

THE STATUS OF LIBRARY AUTOMATION AT
THIRTEEN USIS POSTS

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ABSTRACT

This report summarizes the state of library automation in thirteen USIS libraries around the world and makes recommendations for future automation activities. The information for the report was gathered during a seven month period from January-July 1989. In addition to individual reports on each of the thirteen libraries, reports are included which summarize automation activities by region: East Asia, American Republics, and Europe.

INTRODUCTION

In early 1988, the U.S. Information Agency's Library Programs Division realized the necessity of providing on-site training and evaluation of library automation activities in U.S. Information Service libraries abroad. This consultant was asked to spend approximately six months visiting USIS libraries to accomplish several objectives:

1. Review the state of library automation at the selected libraries.
2. Make recommendations for the future direction of automation in the libraries.
3. Train the staff of the libraries in the use:
 - a. Personal computers
 - b. Personal computer operating systems
 - c. Word processors
 - d. Spreadsheet programs
 - e. Database Management Systems
 - f. Telecommunications access programs
 - g. Library automation programs
 - h. Compact disc (CD-ROM) database systems
 - i. Local Area Networks

From two to nine days were spent at each Post. That time was devoted to discussions with the staff on automation problems, training, and planning for future automation. The appendices to the thirteen reports summarize the specific activities that were performed at each Post. The body of the reports analyze the state of automation and future automation activities. The reports are grouped by geographic region and a regional report summarizes the issues for that area.

Library Automation in USIS East Asia Region—A Summary

INTRODUCTION

During January-March, 1989 a consultancy visit was made to four USIS libraries in East Asia to assess the state of automation and to provide training and technical assistance. The project was initiated by E/CL in Washington and the visits were funded by E/CL, the East Asia Area Office in Washington, the individual posts, and one Regional Library Office. Visits ranged from four to nine working days and included stops in Seoul, Hong Kong, Jakarta, and Bangkok. A report was prepared for each Post and has been forwarded to the E/CL training officer, the Library Director, the Public Affairs Officer, and, where appropriate, to the Cultural Affairs Officer the Center Director, and the Regional Library Officer.

This present report has four objectives: (1) to define the goals of a library automation program, (2) to summarize the state of automation at each library visited in the region, (3) to describe the type of managerial commitments needed to continue automation activities, and (4) to recommend specific actions the Area should be prepared to take to continue its library automation program.

GOALS OF LIBRARY AUTOMATION PROGRAM

The Area and the Agency can expect to achieve a number of objectives by providing funds for computerization of libraries. These include:

1. Better control over uses of resources (personnel, time, money, materials).
2. Better or more efficient outreach programs.
3. Better reporting and monitoring of usage by groups such as DRS members and students.
4. More precise library collection development relevant to program needs.

Productivity gains are likely to be made by the introduction of computers. Technical processing activities such as book ordering and cataloging can be performed more efficiently with computers and managerial and financial control can be more easily exercised. In the area of public service activities such as checking books out to users (circulation), cost savings are a reality and control over the use of the library book collection can be carefully monitored. Improved user access to library books can be achieved through the introduction of a computerized catalog and more complex searches through the catalog can be performed. Thus outreach service to users and DRS members can be enhanced.

Security is also a consideration. With proper backup procedures, the library can have a computerized record of its holdings stored on disks. In case of physical destruction of the premises, the state of the catalog and other files can be restored as soon as new equipment is in place. If automation were not being used, literally years of effort would be required to reconstruct a card catalog.

Finally, if the Agency views its libraries not only as an intellectual resource but a showplace for American technology, the introduction of computers in the libraries fulfills this goal as well.

AUTOMATION SUMMARY

There are a number of library automation activities taking place or under way in the East Asia libraries:

1. Word Processing. Personal computers are being used for tasks ranging from document, note, and cable preparation to storing and printing catalogs of the library's holdings.
2. Spreadsheet applications. Spreadsheet programs such as Lotus 1-2-3 are being used to keep library management statistics and track financial data.
3. Database Management system applications. Computer programs such as Dbase are being used to store, maintain, retrieve, and print bibliographic, financial, and managerial data.
4. Programming. Computer programs are being written to perform library tasks that were previously performed manually or performed using word processing systems. These include programs to print catalog cards, programs to keep track of DRS member statistics of library use, programs to keep files of names and addresses of outreach

contacts, programs to manage library vertical files of information, and programs to manage the book ordering process.

5. Pre-written computer programs are being purchased to perform library functions such as book ordering (acquisitions), circulation, cataloging, and magazine and journal subscriptions (serials) control.

6. CD-ROM. Compact disks containing bibliographic and factual information are being purchased to supplement traditional printed reference materials as a source for information.

7. Online Database Searching. Libraries are making use of complex telecommunications arrangements including local packet switching systems, dial-up lines, leased lines, and the State Department lines to access USIA computers in Washington to search the PDQ database, and retrieve the Wireless file. They are also searching commercial services such as Dialog Information Service, Legislate, and BRS to provide information to ministries, journalists, researchers, etc.

8. Local Area Network development. Bangkok has begun to experiment with an interconnection of several personal computers. This Local Area Network will allow a centrally-located file of data to be shared amongst all machines connected to the network.

For a variety of reasons, some libraries are more advanced in their automation activities than others. The degree of advancement is a function of the availability of knowledgeable staff, the priority placed on automation, and adequate funding. All the libraries visited have, or are just starting, an active program to provide online database searching as a means of answering reference questions. All have begun using CD-ROM's as reference or cataloging tools. Bangkok is an experienced user with pre-written computer programs from Data Trek, Inc. to perform the acquisitions function. Seoul is just beginning to use the Data Trek catalog module and Jakarta is starting to use the acquisitions module. Hong Kong has a highly successful strategy to develop its own programs using the Dbase database management system. Hong Kong and Bangkok both use the Lotus 1-2-3 spreadsheet program for a variety of applications. All the posts either use Wang word processing or personal computer-based word processing systems such as Multimate Advantage, Word Perfect, Wordstar, or Microsoft Word.

MANAGING LIBRARY AUTOMATION ACTIVITIES

There are several essential ingredients for a successful library automation program.

1. Foreign Service Officers need to be concerned, knowledgeable, and interested in libraries and library automation, and need to be willing to support it.
2. Financial support for library automation must be continuous. The time required to develop a successful automation system is long and it is not possible for libraries to do an effective job if they have to rely on year-end monies as a basis for obtaining new hardware or software.
3. Foreign Service National Staff play a crucial part in the equation. They provide the continuity between Foreign Service Officers and they often take responsibility for origination, implementation, and continued development of the automated system. Where there is strong FSN leadership, the automation programs have progressed.

CONCLUSIONS

Some USIS Posts are simply too small to warrant anything besides access to word processing systems. But most can take significant advantage of library automation. The libraries visited during this consultancy are examples of the latter group. They all have reasonably large collections, most are extremely busy with outreach activities, online searching, traditional reference services, and circulating books. Most are filled to capacity with users. Library automation helps them improve their productivity using their limited resources.

Training

What can be done to assist the libraries? Whether they expect it or not, Public Affairs Officers, Cultural Affairs Officers, Center Directors, etc. all will wind up directly or indirectly managing libraries. They need a solid introduction to libraries and library automation, as it relates to their objectives as USIS Officers. This training should include some hands-on training using computers for library automation. There is no doubt that there are innumerable demands on the time available for training and updating these individuals when they are in Washington. Automation programs can only have a successful sustained implementation when the individuals managing them have a good understanding of library automation concepts.

The same thing applies to Regional Library Officers. Many RLO's have not had time during their careers to have their skills updated to include automation. Nevertheless, they are being called upon to advise the libraries they serve on such matters. A significant

increase in the amount of training devoted to automation is called for if more automation progress is to be made.

The front line in automation is the FSN staff. Major training activities have been conducted to insure that almost all FSN staff are familiar with online searching techniques. The results are impressive. Almost without exception, all libraries have at least one extremely knowledgeable individual capable of performing online searching for a user.

The next logical step is for the FSN's to receive the same quality of training in library automation concepts. Without exception, almost all staff involved in automation at the posts visited can benefit from library automation training or an update of their automation skills. This could be accomplished by holding hands-on workshops at each post, or holding regional workshops. Both Hong Kong and Bangkok can contract for excellent training facilities which provide a computer for each class participant. Class size for a regional workshop should be limited to no more than 15 individuals and should last no less than 7 working days. Since some FSN's in the region are more advanced than others, it might be useful to hold an 'introductory workshop' and an 'intermediate workshop'. In each workshop the emphasis would be on learning how to use personal computers and software for library applications. In the intermediate workshop, applications would be developed by class participants using tools such as Lotus 1-2-3 and Dbase. Holding such workshops is an essential step in continuing library automation in the posts. Once a number of libraries in a region are experienced with library automation, another type of workshop could be held - one in which participants exchange and compare experiences using specific library automation packages or general purpose programs for library automation.

Funding

Beside the cost of a training program, there are many other areas that will require funding. Several of the libraries have had their original IBM Personal Computers and accompanying peripheral devices (printers, disk drives, etc.) for four or five years now and they are reaching the end of their expected useful life. These hardware devices will need to be replaced with new machines capable of running the more sophisticated software systems the libraries need. Fully equipped personal computers for library applications with hard disks, color monitors, modems, and printers can range from \$3000 to \$8000 depending on their speed and storage capacity.

Posts will have to consider funding Local Area Networks as more library automation applications require decentralized access to common files of data. The costs of these networks range from \$20,000 to \$40,000 depending on the number of workstations required, and the extent to which existing equipment can be connected to the network.

Likewise, as new versions of existing software systems are released, the libraries must acquire them or run the risk that the applications they have developed will be obsolete when the next cycle of software comes out. This is the reality of library automation. If libraries have a word processing package, a spreadsheet program, and a database management system to update, it is likely to cost them \$300 to \$500 per year in update costs.

If libraries are using the Data Trek modules, they will need to spend \$500 per year for each module to get updates, and receive support services. This is an essential operating cost that must be absorbed. There are a wide variety of costs associated with maintaining subscriptions to CD-ROM database services.

Two of the East Asia libraries already realize that online searching is an essential outreach and internal operating service and management has allocated fair amounts of money per year (\$4000 to \$6000) for this activity. This is a significant step forward, and one that the other libraries will eventually have to take as well.

Not only do the libraries have to pay for searching most online databases, but they have to pay for telecommunications costs as well. No generalization can be made about the cost of telecommunications since it varies widely between locations. Improved access by all Posts to the State Department lines, or developing a better USIS telecommunications system, which libraries could have easy access to, would save money and time.

SUMMARY OF RECOMMENDATIONS

1. Make library automation a line item in the library budget to insure continued funding and a successful automation program.
2. Insure an adequate level of funding for online search services to support outreach program.
3. Insure an adequate level of funding to support purchase of software maintenance contracts for general purpose and library automation packages.
4. Begin to replace ageing IBM Personal Computers with those having improved speed and capacity.
5. Begin planning for implementation of Local Area Networks in larger libraries.

6. Implement low cost methods for telecommunications access to online databases in the U.S. This includes access to the State Department telecommunications lines.
7. Provide training on library automation to Foreign Service Officers to help them understand how it can assist them in meeting their objectives.
8. Provide a library automation training program for Regional Library Officers.
9. Train Foreign Service National staff in personal computer fundamentals; use of word processing, spreadsheet, and database management programs; and telecommunications concepts.
11. Train Foreign Service National staff in use of library automation application programs.

LIBRARY AUTOMATION AT USIS SEOUL

INTRODUCTION

This report has a number of goals:

1. To survey current library automation activities at the USIS Seoul Library.
2. To review the hardware and software available to the Post library.
3. To evaluate the skill level of the library staff and make recommendations for future training, if necessary.
4. To recommend a plan for future automation activities in light of programmatic, budget, hardware, software, and staffing capabilities.

The information for this report was gathered during a site visit of seven days during mid-January 1989, and reflects the status of library automation activities at that time.

LIBRARY OPERATING ENVIRONMENT

The USIS library in Seoul operates in an environment in which security is of particular concern, and that influences the way in which present and future library services will have to be delivered. The consequences of several physical assaults on the library premises has resulted in increased security, a much more rigorous screening procedure for individuals wishing to enter the library, and a decline in the number of individuals willing to come to it. The library has had to, and will continue to have to, expand its outreach services to overcome this situation.

Given this environment, future library automation activities should focus on supporting outreach services, and supporting the library infrastructure to provide these services.

