from stone inscriptions, Confucians canons, etc.

In my library, which is located about 200 km to the South of Shanghai, there is a large collection of older materials. It contains inscriptions on bones or tortoise shells of the Shang Dynasty (16th-11th century BC.); more than 20,000 pieces of rubbings from stone inscriptions; 130,000 pieces of original printing block plates, a wonder of the library world; stone tablets dating from 1245 AD; Chinese paintings more than 200 years old; more than 180,000 volumes of rare books, some of them dating from the Sung Dynasty; 1.2 million volumes printed before 1911; a total of 3.9 millions volumes, comprised of books, journals, newspapers and other library materials.

One may wonder how the Chinese ancient librarian preserved all these library materials. Actually, there is a lot of knowledge to know, to understand, to study. What I want to introduce is only one drop of water in the great ocean.

- A. Create a Proprietary Environmental Condition for Library Materials Preservation.
- B. Take Special Care of the Book Preservation and Conservation.
- C. Use the Modern Science and Technology to Preserve the library Rare Books and Precious Materials.
- D. Summary and Suggestions.

## A. Create a proprietary environmental condition for library materials preservation

**1 Ancient Library Buildings.** In order to provide a safe environment for the rare books, the ancient Chinese librarian studied and analyzed the relationships between the raw materials of the book, water and fire. Water can fight against fire. Fire can destroy any kind of organic materials including paper, bamboo strips, silk or cotton, etc. Therefore, we have to take special care of these three elements.

Not only water can control fire, it can also help plants grow. Because of this characteristic, the ancient Chinese librarian placed the library in a botanical garden. The botanical garden can create a place of quiet and restfulness, a pure and fresh surrounding for reading. A good example is the Tianyi Ge, which was built in 1566. It still exists. In front of the library building, there is a water pond, which leads to the Great Dongning Lake. The building is surrounded by different kinds of trees and flowers. For enriching the environmental condition, the owner of the library added a pavilion and artificial rocks. All these created a very typical garden setting for the library building, as well as for the safety of the rare books. The owner of this private ancient library had his own residence built side by side with the library building, but separated by two parallel walls. In this way, the calamity of fire could be prevented from entering into the library building. Moreover, there was a specific and strict rule that fire and candle could never be allowed to enter into the library building.

**2 Kill or Drive Away the White Ants, Bookworms and Other Insects.** It is well known that white ants, bookworms and spiders are the greatest enemies of paper and books. A high degree of moisture creates a suitable condition for these insects to flourish. Therefore, the ancient Chinese librarian had found and used a lot of methods for killing and preventing these insects from invading the library.

- (1) Caustic lime or lime-sulfur was spread around the corners of the stack room. If it was difficult to obtain caustic lime, charcoal could be used instead, because charcoal absorbs moisture in the stack room.
- (2) White arsenic can keep away or kill white ants. If trees or flowers were grown round the library building, or a water pond or canal was built near the

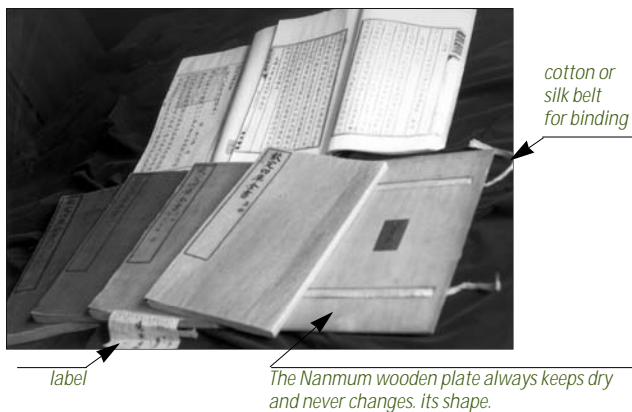


building, they could create damp, which is suitable for the reproduction of white ants. Therefore, it was necessary to dig the ground beam of the outside wall of the building for 30-50 cm, spread white arsenic and backfill after that. This kept the white ants away for more than 30 years at least.

