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East Asian Collection in the Global Information Network

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Human civilization has undergone at least three stages of evolution — the invention of manual tools which marked the early stage of civilization, the invention of steam engines which started the industrial revolution in the late 19th century, and the invention of "brain machine" (computer) in the middle of the 20th century which ushered in the information revolution. The third represents an entirely new stage of human civilization, that of the global information society, in which information technology overcomes the physical barriers of time and space.

Today, globalization of information resources by virtual access and electronic transmission is right at our door. This information revolution is characterized by the cyberspace in which millions of computers are connected and digital information passed each day, and by cable television, CD-ROM's, interactive video, laser discs, and electronic mail delivery.

What does the information revolution mean to East Asian collections and information providers for East Asian studies today? This is the question I want to address in this paper.

1. Current trends

First, the information revolution is rapidly changing the ways in which East Asian libraries do their business as well as many facets of doing research on East Asia.

In general, we witness the following changes:

a) Research is done not only on print resources, but also increasingly on electronic resources of text, sound and pictures. For example, the fast-evolving imaging technology can now make better-than-real images
Of original text for research on East Asian civilization.

b) Information technology has greatly shrunk the size and space needed for the storage of information (storing thousands of pages on one disc, for example). Digital collections are beginning to replace some of our print collections. The British Library's project to digitize the world-renowned Dunhuang manuscripts is a good example.

c) As information providers, we have much better means today to deliver information to our patrons through on-line and computerized databases. For example, retrieving an article on Internet takes a matter of seconds.

d) Information technology has made it possible for fast and virtual access of information regardless of distance and physical barrier. For example, we can search the on-line catalog of the Hong Kong University of Science and Technology Library catalog in the U.S. at our finger tips, something not possible a few years ago.

e) Electronic type setting in publishing has become the mainstream of printing and is the greatest change in the history of publishing since the invention of movable type block printing in China and its spread to the west more than 500 years ago.

In addition, the information revolution has also changed some of the fundamental perceptions of the library profession.

a) Access is becoming more important than ownership. With fully automated on-line bibliographic databases, search engines, enhanced ILL and document delivery technology, it can be predicted that in the next century, even the most obscure library materials will become accessible to users in a global information society regardless of distance and location.

b) The size of a single collection is becoming less and less important than the virtual collection of many collections connected in an information network throughout the world.

c) A virtual global collection of Chinese, Japanese and Korean language collections consisting of the major collections in North America, China, Taiwan, Hong Kong, Japan and Korea is beginning to form, even though they
are physically separated in different continents. The shared OCLC cataloging of the Hong Kong University of Hong Kong library with many other East Asian libraries in North America is a prime example. With improved technology and better means of ILL and document delivery, the benefit of such a global collection will become more and more evident.

2. Problems in the construction of a global collection for East Asian studies

While we are excited about the prospect of a global collection for East Asian studies, we must also note the limitations and barriers that are present in the globalization of information resources.

a) Although the virtual collection is a good concept, researchers as well as information providers for East Asian studies still prefer having the books in-house if possible. Interlibrary loan and document delivery still take time and have more restrictions than just going to the library to pick up a book.

b) Although document delivery of journal literature in the U.S. through Internet is quite efficient, such a practice has yet to include transfer between North American research libraries and those in Asia. Document delivery and on-line full text retrieval across the Pacific are in the beginning stage and are predictably expensive. Time to reach information sites on Internet, especially those in different continents, varies.

c) Although information technology has provided revolutionary improvements in bibliographic tools and search aids such as on-line bibliographies, abstracting tools, and directories, electronic access to the primary source of the text is still insufficient, especially for East Asian language materials. It is safe to say that less than 1% of scholarly publications on East Asia have been digitized. Therefore, the ability to provide patrons direct access to the content of source materials cannot be provided satisfactorily through on-line utilities. Researchers still have to rely on print materials most of the times.

d) The intellectual property and copyright issues have yet to be resolved when it comes to reproduction and delivery of original materials and sharing such materials in a networked environment.

e) The vast majority of collections in East Asia,
especially those in China, do not have on-line records. The retrospective conversion of card catalogs of those collections to on-line form will be labor-intensive, expensive and time-consuming.

There exist problems in the development and use of electronic resources for East Asian studies in North American research libraries as well. In a study by the author in 1995 of the twenty largest Chinese collections in the U.S. and Canada, and eight major Chinese libraries in Asia, I found the following problems in the use of electronic resources for Chinese studies.1

**Budget** There is limited budget among East Asian collections in North America to buy electronic resources, as most of such resources are costly. Special hardware and software required to run those databases are often expensive, too.