CURRENT HARDWARE CONFIGURATION

The library currently has an IBM PC/XT system with 512 KB of main memory, and a

separate IBM 10MB hard disk unit. Attached to this machine is an Hitachi CDR-1503 CD-ROM disk drive (compact disk), an IBM Proprinter, and a Racal Vadic VI1222 1200 Baud modem. This machine is connected to the USIS Seoul Wang System by a serial connection to access the US Department of State dedicated telecommunications circuit to the United States.

The PC/XT is used for a number of functions: to access the DIALOG Information Service in the US, to access the NEXIS online database in the US, to search the USIA PDQ database in Washington, and to retrieve bibliographic records from the CD-ROM. It is also used as a terminal to access the USIS Seoul Wang Word Processing system.

In addition to the PC/XT, the library recently acquired an IBM PS/2 Model 60 with 1MB of main memory, a color monitor, and a 44MB hard disk. The system has an internal 3.5 inch 1.44 MB floppy disk drive, an external 5.25 inch 360KB floppy disk drive, and an IBM 6157 streaming tape drive for hard disk backup onto 0.25 inch tape cartridges. A bar code reader has been purchased to be used to check out books by reading their bar code labels, and reading the bar codes users library cards. The printer attached to the system is an IBM Proprinter XL-24.

The PS/2 is to be used for word processing, CD-ROM access, and to run library automation application packages.

A Wang terminal is also located in the library to provide direct access to the USIS Wang system for Wang Word Processing.

CURRENT SOFTWARE

The library uses DOS as their operating system for the two machines. The PC/XT runs DOS version 2.1, and the PS/2 runs DOS version 3.3. The communications package used is CROSSTALK, which is used to access the DIALOG service, and a specialized communications package from Mead Data is used to access the Lexis/Nexis database. The PS/2 uses Display Write 4 as its word processing software.

The library subscribes to The Library Corporation's Bibliofile system to provide it with cataloging data from the US Library of Congress on CD-ROM. This subscription allows the library to obtain quality cataloging records on CD-ROM without the expense of retrieving them from an online search. In addition to Bibliofile, the library receives the Public Affairs Information Service database on CD-ROM.

The library has also purchased several computer programs from Data Trek, Inc. These include the Catalog Module, Circulation Module, Acquisition Module, and a module that

will allow bibliographic records retrieved from the Bibliofile CD-ROM to be transferred and used in each of the Data Trek modules. The Data Trek system provides a turnkey library automation system for the small library. The modules are installed in Seoul, but are not operational. When they are running they will allow the library to have an online computer catalog instead of a card catalog, automated book ordering, and automated circulation control.

AUTOMATION GOALS

The USIS Deputy Director (N. Mele) and Cultural Affairs Officer (R. Post) in Seoul both have indicated that future planning priority should be given to library outreach services over traditional walk-in services. They have also indicated the desire that the library serve as a showcase for American library automation technology, and that in the future it would be desirable for library users to be able to search the library's catalog of books online from their office or home rather than coming to the library. The USIS Chief Librarian in Seoul (K. Kim) agrees with the Deputy Director and CAO about an outreach orientation, and also believes there is a necessity to both increase the number of CD-ROM database services the library subscribes to, or increase the funding for online searches to DIALOG, NEXIS, and PDQ.

These goals are consonant with those the library has already established for its automation program. They include the following:

1. Install the Data Trek Catalog Module.

The goal of the library is to replace the existing card catalog with an online catalog. They have chosen the Data Trek system and this is a reasonable alternative, given the size of the library and that USIA E/CL will provide technical support for the system in supplement to that provided by the vendor. E/CL has negotiated attractive purchase prices for the modules from the vendor, as well as fair prices on maintenance contracts.

The process of replacing the card catalog with the Data Trek online catalog will be time consuming and not simple. The library will use the Bibliofile CD-ROM system to locate a catalog record in the CD-ROM that matches one in their card catalog. Then they will edit the CD-ROM record to make it conform to the way the book is currently cataloged in the Seoul library. Then they will transfer the record to the Data Trek DataBridge system which will, in turn, move the record into the Data Trek Catalog module. This operation will be repeated for all records in the card catalog. When it is finished, the library's holding will be available on the IBM PS/2 microcomputer and will be able to be searched

online.

Storing the catalog online means a significant increase in security for the Post. If the card catalog were destroyed it would be a serious problem. If the machine that stores the online catalog were destroyed, a new machine could be purchased and the library's holdings reloaded from a backup tape in a very short time.

When the online catalog is in place, it will offer a number of improvements besides security. It will allow online searching with complex queries. This will improve staff and user access to the collection and improve the quality of reference and outreach service that the library can provide. It will also allow the staff to prepare selective bibliographies which it can then disseminate to its users. The online catalog's capability to do subject searching will allow DRS member needs to be met quickly and comprehensively. Thus it will improve outreach activities by providing personalized service to individuals, research institutions, and other libraries in Korea.

2. Install the Data Trek Acquisitions Module.

Book ordering procedures used by the Seoul library rely on manual files of information. The library places almost all its orders for library materials from the Agency's E/CP branch in Washington. It used to rely on Wang List Processing to automate some of the process, but the Wang system was not able to handle the large files of information.

The Data Trek Acquisitions Module should be installed and used to manage the ordering process. It will give the library significant control over the materials that are on order and will allow the library to send claims to Washington when orders have not been received in a timely manner. It will also automate fund accounting at the library. The library will be able to know how much money it has spent for any number of categories of materials (library materials, staff use books, presentation materials, materials by branches, etc.) and will be able to produce management reports to track expenditures.

The system is used by entering ordering information about an item into the system. This includes data such as the author, title, publisher, price, fund account to be charged, quantity to order, and vendor to supply the item. The system would then produce a printed order and record the accounting transaction in the system. When the book arrives, the order information would be updated and the accounts adjusted. If the order does not arrive, a claim letter could be automatically produced.

3. Install the Data Trek Circulation Module.

The library circulates relatively few titles per day (about 50). Nevertheless, for control

and visibility purposes, it might be useful to install the Circulation module. The procedure for installation involves issuing each library user a library card with his or her name on it and a bar-code label on it as well. Each book in the library would also have a bar coded label pasted into it. When the user checks out a book, the staff member would wave the bar code reader over the user's library card and the label in the book, and the book would be checked out by the system to the user.

The library will have to create and maintain a database of all active users in the Data Trek circulation system, and will also have to bar-code each book. This will take time. The benefits to the library of the procedure will be to have better control over who has checked materials out so that borrowers do not abuse their borrowing privilege, improve staff effectiveness in performing circulation processing, and let the library know what parts of the collection are and are not being circulated. The benefits to USIS are that automated circulation is a very visible automation activity and users are impressed with it. Automated circulation systems are very common in public and college and university libraries in the US.

FUTURE AUTOMATION ACTIVITIES

With the current equipment, the library should be able to do all the retrospective conversion of its card catalog into the new online catalog, install and operate the acquisitions system, and install the circulation system by entering user name and address information into the system, bar-coding the books and issuing new library cards. However, this will only be a partial step toward automation. In order to complete the process, the library will need to replace its PC/XT with a PS/2, and buy at least one more PS/2. The reason for the additional purchase of machines is that the library needs to set up a Local Area Network to interconnect the machines so that a number of users can have access to the online catalog, and the other Data Trek modules, at the same time. For example, one microcomputer might be located at the circulation desk to allow book check-out, another located in the technical processing department to allow cataloging of materials, one located at one reference desk to assist in answering telephone queries, and at least one located where the former card catalog used to be to allow user queries to the online catalog. All the microcomputers would be connected together by the Local Area Network so they could access the same database.

Local Area Networks (LAN's) are not cheap. They require an additional operating system, additional circuit boards installed in each microcomputer, and coaxial cabling between machines. It also takes a reasonable level of expertise to manage a LAN. The library has from six months to one year of work to do all the data entry necessary to build an online catalog, do the bar-coding, and put the user records into the circulation system. At the end of that period the library should be ready for a LAN.

If the library proceeds with the installation of a LAN, it will be possible to have access to the online catalog via modem. Data Trek sells an additional module for a nominal fee (about \$200) which will allow user access to the Catalog system. The library can put certain controls on access via modem. The only negative aspect of this arrangement is that one microcomputer, which is part of the LAN, must be dedicated to the task.

ADDITIONAL LIBRARY AUTOMATION ACTIVITIES FOR USIS SEOUL

Although the library has a heavy agenda for library automation in the next year, there are a number of other functions that the library could perform with existing hardware and a minimal investment in software. These include using a database management system for storing data files, using a spreadsheet program for budget and financial applications, using a PC word processing program to allow integration of bibliographic data with text without re-keying, and continuing to expand the use of CD-ROM products as a substitute for online searching some databases.

Database Management System Applications

The library does not currently have any computer programs for its microcomputer to allow it to manage files of information that are not bibliographic in nature. All libraries keep a certain number of files of information and many are using database management systems such as DBASE III+ or DBASE IV on their personal computers to help with this. The USIS Seoul library does not yet have such a software package, and it seems very useful to acquire one and begin training staff in its use.

Spreadsheet Applications

One of the most popular programs for personal computers is LOTUS 1-2-3. This program emulates the accountant's spreadsheet and lets the user maintain numeric data with ease. The program is used in libraries for maintaining budget information, summarizing library usage statistics, and a host of other financial transactions. It is recommended that the Seoul purchase a copy of the program, train themselves in its use, and begin to integrate it into their work routine when appropriate.

Word Processing Applications

Like many other USIS libraries, Seoul relies on Wang Word Processing and List Processing for much of its typing. As the library moves into the use of the Data Trek system, more and more of its bibliographic data will be available online in the Data Trek cataloging module. Many documents that the library produces combine text with bibliographic data. It is possible to move data from the IBM PC's and PS/2's to the Wang Word Processing system, but it is difficult and somewhat awkward. A better solution is to perform word processing on the IBM personal computers for products that will combine text and bibliographic data. For documents that only consist of text, the library could continue to use the Wang system.

If the library adopts this strategy, they need to learn to use a word processing package on the IBM personal computers. The library recently purchased Display Write 4. This is a sophisticated package that emulates the functions found on the IBM Displaywriter stand-alone word processing hardware. This package may be fine for the library, but if they find it unsatisfactory, the most respected and widely used package on the market today is Word Perfect, which they might consider as an alternative.

CD-ROM Applications

The library currently uses the Bibliofile and PAIS databases on CD-ROM instead of searching them online. They may need to determine whether to subscribe to more, such as WILSONLINE, since there are a number of others that can be obtained on CD-ROM. It is a difficult economic decision to determine whether to purchase a CD-ROM database or use an online (DIALOG) search to accomplish the same goal. Factors involved in the decision include the frequency of use of the database, cost of the CD-ROM subscription, cost of the online search, improved access provided by one media versus the other, and frequency of updates of the CD-ROM product.

ADDITIONAL HARDWARE

A major investment in additional personal computers will be required to support the Local Area Network discussed earlier. Aside from this, it appears that the only additional piece of hardware that the library needs is a high quality laser printer. This will make the products produced by the library much more attractive, and will be much quieter than the

IBM Proprinters they currently have. The Hewlett Packard LaserJet Series II printer is the standard in the field for microcomputer applications that do not involve printing graphics (as opposed to text). If the library plans to move into the area of desktop publishing, they should consider one of the Apple LaserWriters.

TRAINING

The library will be installing the Data Trek system in the next year and this will require a comprehensive training program for the staff. The staff will need to be trained in the following systems:

1. The IBM Disk Operating System (DOS). The chief librarian is familiar with DOS, but the rest of the staff need to understand DOS fundamentals.
2. The Data Trek modules including Catalog, Acquisitions, and Circulation. The technical processing staff need to become familiar with the data entry aspects of the Catalog module, and all the staff needs to understand how to use the query language of the catalog. The technical processing staff and the chief librarian need training in the acquisitions system so as to be able to place orders, produce reports, and query the on-order database. The staff member in charge of circulation needs detailed training in the Catalog module and the rest of the staff need to know how to operate the system.
3. The Bibliofile CD-ROM system. The technical processing librarians need additional training in the Bibliofile system, and the rest of the staff needs to know how to use it as a reference tool.
4. DBASE. The Chief Librarian has received training in DBASE. He should be able to begin using the system and train the other staff members, as appropriate, in its use.
5. LOTUS. The Chief Librarian has had training in the use of Lotus 1-2-3 and should begin to use it for financial and statistical applications once it is purchased and installed.
6. Word Processing. Most of the staff already know the Wang Word Processing system. Thus they should be able to install and use an IBM personal computer word processing package without additional training.
7. LAN Operations. The Chief Librarian should begin taking courses in local area network management in anticipation of the possible installation of a library LAN.

