

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

Newton X. Liu

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

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

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

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

### Introduction:

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

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

---

\* Paper presented at the 62<sup>nd</sup> IFLA Conference in Beijing, 25 - 31 August 1996 in the Open Session of the Section Science and Technology Library: "Management of Science and Technology Journals in a Time of Change"

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

Our work is supported by US and Asian sponsors: the Freeman Foundation, Henry Luce Foundation, Albert Kunstadter Family Foundation, Starr Foundation, AT&T Foundation, American President Companies Foundation, Lynde and Harry Bradley Foundation, Grover Hermann Foundation, United Board for Christian Higher Education in Asia, Lingnan Foundation, Ford Foundation, Committee on Scholarly Communication with China, Cheng Suen Man Shook Foundation, Sun Microsystems, Inc., Apple Computer, Inc., the State Education Commission of China, the United States Information Agency, members of the American Council of Learned Societies, American Association of University Women, National Association of College Stores, and several hundred individual friends of China.

### **Limitations and barriers to access:**

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

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

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

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

### **Information-transfer stations (ITS):**

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

An ITS consists of:

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

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

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

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

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

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

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

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

### **Examples of requests from China and Russia:**

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

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

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

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

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

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

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

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

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

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

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

Huangxd@BEPC2.IHEP.AC.CN

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

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

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

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

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

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

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

Dr. Huang Xiangdong  
Institute of Medical Information  
27 Taiping Road,  
Beijing 100850,  
China

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

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

Sumr 1996 v13 n3  
25p

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

Newton X. Liu, Ph.D.  
Vice-President, Bridge to Asia  
1214 Webster Street #F  
Oakland, California 94612  
USA