**Quality of the products** Some electronic resources for Chinese studies are incomplete. Search interfaces on some of the electronic databases are not user-friendly. Some databases are not updated frequently.

**Formats and standards** A serious problem in the development of vernacular Chinese electronic database is the lack of standardization. There are different coding systems for Chinese characters used in Mainland China, Taiwan and North America. Currently, it is not easy to access and display vernacular on the World Wide Web.

**Market** There are not enough good electronic resources for Chinese studies on the market and the prices for the few such resources are often too high. The field is not well-developed.

**Technical support** Among North American libraries, there is ineffective networking for resource sharing of electronic databases for East Asian studies. Many library automation staff lack training, knowledge and experience in electronic resource for area studies. Therefore, there is often inadequate technical support for East Asian collections in North American libraries.

### 3. Development of digital collections in East Asian countries

On a global scale, the development of electronic infrastructure has been uneven among developed and developing countries. Today, in Japan, Taiwan, Hong Kong and Singapore, the information infrastructure is being developed at a fast speed, and the technical sophistication
of information systems there parallels that of most
developed countries such as the United States. On the other
hand, the information infrastructure in China is yet to be
developed.

Recently, there have been encouraging developments in China
in building information networks, especially among large
research universities and scientific research institutions.
The following problems remain in building the national and
regional infrastructure for library networks in China today:

a) Libraries in China tend to develop their own systems
and projects. There is a lack of concerted effort on
the national or regional level to develop shared
library information systems. Consortium efforts are
usually crucial in developing networked information
systems. Unfortunately, library consortia and
collaborative initiatives are lacking among Chinese
libraries.

b) Resource sharing, cooperative collection development
and reciprocal borrowing have not been given enough
importance among Chinese libraries. There is a
critical need to formulate regional and consortial
guidelines for resource sharing among Chinese
libraries.

c) Shared cataloging on the computer networks and
reciprocal data loading among Chinese libraries are not
common in China and need to be strengthened.

d) Chinese library catalogs are not fully automated.
Access to Chinese library materials in China is still
mainly manual.

e) There are few commercial network products and
services for library use in China. The library market
is underdeveloped.

f) Lack of standardization in information systems,
processing and bibliographic control is a barrier to
provide quick access to library materials in China.
There exist different formats and coding systems.

g) Libraries have very limited access to information
networks outside China.

h) Last but not the least important, Chinese libraries
do not have the funds needed to purchase or develop
automated systems. The national and governments have
not placed enough emphasis on building up national and
regional information networks of library resources.
In regard to these problems, we strongly urge our Chinese library colleagues to put their limited financial resources together to form regional and national information networks and systems for library materials. Resource sharing and cooperative cataloging should be given high priority. Efforts need to be made to persuade the national and local government to allocate more resources to the construction of national and regional information networks in China.

Ithiel de Sola Pool² pointed out that the way to bridge the gap between the developed and the developing country in information technology is to use technology transfer. Today, Chinese libraries can take advantage of the information technology used in the developed countries, and speed up technology transfer. Going on-line and joining the library information networks in the world is the first step. The introduction of OCLC FirstSearch in Qinghua University Library in China is a good example, and similar efforts should be made to link Chinese libraries to the outside world in access, delivery and storage of information, and in standardization and resource sharing. It is crucial for Chinese libraries to seize the opportunity. As Pool points out, "as advanced countries increasingly transfer their reference materials from hard-copy libraries to computerized retrieval systems, the underdeveloped countries will either begin to catch up in information capacity or will fall further behind, depending on whether they are linked to these new information stores by telecommunications or not."³

On the other hand, the final success in building a global collection for East Asian studies depends on the participation of libraries in the countries where the publications originate. The success of the national information super highway and library automation in China is the key to the building of a global collection for East Asian studies. It is in the best interest of the information providers outside China to see that technology transfer and automation of library resources including the retrospective conversion of machine readable records for China's collections succeed.

4. Future directions and efforts

With the coming of the Pacific Century, the field of East Asian studies has become more and more important. The need for information on and access to East Asia is increasing rapidly. In the globalization of economy, commerce and trade, Asia and North America are becoming more and more inter-dependent today.

28
There are abundant information resources for East Asian studies both in North America and Asia. East Asian collections in America have rich human and materials resources, as shown below.