STATUS OF LIBRARY AUTOMATION AT THE POST

The library has been using its personal computers for some time to do online searching, and to access the CD-ROM databases.

It has done a preliminary installation of the Data Trek modules and has configured these modules for library use. It has not yet made any of the modules operational. It needs to begin retrospective conversion of its card catalog, using the CD-ROM, Databridge, and the Catalog module. It needs to begin using the Acquisitions Module, and begin issuing new library cards and attaching bar-coded labels to books. It also needs to begin using a database management system to maintain some of its files, to use a spreadsheet program for its budget applications, and shift some of its word processing applications to the IBM personal computers as appropriate.

If the library decides to proceed with the installation of a local area network, it needs to procure the necessary hardware and software, and train the staff in LAN installation and management.

If the library decides not to proceed with the installation of a LAN, the Data Trek programs can still have a significant impact on library operations. For example, the Catalog module has the capability of producing catalog cards which can be interfiled into the existing card catalog. The system still has the ability to produce selective bibliographies and do complex subject searching. What will be missing is the ability of online access for more than one person at a time to the system.

APPENDIX

SPECIFIC TASKS ACCOMPLISHED DURING USIS SEOUL VISIT

The following is a list of specific tasks for which assistance and training was provided to the Chief Librarian during the site visit:

1. Reconfigured PC/XT's and PS/2's hard disks to put software in subdirectories.
2. Reviewed the use of the EDLIN editor.
3. Reviewed the concept of autoexec.bat files.
4. Built autoexec.bat files for XT and PS/2.
5. Customized CROSSTALK for SEOUL environment.
6. Installed LEXIS/NEXIS communications software on XT's hard disk.
7. Installed the SY-TOPS tape backup software on the PS/2 and customized it for the library.
8. Reinstalled the Data Trek Catalog module on the PS/2 and customized it.
9. Updated the Catalog module from version 4.1 to 5.0.
10. Updated the Catalog module from version 5.0 to 5.0 updated.
11. Reinstalled the Data Trek Circulation module on the PS/2 and customized it.
12. Reinstalled the Data Trek Data Bridge module on the PS/2 and customized it.
13. Customized the Bibliofile software to allow catalog record editing in line with library requirements.

The following tasks should have been completed, but there was insufficient time during the visit:

1. Install the Data Trek acquisitions module and customize it.
2. Practice taking bibliographic data from the Data Trek catalog module and inputting it into a word processing document.
3. Install the Bar Code Reader hardware for the Data Trek Circulation module.
4. Practice using the Display Write 4 word processing software.
5. Further practice with the tape backup system.

LIBRARY AUTOMATION AT THE AMERICAN LIBRARY HONG KONG

INTRODUCTION

The American Library in Hong Kong has taken an innovative and unusual approach to library automation in comparison to other USIS libraries. Rather than rely on computer programs written by others for library automation activities, the American Library is using existing computer software packages, such as the DBASE IV database management system, and developing programs to suit their needs. The applications they are developing are far from trivial, and the results are excellent. The library should be considered as a model for an alternative style of automation which should be promoted just as is the use of pre-written computer programs for library automation.

This report summarizes the result of a four day visit to the library during January 1989 and reflects the status of library automation at that time.

CURRENT HARDWARE AND SOFTWARE CONFIGURATION

The library has two personal computers. The first is an IBM PC/XT with 640K of main memory and a 20MB hard disk. This machine has an Hitachi CD-ROM drive attached to it, as well as a Racal Vadic 1200 baud modem. An Epson printer is used for normal quality output and an IBM Selectric Typewriter can also be used for high quality output. The machine runs under the DOS Version 3.3 operating system. It is used for online searching, CD-ROM access, card catalog printing, and document preparation.

The second machine is an IBM PC/AT with 640K of main memory and a 30 MB hard disk. This machine has an Enhanced Graphics Adapter and Color Monitor. Attached to it is a Hewlett Packard LaserJet Series II laser printer. This machine also uses the DOS 3.3 operating system.

The library makes use of a number of software packages in its daily operations. The communications package used on the XT is Crosstalk. It is used to access the DIALOG information service through both the State Department lines and through the Hong Kong Cable and Wireless Company packet switching network. The later system connects into

the TELENET system in the US.

Among the databases that the library accesses are PDQ and LEGISLATE. The library also uses the DIALOG DIALMAIL electronic mail system for communication with E/CL and other posts.

The software package used for word processing is Multimate Advantage. Almost all correspondence and reports (cable drafts, letters, video-cassette lists, periodical lists, monthly newsletters, etc.) produced at the library are prepared using Multimate and are printed on the laser printer. The library recently acquired the Adobe Corporation Page Maker desktop publishing software and is just beginning to use it for high quality presentation of its alert lists and other documents. The visual impact of the products emanating from this package will be very high.

The Lotus 1-2-3 spreadsheet program is used in the library for financial applications. The library keeps a cuff account of day-to-day expenditures in a Lotus spreadsheet. It also keeps a list of purchases and their amounts made from each Books and Documents list issued.

The BIP+ software package along with compact disks of bibliographic citations are used with the library's CD-ROM reader to locate citations of items to be ordered, to search Books in Print using the compact disk, and to obtain cataloging copy for use in printing its own catalog cards, if necessary.

DBASE APPLICATIONS

The library makes extensive use of the Dbase III+ and Dbase IV database management system in its library automation program. The following list summarizes the applications of Dbase and the types of reports it produces from each application.

1. Library user information.

Each person who wishes to use the American Library must complete a registration form. The library keeps a Dbase database of all information the user has entered on the registration form. It records data such as the user's name, library card number, home and business address, Hong Kong Identification Number, gender, education level, and profession. The database is used to verify that the user is authorized to enter the library, and that the user can borrow materials from the library. It is also used to prepare statistical analyses on the types of individuals that the library is serving, and to prepare mailing labels for letters to users. Since the database stores user interest codes, the

library does not now, but could easily use it to generate lists of members arranged by interest codes. This would allow easy determination of which users might be interested in particular pieces of outreach material.

2. Alert lists.

When the library supplies information to one of its users it records the nature of the request, the user making the request, the date of the request, the type of material supplied, and other information about the request in a database. This information is summarized in a number of ways each month using various Dbase programs. The information is used by the Chief Librarian to understand user information needs and it is also sent to the American Consulate's office in Hong Kong, so that the Consulate can update its files on DRS members. Some of the statistical analysis that the library performs on the alert list database couples (joins) the user database with this database. This is an excellent design approach and avoids storing duplicate data in more than one database.

3. Acquisitions database.

Almost all materials the library orders for its collection comes from selections made through the E/CL Books and Documents list. Like other posts, the library sends an order for materials by cable and awaits arrival of the ordered items. When materials are ordered, the library enters information about the order into its acquisitions database. This database contains the title and author of the item ordered, its call number, year of publication, the ISBN of the item, publisher, price, the Book and Document number, the date ordered, and the date received.

From this database the library produces lists of items on order, items ordered and received, and items ordered from specific Book and Document lists. It is able to summarize its expenditures for any period of time and summarize expenditures on a particular Book and Document list. The library plans to enhance the database to include the Dewey subject code of the material ordered so that it can summarize expenditures by broad subject area. The database can be sorted by order date to produce a list of items ordered but not received. This database provides an expedient method of managing and controlling the acquisitions process.

4. Want List and Replacement List.

A database is maintained of items the library would like to purchase, but currently lacks sufficient funds to do so. Another database is maintained of titles that need replacing should funds become available. These databases are similar in structure to the acquisitions database described above. All three databases could be combined into one if the library desired. All the library would need to do is include a new field in the acquisitions database indicating an 'order category'. This field could be marked as 'o' for

ordered, 'w' for wanted, or 'r' for needing replacement. When an item shifts status, the order category field could be updated instead of transferring the record from the want list or replacement list database to the acquisitions database.

5. Catalog Cards.

Many of the items the library receives come with catalog cards that can be immediately filed into its card catalog. Some material does not come with catalog cards, and the library uses the PC/XT and the CD-ROM with the BIP+ software and compact disks to obtain a complete bibliographic citations. The bibliographic data is then entered into a Dbase database. The library staff has written a Dbase program to print catalog cards from this database.

The current card printing process is somewhat cumbersome because of the difficulty of writing a card printing program. With the conversion to Dbase IV, better tools are available for printing and it appears that the process will be considerably streamlined. One problem still remains. It would be desirable to take the citations from the CD-ROM and transfer them directly into the Dbase database rather than re-keying them. This problem is being investigated and hopefully there will be a solution. One obvious answer to reducing the effort of re-keying is to have the BIP+ program produce the catalog cards rather than the Dbase program. This alternative was not pursued, and there may be a good reason why the library does not feel it is appropriate. If it were used, the library would still have the problem of not having its own Dbase file of bibliographic records, but would only have a file in the BIP+ format.

The catalog database is used to produce catalog cards, a list of new acquisitions to the library, and various lists of holdings based on author, title, etc.

6. Video Cassette Recordings.

Prior to the installation of the Dbase IV software, the library used Multimate Advantage to maintain a catalog of video cassette records. This catalog was simply a word processing document in which the library entered each new cassette as it arrived. The catalog was arranged by broad subject headings and the citations to the recordings were arranged alphabetically within each subject heading. During the consultation period it was decided that this catalog should be converted to a Dbase application. A Dbase structure was developed which enhanced the original catalog by allowing a cassette to have up to three subject headings assigned to it. In addition to the subject headings, the Dbase structure for the catalog holds the title of the recording, its call number, the duration of the recording, an indicator of whether the recording is in color, the year of the recording, and an annotation of the content of the recording.

With the use of a text editor and some programs written in the 'C' programming language,

the Multimate file of more than 300 records was successfully converted to Dbase IV. Programs were then written to allow the each record in the database to be printed under more than one subject heading. A number of other programs will have to be written to be able to print out the catalog in a variety of formats, but the skeleton is now in place and the staff should have little difficulty continuing with the implementation. The advantage of Dbase over Multimate for this application is the ease of maintaining the database and more flexibility in formatting and printing the catalog for future uses.

7. Periodicals List.

A list of all periodicals received by the library is maintained in a Dbase file. This file stores the name of the title, the frequency with which it is issued, subject headings assigned to it, and an abstract of its contents. The library produces listings of current holdings by tile and listings by subject. Some reports include abstracts with the title listings, and others do not.

FUTURE AUTOMATION ACTIVITIES

The future automation activities of the library can be classified into short and long range goals. In the immediate future (one year) the library has a number of improvements and enhancements that it can make to its existing Dbase applications. It has a considerable amount of data stored in its Dbase files and it has only scratched the surface in taking advantage of that data to produce management reports and bibliographic tools. With the installation of Dbase IV, it should be considerably easier to develop new reports from existing databases.

To support the immediate goal of making more productive use of the Page Maker desktop publishing system, the library will need to acquire additional type fonts for its laser printer. The most economic alternative is to purchase 'soft fonts' and an installation kit that will allow these fonts to be used with both Page Maker and Multimate. The library could use a text editor such as Kedit to simplify its task of writing computer programs and performing day-to-day text editing chores.

The library is thinking about the need for a Local Area Network to interconnect several personal computers. The goal of such a network would be to allow more than one workstation to access a Dbase file at the same time. Local Area Networks are expensive to install and require a certain level of sophistication to operate. Nevertheless, the library should begin planning for such a network. If it does install a network, it might want to consider installing a software package that would allow it to have an online catalog

instead of a card catalog. Given the size of the collection, this may not be a reasonable idea. But, if in the future the library decides it would be worthwhile, it might be a good idea to collect on disk all the citations from BIP+ that it is adding to its collection so that conversion to an online catalog would be aided by the existence of the full bibliographic records in machine-readable form.

TRAINING

The staff has made considerable progress in library automation with minimal investment in training. Since they have gone so far with so little formal class work, it seems appropriate to invest in training them in the use of some of the tools they rely heavily on. All of the staff who have responsibility for Dbase applications development should consider taking courses in Dbase programming. It also may be appropriate for one or two staff members to take a course in using the Page Maker software package.