### B. Take special care of the rare book preservation and conservation

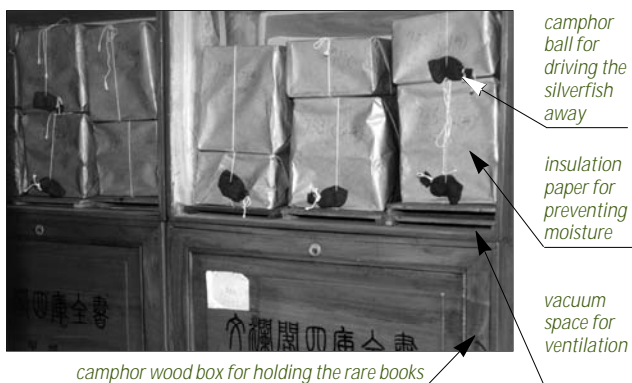
For keeping away the bookworm (or silverworm) and other insects from the books and preserving rare books in good condition, the ancient Chinese librarian developed a number of methods of preservation.

**1** In order to keep rare books in good shape, NANMUM wooden plates were used at the bottom and on the top of the book of the whole set which was then tied up with cotton thread.



This kind of wooden plate never changed its shape and always remained in a dry condition. Another advantage of this treatment was that it kept the rare book away from dust and free from damage, as well as made it easier for the librarian to use and serve his readers.

**2** Camphor wood was employed to make the holding boxes. A camphor wood box has its own aromatic smell, which can drive away the bookworm or other kinds of insect.



**3** The smell of camphor ball (or mothball) helps to keep away the bookworm or other insects from the rare books.

This kind of camphor ball volatilizes slowly. So, we do not have to change it before a certain period of time, normally, once a year.

**4** Air circulation in the stack room as well as in the book-holding boxes is also very important. Therefore, when we put rare books in a camphor wood box, we should never pile them up and or store them close together. Otherwise, when the natural temperature and moisture changes, storage conditions deteriorate.

**5** If a rare book needs to be repaired, the following steps should be observed: (a) Take the book apart slowly and carefully; (b) Straighten out every page of the paper; (c) Starch or size with a special paste; (d) Take a proper weight to press and flatten it in time; (e) Use silk or cotton thread to bind it again.

**6** Book drying. Normally, there is a rainy season, which occurs in May and June in the area of the middle and lower Yangtze River. So, we have to take special steps to avoid the rare books becoming moldy. In my library, there is a tradition of drying the books in the shade in the open air. We still use wooden boards of (normally China fir) 200 cm X 40 cm for this special work.

If a book becomes wet and is not treated in time, it may become soggy, in that case it is best not to treat it in a hurry but to find an expert to treat it properly. The expert will put it into a food steamer (usually made of bamboo) to steam it in order to make it soft, and then separate the pages one by one slowly and carefully, and then dry it in the open air in a shady place.

**7** Famous Chinese medical herbs are used not only for curing sickness, but also for preventing it. The Chinese librarian made a clever move by using some of the herbs to preserve books. Some of the following methods were used and got a good result. (a) Putting the dry leaves of the herbs into the book directly, to let the smell of the herb drive away the bookworm and other insects. The herbs included tobacco leaves, lotus leaves, the herb of grace, etc. (b) Putting the herbs together with paper raw materials to produce insect repellent paper, for example: Huang paper (with sulfur), Jiao paper (with pepper), Wangnien Hong paper (with arsenic). (c) Making a special paste and pasting it on the paper, and letting it dry, and then putting this pasted paper in the books.

### C. Use modern science and technology to preserve rare books and the library previous materials

In this new century, with the development of modern science and technology, we have created and adapted modern techniques and equipment for the preservation and conservation of rare books and precious library materials.

#### 1 Scanning.

Scanning the library literature and storing it on laser disks is not a new technique. Actually, scanning was developed at the beginning of 1960s and by the end of 1970s, the digital laser disk appeared. Since 1980, this technique was employed for the storage of library materials.