Asian collection and staff resources in North America

<table>
<thead>
<tr>
<th>Human resources</th>
<th>Materials resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTE</td>
<td>(Chinese, Japanese and Korean materials)</td>
</tr>
<tr>
<td>407</td>
<td>Collections (volumes)</td>
</tr>
<tr>
<td></td>
<td>12,709,227</td>
</tr>
<tr>
<td></td>
<td>Budget</td>
</tr>
<tr>
<td></td>
<td>$10,010,528</td>
</tr>
</tbody>
</table>

The question is how information providers for the study of East Asia can take advantage of the technological breakthrough to develop new and better services. In the past years, the East Asian collections in North America have carried out some successful cooperative projects such as the RLG Chinese Rare book project. Today, there is tremendous potential for East Asian libraries in the information age to develop a global collection virtually linked to all collections in North America and those in Asia. As information technology has gradually overcome the physical barriers of time and space, virtual access to source materials and texts across continents has become a reality. It is no longer a fairy tale to talk about resource sharing and cooperative information services among libraries in different continents in today's global information society.

In this context, I would like to present the following model for a virtual global collection for East Asian studies.
Model for a virtual global collection for East Asian studies

In this model of a virtual global collection for East Asian studies, document delivery with proper bibliographic access to source materials plays a crucial role in linking the various collections into one global collection. It is important to note that document delivery and interlibrary loan have not been a major problem among North American research libraries. It is time now to experiment with document delivery between North American libraries and the libraries in China. In this connection, the University of Pittsburgh Library System and Beijing University Library have decided to do a pilot project this year to deliver documents on demand through Internet on a reciprocal basis.

The other part of the global collection initiative is the creation of digital collections by different libraries and through full text document retrieval on demand. The recent MIT and ARL study of full text retrieval found that "[the Internet]is a viable option for document delivery if used with care." The recent JSTOR (Journal Storage) project, funded by Mellon Bank, to create full-text databases of a number of major journals in the humanities and social sciences in Western languages in the United States is another good example. Information or collection resources can be scanned and "posted" on the Internet for the user to retrieve through the Internet. Once a library collection is converted into digital form and put on line, it becomes accessible to other people and libraries throughout the world.

Retrospective conversion of machine readable records of library materials is essential to the construction of the Global Collection for East Asian studies. The process will
take decades to complete. Almost all the major East Asian
collections in North America have already started converting
their card catalogs to machine readable records, and some of
those retrospective conversion projects have been completed,
or are near completion. As pointed earlier, most of the
Chinese collections in China are not on-line yet. However,
due to the recent rapid development in information
technology in China and the vast human resources there, the
future of retrospective conversion of machine-readable
records in China is bright, though it will take many years,
and enormous human and financial resources.

It would be desirable if the national catalog of Chinese
serials and serial holdings is converted first in this
process to give a head-start to the global information
network initiative. Recently, the Chinese Serials Database
Project was launched between the Australian National
University Library and the National Library of China. This
project, if successfully carried out, will be an important
step towards the building of the global information network.

It is conceivable that in the near future, each East Asian
collection will set up a document processing center with a
wide range of equipment including digital cameras, scanners,
optic fiber transmission lines, computers, document
transmission software, and printers, so that print
information resources can be digitized and transmitted
between the East Asian libraries in North America and those
in Asia. Such a facility may appear expensive, but in the
long run, it is economical. There has been a publishing
explosion in East Asian in the last decade. China alone
publishes about 100,000 titles of books every year now. The
largest East Asian collection in North America today can
purchase less than 10% of what is published in China.
Therefore, document delivery and retrieval will become a
viable means to bring to patrons research literature which
we do not have in-house. With this enhanced document
delivery between North American libraries and Chinese
libraries, we can have access to the enormous collection
resources there. Currently, the demand on the part of the
library patrons for such a service appears to be low, but in
the long run, after the information highway is fully
constructed and better bibliographic finding aids for East
Asian language materials are developed, once library patrons
become aware of such a service, the demand will increase.

In forming a global collection for East Asian studies, we
need to look for help from the federal government, the
governments in East Asian countries, private foundations,
library consortia in the U.S. and Asia, as well as to
library professionals in those countries. It is the time to
start formulating strategies for building the infrastructure of a global collection for the study on East Asia now.

In relation to building up a global collection, library professionals in both America and Asia should join hands to work on the following issues:

- Training and networking of library professionals
- Cooperation in the development of electronic resources in the Global Information Network for preservation such as rare books, manuscripts, and newspapers
- Cooperative cataloging of Chinese, Japanese and Korean materials within North America and world-wide
- Loading and exchange of resource files on national databases, such as the Japan MARC records in OCLC
- Cooperative information services between East Asian studies collections in North America and Asia

5. Conclusion

It is conceivable that in the next century, access to collections and information resources across the Pacific will be just as convenient as it is within the United States today. A long march starts with the first step. It is time for information providers on both sides of the Pacific Ocean to start building such a great collection to provide new access to the world of information resources on East Asia.

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