SUMMARY AND CONCLUSIONS

The American Library in Hong Kong is doing an excellent job in its library automation activities. The report contains suggestions for enhancements of some of its applications. In general the library deserves nothing but praise and managerial and financial support for the direction it is currently taking, and the way it has organized its staff to share in the library automation responsibilities.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED DURING CONSULTANCY IN HONG KONG

1. Modified PATH statement in autoexec.bat file.
2. Provided tutorial on the use of the EDLIN editor.
3. Modified Crosstalk communications package profiles to provide more expedient access to the Cable and Wireless packet switching system and to the Legislate database.
4. Assisted in the installation of the Dbase IV software package.
5. Provided training in the Dbase IV system.
6. Helped convert the Dbase III+ membership database applications to Dbase IV.
7. Helped convert the Dbase III+ catalog card printing application to Dbase IV.
8. Converted the Multimate Advantage Video Cassette word processing file to a Dbase IV application.
9. Provided a skeleton Dbase program to use in printing the Video Cassette file.
10. Provided training in uploading and capturing files while using the Crosstalk communications system.
11. Gave a tutorial in the use of the Kedit text editing program.
12. Discussed the use of soft fonts in laser printers.
13. Reviewed long range automation plans with Chief Librarian.

LIBRARY AUTOMATION AT THE USIS ZORINSKY LIBRARY JAKARTA

INTRODUCTION

The Zorinsky library in the American Cultural Center, Jakarta, Indonesia is just beginning to use computers for library automation. It has acquired one personal computer and has another on order. It has opportunity funds available for the current year to embark on an automation program, but continued financial support at the same level in succeeding years is not guaranteed. Thus the library is in a unique position to make effective use of automation, but careful planning will be required to sustain it.

This report reviews the status and plans for automation at the library as of February 1989. The information was gathered during a seven day visit to the library.

CURRENT HARDWARE AND SOFTWARE CONFIGURATION

The library has an IBM PC/AT personal computer with 1024KB of main memory and a 30MB hard disk. The machine has a Racal Vadic VI 1222VP modem attached to it and an Hitachi CDR-1503S CD-ROM compact disk drive. A C.Itoh dot matrix printer, Model M1550+, is used for output. The system uses DOS 3.2 as its operating system. A comprehensive collection of software packages has been purchased and installed on the machine. These include Multimate Advantage II, Lotus 1-2-3 Version 2.01, and Dbase III+. Crosstalk will be used as the communications package on the machine, but the library also has the DIAL LINK package from Dialog Information Services available.

The library has ordered a Wang 386 Personal Computer with 2MB of main memory. It has yet to be decided whether this machine will be used for access to a comprehensive set of compact discs containing reference materials or for technical processing activities. Included in the order is a Wang Laser Printer. The Page Maker software has just been purchased to be used on the machine for desktop publishing.

Most library automation software that is supported by USIA E/CL runs on IBM Personal Computers and compatible machines. The library has received assurances that the Wang 386 is compatible with IBM PC's. If this proves not to be the case, the library should try and exchange the machine with another unit in Jakarta and replace it with an IBM

machine. There is limited experience with the use of Local Area Networks in USIS libraries. If the Zorinsky library decides to pursue the use of a LAN, they should verify with the library automation software vendor that the software will run on a network that includes both IBM and Wang PC's and that the network circuit boards will operate correctly in the Wang PC.

The Zorinsky library is a modern facility located in the American Cultural Center on the third floor of a high-rise building in central Jakarta. Also located in the same complex is the offices of the Educational Advisory Center which has its own Epson personal computer. The director's office in the Cultural Center has a Wang Personal Computer which is used for Center-and Library related word processing. The library technical services department also has a Wang Personal Computer. None of the machines in the Center are hard-wired to the USIS offices located in the U.S. Embassy, a few miles away, due to the high cost of a dedicated telecommunications line in Jakarta. The Center does have a FAX machine which is used for other types of communications.

COMPACT DISK REFERENCE MATERIALS

An extensive set of information services on compact disk (CD-ROM) has been purchased by the library. These include the Microsoft Bookshelf which contains databases such as a thesaurus, dictionary, quotation file, zip code directory, etc. The Grolier Electronic Encyclopedia, Public Affairs Information Service (PAIS), McGraw Hill Science and Technology Reference Set, ERIC, Wilson Social Science Index, and Wilson Readers' Guide are also available on compact disk. For assistance in book ordering, the library has purchased the Bowker BIP+ package which gives them bibliographic citations on compact disk.

The purchase of these disks makes the Zorinsky Library the largest repository of such materials in Indonesia. CD-ROM vendors have already begun asking the library if they may bring clients into the facility to receive demonstrations of this new storage medium. A major goal of the library is to be a showcase for American technology and the successful installation of the CD-ROM products promotes this goal.

From an operational standpoint, having a number of CD-ROM disks from different vendors requires the staff to develop expertise in searching each of them. There is no common search language to access the databases, and thus there will be no small investment in time for the reference staff to become proficient with them.

One problem the library must resolve with the introduction of CD-ROM's is whether to

continue to update some of the compact disks as revised versions of the material stored on them become available. Another problem is whether to discontinue subscriptions to bound volumes of reference works, such as Books in Print, in preference to the compact disk version, when duplications exist. Finally, the library must integrate the use of the CD-ROM products into its reference service to make sure it is used just like any other reference tool.

The library has two categories of CD-ROM products: those used as reference tools and those used to support technical processing activities such as acquisitions and cataloging. It may be necessary for the library to purchase another Hitachi CD-ROM reader so that the two activities can take place on two different machines and thus not interfere with one-another.

LIBRARY TECHNICAL PROCESSING SOFTWARE

The first steps in library automation will be taken using Data Trek Inc. book ordering system (the Acquisitions Module) and its software package that lets bibliographic records be transferred from the BIP+ compact disk to the acquisitions module (Data Bridge). Since the book budget and book ordering volume has increased substantially in the last year, it seems quite appropriate that the library has begun automation with an acquisitions system.

During the consultancy visit, the Acquisitions module was installed and two staff members trained in its use. After the training was completed, the two individuals seemed to have a firm understanding of it and were already beginning to use it for ordering library materials from vendors. In comparison to other Posts where the system was installed, this one will very likely continue to use it after a trial period, and will understand the concepts underlying it.

The result of implementing this system will be improved effectiveness and better control over the acquisitions process. The nature of the system will minimize the number of duplicate orders for materials that are placed, and this will reduce costs.

During the installation of the Data Trek Data Bridge module a problem with the software was discovered. This prevented full installation, but the procedures for installation were reviewed, and there is no reason to believe that the system will not be fully operational in a few weeks once the vendor takes corrective action. Once this system is installed, the library will be able to search for bibliographic citations on the BIP+ CD-ROM system and load those citations into the Acquisitions system. This will reduce the need for re-keying the citations into the ordering module. The BIP+ CD-ROM software appears more suitable for selecting titles to be ordered than as a source for cataloging copy. In

addition, there seems to be a compatibility problem between the form of the records produced by BIP+ and the form of the records that can be accepted by Data Bridge. Thus it is recommended that the library acquire the Bibliofile Cd-ROM system and use it as a source for cataloging copy.

At the same time the library is capturing citations from BIP+ to use in ordering, it should save them for future use. If the library subsequently decides that it wants to use the Data Trek Catalog module, it can use the files of bibliographic records from BIP+ to load into the Online Catalog. The Acquisitions module allows records to be transferred to the Catalog module, but the acquisitions system does not hold as extensive a set of bibliographic fields in it as does the Catalog module. Thus it is to the library's advantage to save the selected BIP+ records for future introduction into the catalog module. What is required here is a manual procedure to support saving the data captured from BIP+.

A reasonable additional purchase for the library is the Catalog Module. Given the size of the library, it probably does not make sense to replace the card catalog with an online catalog - which the Catalog Module allows. The Catalog module does allow printed listings of bibliographic records to be produced of such things as new additions to the collection. It also allows the library to print its own complete catalog card sets (author, title, subject, added entries, etc.) so that it does not have to wait for its book jobber to supply the cards and can get the materials on the shelf without waiting for its own catalogers to perform the task. The library's outreach service can be enhanced by implementing the Catalog module, since it will allow the library to perform customized and complex Boolean searches of the online catalog for specific DRS member needs.

PERSONNEL AND MANAGEMENT

The library has several staff members who have varying degrees of expertise with personal computers. The head of the Educational Advisory Center, while not a member of the library staff, has two years experience as a Dialog searcher and can be used as a resource in advising the library on automated reference services. Three other members of the staff have used personal computers in both library and non-library settings and have a basic familiarity with machine concepts, but not a detailed understanding of personal computers. Several senior library staff including the library director have had little or no exposure to machines and are not involved in the library automation activities. A Regional Library Officer (RLO) is located in Jakarta and has an office in the Zorinsky library. She spends almost half her time providing support functions to other posts in the area, but does provide consulting to the Jakarta library. The current RLO has recently arrived and is enthusiastic and interested in automation. She promises to provide the support and encouragement the library needs to make progress in automation. However,

since she has numerous other responsibilities, she will not be available on a continuing basis to provide assistance, and the library must develop its own expertise.

It appears that the previous RLO stationed in Jakarta did nothing to encourage library automation, and thus the Post is considerably behind other USIS libraries in automation.

A consequence of the current level of staff expertise is that the library will need to plan an extensive training program to bring all staff up to a basic level of competence in the use of personal computers. If the library continues to automate, almost all the staff will have to use machines to accomplish their jobs. Thus it is recommended that the staff receive training in personal computer fundamentals. This training could involve formal courses as well as training conducted by other staff members. Those individuals who will have to develop new applications or modify and update existing ones need more extensive training on DOS fundamentals, the use of Lotus 1-2-3, Dbase, and data communications fundamentals. It is essential that the library develop in-house expertise with personal computers in order to solve its own problems. Once this expertise exists, new applications can be developed and used in the library.

If the library develops staff expertise in the Dbase Database Management System, there are a number of applications that could be developed to support its goals. These include keeping a database of library users, keeping financial records, and keeping a log of reference and outreach activities.

SUMMARY AND CONCLUSIONS

The Zorinsky library is just beginning to use library automation. It will need to concentrate on staff training in all aspects of the hardware and software systems it has purchased in order to make progress. The use of the Data Trek Acquisitions and Data Bridge system along with BIP+ is a good first step in the automation of technical processing activities. And the acquisition of the extensive set of CD-ROM products is an excellent beginning to provided automated reference services. A next logical step is to develop a long range plan for automation of the library considering varying levels of staffing and funding. The plan might consider alternative roles for existing staff along with the effect of retirement and staff attrition.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO USIS JAKARTA ZORINSKY LIBRARY DURING CONSULTANCY

The following is a list of specific tasks for which assistance was provided to the library:

1. Reformatted PC/AT hard disk and reloaded DOS 3.2 Operating System.
2. Provided tutorial on the use of the EDLIN editor.
3. Reviewed the use of the PATH statement and subdirectory concepts.
4. Helped install Dbase III+ database management system.
5. Helped install Lotus 1-2-3 spreadsheet program.
6. Helped install Multimate Advantage II word processing program.
7. Helped install Data Trek's Acquisitions Module.
8. Provided training in the use of the Data Trek Acquisitions Module.
9. Helped install Data Trek's Data Bridge Module.
10. Provided training in the use of the Data Bridge module.
11. Helped library select, install, and test an expanded memory board to increase PC/AT's main memory from 512K to 1024K.
12. Customized the Crosstalk communications package for use with the SKDP packet switching network in Indonesia.
13. Provided training in the use of Crosstalk with the SKDP network.
14. Provided training using DIALOG Information Services through SKDP.

15. Helped install the Microsoft Bookshelf CD-ROM software system.
16. Helped install the BIP+ CD-ROM software system.
17. Helped install the Grolier Encyclopedia CD-ROM software system.
18. Helped install the McGraw Hill Science and Technology Reference Set CD-ROM software system.
19. Helped install the PAIS CD-ROM software system.
20. Helped install the Dialog Dial Link communications software.
21. Helped install the Dialog On Disk CD-ROM software system for searching ERIC.
22. Helped install the Wilson Social Science Index and Readers' Guide CD-ROM software system.
23. Provided training in the use of the Kedit text editor software.
24. Provided training in the use of the DOS BACKUP and RESTORE disk management programs.

Due to time limitations, the following tasks were not completed:

1. Provide Dbase tutorial.
2. Provide Lotus 1-2-3 tutorial.
3. Complete the Data Bridge installation.
4. Test the integration of the BIP+ CD-ROM system with word processing or text editing software.
5. Customize Multimate for library use.
6. Customize Lotus 1-2-3 for library use.
7. Provide tutorial on the use of the DOS VDISK command.
8. Complete the testing of the Microsoft Bookshelf CD-ROM software system.