At this time, the Chinese Central Government has not developed a general plan for this method of preservation, but our National Library, the Shanghai Library and my own library (Zhejiang Library) are employing this technology.

I believe that starting and completing this work will not only be a major benefit for the preservation of the library rare books and precious materials, but will facilitate the sharing of library resources.

#### 2 Freezing.

The Chinese librarian had studied the living condition of the bookworm (silverworm) and found that it would freeze to death at a temperature of 40 °C below zero. Therefore, some of the libraries in China use this method to kill the bookworm. Our National Library, the Shanghai Library and some university libraries have used it. Some archives in China also used this method to preserve other paper-based materials in archives. The disadvantage of this method is that the container of the freezer is too small, for the bookworm should be frozen to death after 48 hours at the 40 °C below zero. So we have to spend a lot of time and manpower to do this work.

#### 3 Microwave.

The Chinese librarian has found out that the bookworm can be heated to death in the microwave oven. A special microwave oven was designed, produced, and used in some of the libraries in China. But this procedure raised two problems: (1) After heating in the microwave oven the rare books become warm and there was concern that the heat may harm the books. (2) Use of this method for killing the bookworm (or silverworm) is very slow. As a result it is not employed in many libraries.

## Les méthodes anciennes et modernes de conservation des livres rares et autres ouvrages précieux en Chine

La Chine possède une tradition d'écriture millénaire. On estime à plus de 2,2 millions le nombre de volumes publiés avant 1794, sans parler des nombreux journaux, magazines, manuscrits et autres documents précieux anciens et plus récents. Comment les bibliothécaires chinois ont-ils réussi à préserver cet héritage? L'auteur de l'article nous fait découvrir quelques-unes des ces méthodes.

*La recherche de conditions convenables pour installer une bibliothèque semble être très importante et source de réflexion. Les précautions et les choix architecturaux sont déduits des rapports fondamentaux entre les éléments: le papier, le feu et l'eau. Ainsi les anciennes bibliothèques chinoises sont souvent construites dans un jardin botanique à proximité de l'eau mais séparées de l'habitation principale par un mur (afin de les protéger éventuellement du feu).*

*Autrefois, pour protéger les livres des nombreux insectes (vers du papier et fourmis) on utilisait la citronnelle et l'arsenic.*

*On conservait les livres rares entre deux planches de bois appelées " NANUM ". Ces planches protégeaient les livres d'une déformation éventuelle et de l'humidité ainsi que de la poussière.*

*L'odeur forte des boules de camphre chasse les insectes, et parfois les boîtes de rangement pour les livres étaient fabriquées avec du bois de camphre. De plus, certaines herbes médicales (tabac, lotus) étaient utilisées à cause de leur odeur et placées dans les livres ou carrément utilisées dans la fabrication du papier: papier Wangnien Hong (avec de l'arsenic), papier Jiao (avec du poivre).*

#### Science Moderne et Technologie.

*Au début des années 70 on a développé une technique de conservation consistant à scanner les livres et à transférer leur contenu sur des disques lasers.*

*Une autre méthode, basée sur les observations des bibliothécaires chinois, consiste à réfrigérer les livres endommagés par les vers à une température de -40°C. Cette méthode est appliquée dans plusieurs bibliothèques, dont la Bibliothèque Nationale.*

*Les scientifiques chinois ayant appris que les papivores ne résistent pas à des températures élevées, utilisent des fours à micro-ondes, bien que cela présente quelques difficultés, car la chaleur nuit à certains livres.*

*Tout comme dans l'industrie alimentaire, l'emballage sous vide est aussi utilisé par des bibliothécaires chinois. Ils scellent ainsi les livres rarement utilisés ou qui ont été transférés sur un autre support.*

*Le rôle des systèmes de contrôle des conditions climatiques (déshumidificateurs, systèmes d'air conditionné) est aussi très important et la plupart des bibliothèques sont maintenant équipées en conséquence.*