LIBRARY AUTOMATION AT THE AUA LIBRARY BANGKOK

INTRODUCTION

The American University Alumni (AUA) Association Center in Bangkok provides a number of functions to the community. One is operating a library for USIS. The library is located in the AUA Building which is physically separate from USIS offices and from the US Embassy. The library is on two floors in the building and is heavily used. The library staff has been using computers for a variety of functions for several years and has integrated computing into the normal work flow of the organization. A number of the staff have had some training in the use of Personal Computers and/or library applications on PC's. Thus the library is experienced with the use of machines, and now in a position to develop new applications. The consultancy visit provided assistance in the installation of the Data Trek Catalog Module, installation of a Novell Local Area Network, and reviewed some of the problems the library is having with existing applications.

HARDWARE AND SOFTWARE CONFIGURATION

Over the years, the library has acquired three Personal Computers that are used for automation activities. It has an original IBM PC with two 360KB 5.25" disk drives, a color monitor, and 640K of main memory. This machine has a Tallgrass external 24MB hard disk. The Tallgrass unit also contains a 0.25" tape backup unit. The PC has an Hitachi 1502S CD-ROM disk drive attached to it and a dot matrix printer. It is mainly used for word processing activities and searching CD-ROM.

The second computer is an IBM PS/2 Model 50 with 640K of memory, a 1.44MB 3.5" floppy disk drive, a 360KB 5.25" floppy disk drive, and a 20MB hard disk drive. The machine has a NEC PinWriter P2200 9" dot matrix printer attached to it and a Datalink V22 1200 Baud Modem. A color monitor is attached.

The third machine is a Wang PC Model 240. It has a 20MB hard disk drive, a color monitor, 640K of main memory and a 1.2MB 5.25" floppy disk drive. The dot matrix printer is a NEC PinWriter P5XL with a 14" platen. A Racal-Milgo COM-LINK 7 1200 Baud modem is attached to this machine.

All machines have surge suppressor filtering the power and all are running the DOS 3.2 Operating System. The library uses Multimate Advantage II and Wordstar for its word

processing software. It uses Crosstalk Version 3.61 for communications, and has Lotus 1-2-3 V. 2. and Dbase III+ available for other applications. The XTREE software is used on the PS/2 to make the DOS interface easier to use.

The library also has a Wang VS terminal which is hard wired to a Wang mainframe at the Regional Administrative Management Center (RAMC) next door to the AUA building. Attached to the terminal is a printer capable of producing high quality output, but which is beginning to show its age by requiring heavy and regular maintenance. The terminal is used as a word processor but can only be used when the RAMC machine is operating. Since AUA is open more hours than RAMC, the library must anticipate RAMC closing in order to be able to work on some of its applications. The library is in the process of installing a switch which will allow either its Wang 240 or its Wang VS terminal to be connected to the RAMC line. This will provide greater flexibility since the library can then download files from RAMC onto the Wang 240 in anticipation of RAMC closing.

The BIP+ CD-ROM product has been purchased by the library to provide Books in Print (with abstracts) on compact disk. Other CD-ROM products acquired by the library include Bowker's Ulrich's Plus, the serials database on compact disk, University Microfilms's Dissertation Abstracts, and Wilson's Readers' Guide.

LIBRARY AUTOMATION APPLICATIONS

The AUA library was one of five posts that received the Data Trek Acquisitions Module, installation assistance, and training from E/CL during May and June 1987. Since that time the library has been a regular user of it and has placed more than 1000 orders with the system. Several staff are familiar with it and one staff member has primary responsibility for entering data into it, processing orders using it, and updating the files once orders arrive. Judging by the technical questions raised about the operation of the system, the staff member in charge of it is thoroughly conversant with it and relies on it to help manage the process. Thus, the system has been successfully implemented and there is no reason it will not receive continued use.

The library has just purchased the Data Trek Catalog module and has successfully installed it. The library plans to convert its card catalog records to machine-readable form and build an online catalog using the Catalog module. The procedure to be followed for this retrospective conversion was to use the CD-ROM BIP+ system to find bibliographic records that matched the library's holdings. These records will be fed into the Data Trek Data Bridge module which converts them from a standard OCLC format to one that can be used by the Catalog module. Once the conversion is completed the

records are available in the Catalog module. The conversion requires an additional step of adding the local call number to the record once it is in the Catalog. Unfortunately, it appears that the records obtained from BIP+ are not complete enough to be used by Data Bridge, and that the form of the records does not exactly match that of an OCLC MARC (Machine Readable Catalog) record. One other post (Jakarta) has had the same problem with the BIP+ records and has decided that the best strategy is to purchase the BIBLIOFILE CD-ROM system. This system contains U.S. Library of Congress MARC catalog records and is specifically designed so that libraries can locate records, edit them while in BIBLIOFILE, and then store them on a disk file for use by Data Bridge. The product costs approximately \$900 and it is recommended that the AUA library acquire it to expedite the conversion process. Once the library begins capturing and editing the BIBLIOFILE records, it should save these records for future use. Some of the information that is found in a MARC record is lost when it is converted by Data Bridge and stored in the Catalog module. In order to insure that the library has full MARC records available it should institute a manual procedure to keep track of the floppy disk files of records it has captured from BIBLIOFILE.

In addition to using the Data Trek acquisitions and catalog modules, the library makes extensive use of Wang word processing for some of its automation applications. When it cannot obtain catalog cards for materials it has ordered, it does its own original cataloging and uses the word processor to store and print out catalog cards. It also stores its current list of serials in a word processing document and prints new serials lists from the document when appropriate. Periodically, the library issues to its DRS members and others a list of new documents (Alerts). The Alert list is produced from a Wang word processing document. Memos and reports are also produced in the word processor.

The Lotus 1-2-3 spreadsheet program is used for one application: maintaining statistics for the library's monthly report. Each month, data about circulation transactions and reference activities are stored in a spreadsheet. Charts and graphs are made from the spreadsheet data using Lotus' graphics capabilities to recast the data.

The library has designed and implemented a Dbase III+ Database Management System application to help it monitor its outreach activities. This application records information about users of the library services such as the person's name, address, position, and type of service they usually request from the library. It also keeps a file of the services actually provided to each user. An entry in the services database indicates the kind of service provided (circulation of an item, supplying an Alert item, performing an online search, etc.), the title, author, and journal name of the item supplied if it is an Alert request; or the title and author if it is a circulation request. Each request is tagged with a country plan subject code to allow the library to see the number of requests that fall into each subject category. The outreach database consists of one other file that is used to produce mailing envelopes for shipping materials to requestors.

The library has acquired a version of Dbase III+ that operates in the Thai language. It is currently testing this software by developing a database in Thai of DRS members. This database will be used to print out names and address on envelopes, and letters of invitation to AUA events such as meetings and lectures.

Online searching is regularly done for library users. The staff is conversant with the DIALOG system and the USIA PDQ database and searches a number of DIALOG databases for its users. Almost all data transmission involving the online databases take place through the Telephone Organization of Thailand's packet switching network. This network is easy to use, provides very good response time, and has low error rates. The library is negotiating with the US Embassy for access to the State Department lines for data transmission to the US. A number of other posts have such access. While the lines are not particularly easy to use (not user friendly), they involve no direct cost to the library and thus reduce the telecommunications charges for online searching. The line itself has been installed, and the library is now waiting for a printed circuit board for its Wang 240, and appropriate software to be supplied. The installation should be completed in a couple of months.

LOCAL AREA NETWORK

During the consultancy visit, the AUA Outreach-Automation librarian arranged with a local vendor (Innovation, Inc. of Bangkok) to temporarily install a Local Area Network (LAN) in the AUA library. The purpose of the installation was to test the feasibility of a LAN in the library and test whether the Data Trek software would run on the LAN with little difficulty. One side benefit to USIS of the temporary installation was that the library invited a number of prominent individuals in the library and information science community to the first demonstration of a library local area network in Thailand.

The network that was installed was relatively small. It consisted of a Wang 380 server (80386 CPU), the library's Wang 240 as a workstation, and the library's IBM PC as another workstation. Each machine had a 3Com EtherLink board (ELS Version 2.01) installed in it and the machines were connected together using coaxial cable. The software installed in the server was Novell Advanced/STF Netware V2.01.

The vendor spent 9 person days in his own offices installing and testing the software and hardware before bringing it to AUA for the installation and demonstration. The vendor reported that the installation went relatively normally and that nothing but the usual compatibility problems occurred. When the system was installed at AUA, there were four issues to deal with. The first was that the Data Trek system needed to be customized to insure that it read its files from the server and not from the local workstation's hard

disk. This was simply a matter of setting the Data Trek parameters correctly. The second problem was insuring that the Data Trek data and program files were marked as sharable between the work stations and that all work stations could read as well as write to the data files. This was accomplished using the Novell 'flag' command to set the file permissions correctly. As mentioned previously, the library has a number of CD-ROM databases that it uses on the IBM PC. It appears that there was a conflict between the Direct Memory Address (DMA) of the CD-ROM reader and the DMA of the Network Board which prevented the CD-ROM reader being used while the Network board was installed on the PC. It may have been that this was a hardware problem with the CD-ROM, but it is too soon to tell. If there is a hardware incompatibility between the Network Printed Circuit Board and the CD-ROM board, the library should insure that it does not commit itself to purchasing the network board until the vendor satisfies the library that the problem is not hardware related. The last problem encountered with the installation of the network was the inability of the network server to run the Data Trek software itself. The network server stores the files and programs for the Data Trek Acquisitions and Catalog system. When a workstation connected to the network wants to run one of the modules, it simply specifies that the program is to be executed. This operation worked well and each of the workstations could execute the Data Trek programs at will. The problem was that the server could not execute the programs because of memory constraints. The server was supplied with 2MB of main memory. This was allocated to 512K of base memory and 1.5MB of expanded memory. The Data Trek modules require 640K of base memory to execute and the Novell Advanced Netware Operating System requires 1.5MB of memory. The Novell Operating System can operate in expanded memory, but when it was attempted to load both the Data Trek system and the Novell Operating System into main memory, the Network Operating System would not load because of a lack of memory. The vendor is aware of this problem, but the library should not commit itself to the network until the problem is solved. One solution is not to use the server as a workstation. This is a perfectly feasible solution from a performance standpoint since one wants the server to only do the serving and not double as a workstation. Unfortunately, the library cannot afford to have the server only used as a server at this point in time. It probably should consider this alternative if funds are available, but if it cannot, then the server must be able to operate as a workstation as well as a server.

All in all, the experimental installation of the network was a success. The Data Trek systems were successfully installed and worked well on the network. The installation verified what only one other Post has been able to accomplish, that the Data Trek systems can operate on a network. It is clear, however, that there is considerable expertise required to set up the network and monitor its performance. If a library has a good working relation with the vendor that supplies the network, it may be feasible for the library to install the network and rely on the vendor for continuing support. There are few post libraries that have sufficient in-house expertise to both install a network and to continue to keep it operational. If libraries go into the installation with this in mind, the likelihood of more USIS libraries having LAN's is good. AUA Bangkok is to be

congratulated for encouraging cooperation with its vendor in this project, and taking an innovative step in library automation - one that can serve as a model for other posts.

TRAINING

The AUA library has been a leader in library automation among USIS libraries. This has come about through strong support from the Public Affairs Officer and the Regional Library Officer. The AUA staff has committed itself to automation and the library is fortunate to have a dynamic librarian in charge of the automation activities and a Library Director who is interested and concerned with automation.

Staff members have received considerable training in automation. The Library Director attended a three week Microcomputer workshop in Washington in 1986, where she learned the fundamentals of word processing, spreadsheet programs, data base management systems, and communications concepts. The Outreach/Automation librarian is mainly self taught, and has mastered the same set of skills. Almost all the staff have taken courses in microcomputer fundamentals and courses in the use of the Dbase III+ database management system at the Regional Administrative Management Center, next door to the AUA library.

One ingredient is missing from the training of the staff and that is the chance to develop applications themselves. The AUA library is heavily used and there is a strong temptation for staff to simply allocate all their time to meet user needs. If the library desires to continue its excellent automation program it might consider letting staff spend, perhaps, an hour a day developing their own applications with microcomputers. This would give them a chance to apply the course work they have taken to some relevant library application. It would also guarantee that the staff feels comfortable with using personal computers and feels confident enough with them to develop new library applications when the need arises.

Support needs to be given to the training of the Outreach/Automation librarian. This person has expended a great deal of her personal time to become proficient in computing concepts and the library needs to support her individual initiative. A number of options are available. One is to bring this person to Washington for some in-service training to let her upgrade her skills. Another is to let her visit posts that have innovative automation programs. Examples include Hong Kong and Brussels. A third is to give her time to study or apprentice herself with someone knowledgeable in library automation concepts so that she could develop her own expertise away from the day-to-day problems of the library. The time involved in this training program should be no less than three months.

FUTURE AUTOMATION ACTIVITIES

The library has shown itself to be an innovator in the use of computers. With little assistance it has embarked on an ambitious program and gained considerable success. In order to maintain its lead in library automation, it needs to begin planning for the next three years. There are a number of obvious approaches that it can take. It has developed only a couple of applications using the Dbase III+ database management system. It could easily convert some of its word processing applications from the Wang to Dbase and gain considerable flexibility in the ability to format, sort, and selectively list its collection. It has also just begun to use the Data Trek Catalog module and needs to decide whether it wants to have an online catalog, a book catalog printed from its Data Trek bibliographic records, or continue to maintain a card catalog using both cards from vendors and cards printed from the Data Trek system.

Data Trek has several additional modules that the library needs to decide whether to purchase. These include a module to maintain serials records and one to automate the circulation function. The number of serials that the library subscribes to is only 300, but if the library desires to become a showcase for automation, it may decide it is desirable to use the serials system. The same logic applies to the purchase of the Circulation system. The level of circulation may not warrant the purchase, but an automated circulation system is an effective mechanism for determining usage levels of the collection, usage by borrower, plus it is very impressive to the users.

There are a number of other decisions that the library needs to make with respect to the purchase of additional software and hardware. It should consider upgrading from Dbase III+ to Dbase IV since the newer system offers more flexibility in handling text and producing reports containing text. It should probably evaluate the merits of switching to the Word Perfect word processor from Wordstar and Multimate. This is a very personal decision, but Word Perfect offers considerable support than the other two systems for more sophisticated document printing.

It is probably time for the library to consider purchasing a laser printer. The library produces a number of listings of bibliographic records, and generates considerable correspondence to its DRS members. The visual impact of this material could be significantly improved by a laser printer. If most of the material that the library plans to print is text (as opposed to graphics), the best choice for a printer is the Hewlett Packard LaserJet Series II.

The IBM Personal Computer is now close to six years old and the library needs to realize that it may be time to replace it before the cost of repairs outweighs the cost of replacement.

By far the most difficult decision will be to decide whether to install a local area network. The Outreach/Automation librarian has made some cost calculations and determined that for a relatively modest amount of money a network can be installed. She has also shown the feasibility of using the network for library applications. The Data Trek Acquisitions module is regularly and heavily used and even if this were the only application running on the network, there would be a good justification for installing it simply to provide more of the staff access to the order file for technical processing and reference purposes. It appears likely that the installation of the Catalog module will be just as successful as the Acquisitions module, and there is an even stronger case for a network of Catalog users. At least one additional Personal Computer will need to be purchased beside the file server, but the Outreach/Automation librarian still reports the cost will be half that expected by other posts. Thus it appears that in Bangkok the network will have a bargain price tag. USIS should consider employing the Outreach/Automation librarian to negotiate network prices for other posts!

SUMMARY AND CONCLUSIONS

The AUA library has done a significant job innovating with library automation and deserves considerable credit. It has shown imagination in the applications it has developed, and the plans it has for the future. It needs to codify those plans, wean itself away from word processing and into databases, and upgrade its hardware and software to continue its lead in USIS library automation. To support this goal, the staff should be given more opportunity to apply the formal training it has received by developing its own applications. In addition, the Outreach/Automation librarian needs to see how other innovative posts are using automation, and needs to have her skills upgraded in order for the library to continue to advance.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO AUA LIBRARY, BANGKOK DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the AUA library during the consultancy:

1. Assisted in the installation of the Data Trek Catalog module.
2. Assisted in the installation of the Data Trek Data Bridge module.
3. Helped re-install several CD-ROM products.
4. Provided a tutorial on how to take BIP+ CD-ROM bibliographic records and process them with the Data Bridge module.
5. Gave staff a tutorial on the use of the EDLIN editor.
6. Consulted on problems the Acquisitions librarian was having with the Data Trek Acquisitions module and suggested strategies for dealing with the problems.
7. Assisted in the experimental installation of a Novell Local Area network in the library.
8. Installed the Data Trek Acquisitions, Catalog, and Data Bridge modules on the Novell network.
9. Helped plan a demonstration of the Local Area Network to more than 30 DRS members.
10. Gave lecture on 'Library Networks at the University of California' to the group assembled for the LAN demonstration.
11. Met with the director of the Centers of Academic Resources at Chulalongkorn University to discuss library networks and library automation.○
12. Discussed staff training needs with Library Directory and Outreach/Automation librarian.
13. Discussed long-range automation goals with Library Director and

Outreach/Automation librarian.

14. Discussed future data communications requirements with library staff.

15. Helped Library Director solve technical problems that Chiang Mai University was having with the use of the Bibliofile system.

Due to time limitations, the following tasks were not accomplished:

1. Conduct detailed review of Dbase applications and suggest system improvements.
2. Provide tutorial on use of Dbase for additional library applications.
3. Provide tutorial on the use of Lotus 1-2-3 for additional library applications.
4. Review the alternatives available to the library for Thai language support in its computer applications.

LIBRARY AUTOMATION IN USIS AMERICAN REPUBLICS REGION - A SUMMARY

INTRODUCTION

During March-April, 1989 a consultancy visit was made to four USIS libraries in the American Republics to assess the state of automation and to provide training and technical assistance. The project was initiated by E/CL in Washington and the visits were funded by E/CL, the American Republics Area Office in Washington, the individual Posts, and one Regional Library Office. Visits ranged from two to seven working days and included stops in Mexico City, Santiago, Buenos Aires, and Bogota. A report was prepared for each Post and has been forwarded to the E/CL training officer, the Library Director, the Public Affairs Officer, and, where appropriate, to the Cultural Affairs Officer, the Center Director, and the Regional Library Officer.

FUNDING

A common problem found in all four posts was lack of a substantial financial commitment by USIS to library automation. There are a number of tangible benefits of a library automation program, yet with one exception there was little money being spent on the programs. These benefits include:

1. Improved staff productivity. Running a library requires an extraordinary attention to detail, and computers can make a vital contribution to the endeavor. This, in turn, means that more tasks can be accomplished with the same staff resources.
2. Improved outreach service to DRS members. One important goal of USIS programs is to meet the information needs of DRS members and other policy leaders. Library automation can assist by providing more sophisticated selective retrieval of information. This can occur through computerization of the traditional card catalog; through the use of online computerized search services such as the Agency's PDQ database, the LEXIS/NEXIS search service, or databases available from the DIALOG information service; or through the use of databases on compact disk (CD-ROM).
3. Better management of the library's collection of books and periodicals. A major proportion of the funds allocated to a library go into the purchase of books and

periodicals. Library automation computer programs give the staff the ability to ascertain which items are being used and which are not. It allows the staff to review the book and periodical collection and make decisions about which items need replacing or which areas need more books.

4. Enhanced control over library finances. Library automation computer programs have sophisticated routines for tracking fund usage. Posts are beginning to use these features to more effectively manage their GOE and RMS funds.

In lieu of the substantial benefits of library automation programs, the Posts and the Area Office should make an ongoing financial commitment to supporting and encouraging library automation. The payoff is substantial.

TELECOMMUNICATIONS AND DATABASE SEARCHING

Three of the four Posts visited make notable use of online databases in the United States to answer reference questions for library members, DRS members, and USIS and Embassy staff. The Library Programs Division (E/CL) has recommended that Posts allocate at least \$5000 per year to support this activity. A number of libraries in the Area are forced to spend a large portion of this money on telecommunications between the library and the database supplier because they cannot gain access to the State Department leased lines. Use of the leased lines would allow the money to be used for database searching not telecommunications.

The reasons why each Post cannot use the State Department lines are humorous and sad at the same time. One Post in the Area has been negotiating with the local telecommunications company for two years to solve technical problems with a line between the library and the USIS office. Another Post has just begun to realize the importance of such a line and is starting to negotiate for it. An initiative from USIA, along with technical and financial support from Washington is necessary to get libraries access to the State Department lines.

BUENOS AIRES AS REGIONAL LIBRARY AUTOMATION CENTER

The AR Area is fortunate to have two very competent FSN librarians in the Lincoln Center Library in Buenos Aires who are knowledgeable and enthusiastic about library automation. These two individuals, along with the current Regional Library Officer stationed in Buenos Aires, form a strong team that could help other AR libraries with their library automation problems.

It is recommended that Buenos Aires be established as a regional library automation center with funding from the AR Area office, E/CL, and the Center itself. There should be a trial period of one year to see if the idea works, after which period it should be re-evaluated.

The goals of this center would be to answer technical questions about library automation problems, provide advice to libraries considering automation, serve as a test center for new library automation products, and offer personalized training for librarians in the region on library automation concepts.

The Lincoln Center has not yet made an ongoing financial commitment of its own to library automation, and before the 'regional center' concept is initiated, all parties must make sure that Buenos Aires is committing its own funds as well as using funds from the Area office and E/CL.

LOGICAT AND LOGIPRES

The Library Programs Division (E/CL) has recommended to all Posts worldwide that they consider using the Data Trek, Inc. library automation programs. (See Cable UNCLAS USIA 17185 Dated 21 March 89). The Data Trek programs have been subjected to thorough evaluation by the Division and by a number of USIS libraries that have served as test sites. They have proved themselves to be serviceable in the USIS library environment.

A Latin American library software developer, Sistemas Logicos, has developed two software packages that appear to be competitors to the Data Trek system. These are the Logicat cataloging system, and the Logipres circulation system. One AR library is using the Sistemas Logicos programs and another is considering adopting them. For a variety of reasons, outlined in another report (Mexico City), this consultant feels that the Sistemas Logicos packages are not competitive with the Data Trek modules. It is recommended that Posts in the Area be encouraged to evaluate the Data Trek system themselves before making a commitment, or any further commitment to Logicat or Logipres. It is believed that they will find the Data Trek system superior.

TRAINING

Almost all the FSN library staff in the Posts visited during this consultancy lacked adequate training in personal computer concepts, library automation concepts, the use of library automation computer programs, or the use of spreadsheet programs like Lotus 1-2-3, database management systems like Dbase IV, or telecommunications programs such as Crosstalk. This situation needs to be remedied by an aggressive training program. It will require at least three weeks of training per person to give these individuals the background and skills necessary to proceed with automation and achieve the goals described earlier in this report.

SUMMARY OF RECOMMENDATIONS

1. Make an continuing financial commitment to library automation programs. The payoff is improved productivity, improved outreach service, and improved control over the library collection.
2. Insure that each library can make use of the State Department telecommunications line to Washington for online searching.
3. Make the Lincoln Center Library in Buenos Aires a regional library automation center. Provide funds from the AR Area office, E/CL, and the Lincoln Center for this endeavor. Recharge Posts for services if necessary, but do not discourage use by high recharge fees.
4. Encourage libraries to use the Data Trek library automation programs rather than those from Sistemas Logicos (Logicat/Logipres).

5. Initiate a training program in the use of personal computers, library automation programs, spreadsheet programs, database management systems, and telecommunications concepts for FSN staff in the AR Area.

LIBRARY AUTOMATION AT THE USIS BIBLIOTECA BENJAMIN FRANKLIN MEXICO CITY

INTRODUCTION

The Benjamin Franklin library in Mexico City is one of the largest and busiest libraries in the USIS system. It has a collection of approximately 30,000 volumes, and circulates between 300-400 books per day. It has a number of personal computers that are heavily used. In contrast to other USIS libraries, Biblioteca Benjamin Franklin has chosen to use a turn-key library automation system developed by a local vendor rather than use the Data Trek, Inc. system counseled by USIA E/CL. This report will survey the state of automation at the library and will present a comparative analysis of the Data Trek system and that developed by Sistemas Logicos, of Mexico City. The report will make recommendations on future automation activities and training needs. The analysis presented here was made during a four day consultancy visit during March 1989.

HARDWARE AND SOFTWARE CONFIGURATION

The library has a number of personal computers and almost all are heavily used. They are located on two different floors of the library and serve different functions.

Technical Processing

The technical processing department has two IBM Personal Computers (8086) each with 640K of main memory, two 360K 5.25" floppy disk drives, and a monochrome monitor. One machine has a 20MB internal hard disk attached to it, as well as a Bernoulli Box removable hard disk unit with space for two 10MB disks. The second machine has a 30MB internal hard disk and a similar Bernoulli Box. The two machines share three printers, each loaded with forms for a specific purpose, such as card stock, spine or pocket labels, bar code labels, and 8.5 x 11 inch general purpose continuous form paper. The printers include an Okidata u93 microline, an Epson FX86e, and a Panasonic KX-P1092. Both machines use DOS 3.3 as their operating system and have the Dbase III+ database management system installed.

The main purpose of these machines is to assist in the book processing and cataloging operation. They have the Logicat cataloging software system from Sistemas Logicos installed on them. Bibliographic data is entered into Logicat and the system produces catalog cards, spine labels, bar code labels, and book pocket labels.

Circulation

The library's circulation system is automated using the Logipres software system. Borrowers are issued a plastic-laminated library card with their name and address on it. The card includes a machine-readable bar code label that identifies them. Each book in the library's collection also has a machine-readable bar code label, and when the user wishes to check out a book, the Logipres system lets the circulation clerk to use a bar code reader to scan the library card and the label in the book.

Two IBM Personal Computers (8086) are used in the circulation department. One manages the check-out and check-in process. This machine has 512K of main memory, a monochrome monitor, one 20MB internal hard disk drive, a bar code reader, and one Bernoulli box that holds two 10MB disk cartridges. It has an Epson printer attached to it and no floppy disk drives. The Bernoulli boxes periodically suffer data errors and files have to be restored from previous back-ups of the data.

The second machine in the Circulation department is also an IBM Personal Computer. It has 512K of main memory, a monochrome monitor, two 360K 5.25" floppy disk drives, no hard disk, and no printer. The machine was installed to relieve the workload on the main circulation computer. This one is used to enter data about new users. Once new-user data is stored on this machine, it is transferred (during lulls in the check-out activity) to the first machine.

Aside from the problems with the capacity of the two computers to handle the load, the circulation systems seems to have the functions that the staff needs to automate the process.

Reference

The Reference department has an IBM Personal Computer (8086) which is used almost exclusively for online searching and appears to be lightly used. This machine has a monochrome monitor, two 5.25" floppy disk drives, no hard disk, and 640K of main memory. It has a modem attached to it as well as an inexpensive Hewlett Packard printer. The machine uses DOS 2.0 as its operating system. The reference department uses Smartcom as its communication software. It also uses the services of SECOBI, the

Mexican quasi-governmental packet switching system for telecommunications access to United States database suppliers such as Dialog and USIA (PDQ).

Administration

The library administration also is a heavy user of personal computers. They have a Wang PC available for word processing. This machine has one floppy disk drive, a hard disk unit, and has a high-quality daisy-wheel Wang printer attached.

The second machine in the administrative unit is an IBM PC (8086) with a 20MB internal hard disk and one 360K 5.25" floppy disk drive. It has a monochrome monitor, 640K of main memory, and a Brothers HR-20 14" daisy wheel printer attached. The library is just beginning to test its CD-ROM products and as a temporary measure has installed an Hitachi CDR-1503 CD-ROM drive on this machine. Eventually this drive will be moved to the Reference department. It is likely the library will need to acquire a second CD-ROM drive for the Technical Processing department if it wants to get cataloging data from compact disks.

Currently the library has several databases available on compact disk. These include Ulrich's Plus (a database of serials), Readers' Guide, and Dissertation Abstracts and the staff has had little time to become proficient in their use.

Software

In general, the library has a good variety of general-purpose software packages available. These include the Lotus 1-2-3 spreadsheet program, the Dbase III+ database management system, ProCite (a system for managing bibliographic data), the Wordstar word processing system, the Norton Utilities (general disk management utilities), and the BASIC programming language.

There appears to be a lack of central control of the software packages and many of the work areas lack sets of reference manuals for the packages. The library seems to be using a number of different versions of the DOS operating system throughout the building. It should settle on one version and update all machines with this one. In addition, no systematic backups of original software disks are made when the packages arrive, and in some cases it is hard to locate the original disks for the packages themselves. This is not a difficult situation to correct but deserves some attention to protect the library's investment in the software.

The library has literally hundreds of floppy disks which are not adequately labeled and appear to relate to events long passed. It is recommended that a systematic review of

these disks be made and those that are no longer needed be reformatted and made available for a new use. Those disks that are still of value should be properly labeled and stored in a systematic manner.

THE LOGICAT SYSTEM

A major question that must be addressed is whether the Logicat system is appropriate for the Biblioteca Benjamin Franklin. This library uses the Logicat system for many of its technical processing operations while other USIS libraries use the Data Trek Inc. (DTI) Catalog Module. The following is a highly selective feature comparison of the two systems presented to help clarify the issue. When a feature of one system is not mentioned, that does not imply the feature is missing, rather that both systems have the feature and they are roughly equivalent in quality.

Feature	DTI CATALOG	LOGICAT
Direct Bibliographic Input	Yes	Intermediate step
Quality of Online Public Access Interface	Fair	Poor
Authority Control	Yes	No
Global Authority File Changes	Yes	No
Operates on a Local Area Network	Yes	Poor Implementation
Technical Support	San Diego	Local Mexican Developer. Very Responsive
Stores annotations to bibliographic records	No	Yes. Approximately 600 characters. Relatively awkward input procedure
User defined data validation of selected fields not under authority control	No	Good
Call number input	Good	Awkward
Reports	Fair	Poor
Password Protection of functions	Good	Poor
Import MARC records	Yes-through DataBridge product	No-vendor claims to have code but not delivered with current system
Export MARC records	No	No-vendor claims to have code but not delivered with current system
Input records from CD-ROM databases	Yes-through DataBridge product	No
Spanish Language version of system	No. French version available. Other translations claimed to be under way	Yes. Only Spanish version available
Catalog Card Printing	Good	Good
Spine Label Printing	Good	Good
Pocket Label Printing	Good	Good
Bar Code Label Printing	Integrated in Catalog Module	Separate Program. Awkward Procedure
Bibliographic Record listings	Good Variety	Limited choices
Record Retrieval Speed	Good	Poor

As can be observed from this table, the Logicat system is good, but in general the Data Trek system does more in a better way.

There are a number of reasons why the Benjamin Franklin library should continue to use Logicat:

1. The library gets excellent service from its vendor, Sistemas Logicos. There is some reason to believe that the vendor has adapted successive versions of the system to meet the needs of this library. When the library needs assistance, the vendor almost always provides immediate advise.
2. The system issues all its prompts in Spanish and thus the need for training new users is minimized.
3. The system has been installed in the library for some time and seems to be working well. Thus there is little incentive for the library to change to a new vendor and deal with all the difficulties of installing a new system.
4. The cost of conversion to a new system would be very high.

There are a number of major problems with Logicat:

1. The Logicat system does not represent the state-of-the art in library automation. As soon as a library buys an automation system it is bound to be out of date, but the Logicat system has not kept pace with automation developments and system design.
2. If the library had any intention of replacing its card catalog with an online catalog, the current version of Logicat would not be a serious contender. The user interface for the public access catalog is simply not adequate.
3. The Logicat system has no authority control over the author and subject headings entered into the system, while the Data Trek system does.
4. The Logicat system is really not designed to run on a Local Area Network while the Data Trek system is. The Logicat system vendor has indicated his intention to re-program Logicat to make it truly a network system, but he has not started the programming.
5. The argument that the library should not use Data Trek because it is not in English is somewhat specious, since posts all over the world use English as their operational language.

In summary, the most compelling reason for this library, and this library only, to continue to use Logicat is that it is successfully running the system now, and there is no incentive to change. The fact remains that the system does not provide the capabilities of other systems in its class. It is recommended that the library purchase a copy of the Data Trek Catalog module, experiment with it, and begin to convert from Logicat to Data Trek. This will not be an easy road to follow, but in the long run the automation results will be better.

Rather than doing original cataloging, the library should purchase the BIBLIOFILE CD-ROM system and obtain its cataloging from the CD-ROM. Records captured from BIBLIOFILE can be fed into the Data Trek Catalog module using the Data Trek DataBridge module, which the library should purchase.

THE LOGIPRES SYSTEM

Logipres is the name of Sistemas Logicos online circulation system. This system is currently installed in the library and appears to be working well. It has similar functions to the Data Trek Circulation Module: books in the collection receive bar code labels, user library cards have bar code labels, and books are checked out by scanning the library card and book bar code with a bar code wand. The Logipres system is not as good as the Data Trek system in the reports it produces on collection use, nor the reports it produces on borrower activity. It has an awkward procedure for printing bar code labels, and there is a two-stage process to enter new borrower records into the system, rather than the direct entry system found in the DTI module. One major disadvantage of the current Logipres system is that there can be only one workstation used to check out books at any one time. If the library wanted to install a second book check-out station to handle the workload, it would not be able to do it with the current Logipres system, even when the system were running on a Local Area Network. This is a serious problem, and one that Data Trek does not have at all.

The advantages of Logipres are similar to Logicat; the vendor is responsive, and the system is working well. Nevertheless, this system does not provide the functionality of the Data Trek Circulation module.

In order to convert from Logipres to Data Trek, the library will have to investigate whether the bar codes currently on the books and borrower library cards can be read by the Data Trek Catalog module. If they can not, it might be possible to contract with Data Trek for conversion assistance. In the worst case, conversion to the Data Trek system may require re-bar coding the collection and issuing new library cards. Again, this is an expensive undertaking.

LOCAL AREA NETWORK

The library has just received a set of equipment that will serve as the starting point for a local area network. The equipment includes a Compaq Deskpro 286 Personal Computer running at 12MH and having 2MB of main memory and an 80MB hard disk. This machine will be the server for the network. In addition, the library has received four Amdek Personal Computers, each with 640K of memory and a 20MB hard disk. These machines will be the workstations on the network. All machines will have the Pure Data PDI1508Plus ARCnet interface board in them to provide network access. The network will run the Novell ELS Netware Level II as its network operating system, and DOS 3.3 as the operating system under the Novell system. The network will be connected by a Novell Active Hub allowing up to eight stations. The server will have an Okidata Microline 321 9 pin printer attached to it. The library has already been wired with coaxial cable for the network installation.

The server machine will be located in the technical processing department along with two workstations. Another workstation will go to the circulation department, and one to the reference department. With the installation of the network, some relative awkward procedures involved in running the Logicat and Logipres system will be eliminated and work flow should improve.

However, as mentioned previously, the Logicat and Logipres systems are not really designed to operate effectively on a network. Updating of bibliographic record in the catalog module and updating borrower records in the circulation system both must be done in batches; when there is no other catalog or circulation activity the files can be updated. Thus, the requirement that new bibliographic records only can be added to the circulation system before the library opens in the morning (to avoid extreme patron delay) will continue. The process will be faster because of a faster machine, but it is still awkward.

The network does promise improved performance for the library because it replaces some relatively old machines with ones that are much faster. It also represents a significant step forward in library automation. But the Logicat and Logipres software can not take advantage of the network. The library will gain in computer performance speed but not in functionality. This is a serious drawback.

TECHNICAL PROCESSING OPERATIONS

The library technical processing department processes approximately 400 books a month. This includes performing all the cataloging on them; entering the cataloging records into

the Logicat system; printing catalog cards, spine labels, bar code labels, and book pocket labels; and making the books ready to be placed on the shelf. Mexico City has a Regional Book Office which contracts for the printing of roughly 8-10 titles per year. The technical processing department distributes these titles to approximately 80-90 other libraries after having cataloged them and processed them to be ready to be put on the shelf.

Book ordering takes place by cable to Washington for items on the Books and Documents list, and to Baker and Taylor for other items. The acquisitions process is performed manually. The head of the technical processing department previously used a Dbase application to monitor the book orders, but found it was easier to manage the process without a personal computer. Sistemas Logicos produces an automated book ordering system, but the library has not yet evaluated it. Little financial information is recorded during the ordering process, and that this might be the area where an automated system could offer the most assistance. This possibility should be explored, if only to resurrect the previously developed Dbase application and enhance it with financial information.

TELECOMMUNICATIONS

The library uses the packet switching system from SECOBI to get access to the online databases in the U.S. At the moment, the cost of this service is nominal, but may be expected to rise rapidly in the future. It is in the library's best interest to gain access to the State Department telecommunications lines so as to minimize future costs. This requires considerable planning and coordination and should begin as soon as possible. There is also no communications link between the library and the USIS offices (located in the US Embassy) about a mile away. Message transmission could be expedited if the library's Wang personal computer could access the USIS system, and vice-versa.

TRAINING

There are very few members of the library staff who have had any formal training in the use of personal computers. Most staff members have grabbed a few minutes in the midst of other activities to train themselves in the essentials of one or several software products. There are at least six individuals on the staff who need to have a thorough grounding in computer fundamentals, DOS concepts, the use of the Dbase database management system, Lotus 1-2-3, word processing concepts, and telecommunications concepts. Although the library is heavily used, and the staff have major operating responsibilities,

time must be allocated for formal training. If this is not done, there is a major risk that there will be insufficient knowledgeable individuals available to keep the systems running, let alone develop new applications.

The library is about to install a Local Area Network. It is relying on Sistemas Logicos for installation assistance. Once the network is operational, it will require constant attention, and the library may need to consider hiring or reclassifying a staff member to manage the system. This is not a full time job, and the same individual could be assigned the task of monitoring existing automation activities and developing new applications. This could be a very challenging position.

FUTURE EQUIPMENT NEEDS

All of the IBM Personal Computers in the library were purchased nearly five years ago and are reaching the end of their useful life. The library needs to start replacing them with state-of-the-art machines before they begin to die on their own. As new machines are acquired, they should be connected to the Local Area Network.

Another equipment purchase that should be considered is a laser printer. The Hewlett Packard LaserJet Series II is recommended. If it is acquired, it could be connected to the network server, and any workstation could send jobs to this printer over the local area network. The printer would allow much more attractive publications to be produced, it would be faster than the current printers, and it would be quieter.

SUMMARY

The Biblioteca Benjamin Franklin is a relatively mature user of library automation systems. It relies heavily on them and makes good use of them. It uses the Logicat cataloging system for its technical processing needs, and the Logipres circulation system for automated circulation activities. Online searching is done through Dialog, and PDQ, to name but two. A number of CD-ROM databases have been purchased and are beginning to be used as reference tools. A local area network is about to be installed to improve system performance and reduce manual efforts to accomplish routine automation tasks.

The Logicat system is not now the best choice for the library. The vendor does provide

good local support, and the effort of conversion to a new system would be very high. Nevertheless, the system has not kept pace with others and does not offer the present and future functionality the library should have. A major deficiency is that while Logicat and Logipres run on a Local Area Network, they do not offer the advantages of network operation - nearly simultaneous access by a number of workstations to the same record in a data file. The library has purchased a LAN but the software can not take advantage of it.

The library is in need of a systems manager to coordinate the local area network operation, and to coordinate all other automation applications. The automation system is complex already and is about to get more complex.

Many of the staff have received little or no formal computer training. This needs to be redressed. In addition, a number of the computers are relatively old and will soon have to be replaced. Finally, the library should improve its telecommunications capabilities by arranging data lines to the USIS offices, and access to the State Department telecommunications lines.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO BIBLIOTECA BENJAMIN FRANKLIN DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the library during the consultancy:

1. Gave the staff a tutorial on the use of Dbase, the Dbase report writer, the Dbase label program, and Dbase commands in the design of a database for citations to the library's vertical file.
2. Reviewed the operations and functions of the Logicat system.
3. Conducted a comparative evaluation of Logicat and the Data Trek Catalog module.
4. Reviewed the operations and functions of the Logipres system.
5. Conducted a comparative evaluation of Logipres and the Data Trek Circulation module.
6. Discussed the implementation of the Local Area Network in the library.
7. Helped the library staff uncover and (hopefully) eliminate a computer virus.
8. Planned the implementation of a Periodicals database with the Assistant Director of the library.
9. Converted the USIS Bonn Wang word processing periodicals list to a Dbase database for the library.
10. Gave staff a tutorial on the use of DOS subdirectories.
11. Helped install a new version of the Readers' Guide CD-ROM system.
12. Consulted with the following individuals about library automation activities:
 - a. Regional Library Officer.
 - b. Country Library Director
 - c. Assistant Director of Library
 - d. Head of Technical Processing

13. Gave briefing to Public Affairs Officer and Cultural Affairs Officer on state of library automation.

14. Met with the developer of the Logicat and Logipres system to discuss the system.

LIBRARY AUTOMATION AT THE BNC LIBRARY SANTIAGO

INTRODUCTION

The American Library in Santiago is part of the Instituto Chileno-Norteamericano de Cultura, a bi-national center funded in part by USIS. The library is on the ground floor of the Instituto's building, is heavily used, and is short on space. Through the offices of the Regional Library Officer and USIS, a Wang computer was purchased and installed in the library. A consultancy visit of four days during April, 1989 was undertaken to provide training in its use and in library automation software.

A major incentive for the purchase of the computer was the desire by USIS to improve the library's outreach service in delivering legislative and judicial information to Chilean leaders. This objective is more easily achieved if library technical processing activities are expedited and if access to the collection and to online databases is improved.

HARDWARE AND SOFTWARE

The personal computer purchased for the library is the first to be installed. A number of years ago the library had a computer terminal and modem and used it to access online search services in the U.S. This activity has been dormant for some time, and the introduction of the Wang PC 280 (80286) represents a new beginning for the library. The machine has 640K of memory, a 44MB hard disk, a 1.2MB 5.25" floppy disk drive, a 360KB 5.25" floppy disk drive, and a color monitor. In addition, the library has a Wang PN060 14" dot matrix printer, a Hayes 2400 baud external modem, and a Phillips CM100 CD-ROM drive. Two additional pieces of hardware are missing from the current configuration: an uninterruptable power supply to keep the machine running during the power outages and 'brown-outs', and a tape backup unit. The library will be generating a large database of bibliographic records and a 0.25" tape backup unit is a much more efficient way to make a backup copy of the library's databases than floppy disks.

The personal computer runs both Wang System Services and DOS. Wang software included with the system consists of Wang word processing, DOS Version 3.2, GW Basic and Microsoft Windows. USIS has purchased for the library the Crosstalk Version 3.61 communications package, University Microfilms, Inc. Dissertation Abstracts on CD-ROM, the Data Trek library automation Catalog module, and the Data Trek Circulation

module. The library needs to purchase a copy of the Lotus 1-2-3 spreadsheet program and the Dbase IV database management system to round out its package of automation tools. It also needs to sign maintenance contracts for the Data Trek systems to insure continued technical support and updates to the software as they are released.

TRAINING ACTIVITIES

Prior to the consultancy visit, the hardware system and some software packages were installed by a local vendor and the senior staff received a several-day course from the vendor in the use of Wang hardware and the Wang Operating System.

Most of the consultancy visit at the library was spent providing training to the library director and three senior staff members. During the last day, the Library Director from the Valparaiso branch library participated. The Regional Library Officer also participated and assisted in all the training sessions. Training was conducted in a number of areas: use of DOS, use of the Data Trek Catalog Module, use of the Data Trek Circulation Module, Dbase concepts, and use of the Crosstalk communications package.

With only a week's exposure to personal computer fundamentals before the consultancy visit, the staff showed a remarkable aptitude for the machines and quickly assimilated many library automation concepts. However, it was clear that the training period was too short and only through continued practice and additional training will the staff master the machine and integrate it into its normal work flow.

There are many competing demands on staff time and it was only through a decision to close the library in the mornings of the consultancy visit that any training at all was possible. The staff needs continued practice with the computer. The best strategy for encouraging this is to keep the library closed for one more hour in the morning for at least a month and have the staff devote that time only to using the computer. If the concepts presented in the training program are reinforced by continued practice, there is a good chance the staff will feel comfortable with the machine and continue to use it.

USIS can support this training activity in the BNC by allowing its Wang Systems Manager to assist the library with the use of the library personal computer. The USIS Wang Systems Manager has a Master of Library Science degree from a U.S. Library School and is knowledgeable and interested in libraries and library automation. She participated in some of the training sessions and has considerable aptitude to be able to help the library. This is an extremely beneficial relationship between USIS and the BNC and should be encouraged.

PHYSICAL SPACE REQUIREMENTS

The library is extremely short of space. Currently there is no place the staff can use that is not a public area or not the bathroom. The only place the staff can store their valuables is in the bathroom.

Several roles are envisaged for personal computers in the library and they each have an impact on where the machine is located and how it is used. One of the primary roles is to aid in technical processing. This means the machine would use the Data Trek Catalog module to assist in cataloging library materials. Cataloging is not easily done in a public area, and yet the machine is currently located in one. If the technical processing computer remains in a public area, the staff risks the possibility that a member of the public could easily destroy the data files with some simple DOS commands.

The Assistant Cultural Affairs Officer has noted the availability of a storage area off the Periodicals reading room. This area is currently filled with materials awaiting cataloging, weeding, or sorting. It is also a drab room that is poorly organized. It is suggested that space in some other part of the BNC be allocated to the library for non-essential items such as empty boxes or infrequently used materials. Then this room should be remodeled and made an attractive technical processing area. When this is completed the computer should be moved in.

PRIORITIES IN LIBRARY AUTOMATION ACTIVITIES

There are a number of software systems that the library staff should become familiar with. The following is a ranked list indicating priority:

1. The DOS operating system.
2. The Data Trek Cataloging system.
3. Online database access.
4. Wang word processing.
5. The Data Trek Circulation system.
6. Dbase IV database management system.

7. Lotus 1-2-3 spreadsheet program.

Highest priority should be given to mastering the use of DOS. When the personal computer is powered-up it begins in Wang Systems Services mode. This mode is fine for users of word processing, but the staff needs to know a reasonable amount about DOS rather than Wang System Services in order to use and maintain the Data Trek cataloging and circulation systems, update the computer with new software releases and perform essential file-related activities.

Data Trek Catalog Module

The Data Trek Cataloging and Circulation systems work together in that data is shared between them. But it is not necessary to master both at the same time to make effective use of either one. It is recommended that the staff focus their training on the Catalog module by practicing entering and maintaining bibliographic data and authority file data, as well as printing cards, reports, and catalogs. Once this is completed, they can begin training on the Circulation module.

Effective use of the Catalog module will require that the bibliographic data on new books received be entered into the systems as it is received. In addition, a retrospective conversion of the existing card catalog records should begin. The simplest method of doing this that ensures the highest quality of conversion is for the library to purchase a CD-ROM product such as BIBLIOFILE which contains a large majority of the bibliographic records from the Library of Congress' collection on compact disk. The library would then put this compact disk in their CD-ROM reader, search for a bibliographic record on the CD-ROM, and then feed the record from the CD-ROM into the Data Trek Catalog module. The procedure would require two additional purchases: (1) a subscription to BIBLIOFILE, and (2) the purchase of the Data Trek DataBridge module which allows records from sources such as CD-ROM to be fed into the Catalog module.

Conversion of existing card catalog records to the Data Trek Catalog module will take time. When it is completed, the library will be able to do much more complex searching of its holdings to meet an expanded outreach program, and it will have the peace-of-mind of knowing that if the physical facilities of the library are destroyed the card catalog can be reconstructed from floppy disks or tape backup. It will also provide the foundation to ultimately replace the card catalog with computer terminals that users can search.

Some computer supplies such as continuous-form catalog cards, and continuous-form spine labels and book-pocket labels will have to be purchased in order to use the Catalog module in a production environment.

Online Database Access

Part of the library's improved outreach program involves performing online searches of the PDQ, Lexis/Nexis, and Dialog databases in the U.S. Access to these databases involves mastering online searching skills and mastering the use of a telecommunications access program. The staff needs training in database searching. It received some training in the use of Crosstalk (the communications package selected for telecommunications access) during the consultancy visit but none in online searching.

During the consultancy visit the Library Director arranged with Chilepac - the Chilean Packet Switching Company - for a free demonstration account. With that account the staff was able to learn how to log onto Dialog and use the DIALMAIL facility for exchanging information with the USIA Library Reference Department in Washington. This will be a valuable resource, since it will allow the library to quickly send reference queries to Washington. The staff also experimented with the USIA PDQ database by logging onto the USIA computer in Washington through Chilepac.

Online searching is an essential ingredient in outreach services and in meeting DRS member needs. It is estimated that the library should budget at least \$5000 a year for this service which will cover telecommunications costs (to Chilepac) and charges from the database suppliers (Lexis/Nexis, Dialog, etc.). The library needs to sign contracts with Chilepac, Dialog, and Nexis/Lexis for their services.

There was some interest in the library using the BITNET worldwide electronic mail system. It is not clear that this is a worthwhile endeavor since most of the communications the library is likely to undertake can be made through DIALMAIL. If there is little or no cost of such an experiment, the library should probably pursue it, but otherwise it can wait.

Wang Word Processing

The USIS Wang Systems Manager has promised to provide training to the library staff in the use of the Wang word processing system. This is a generous offer and should be

accepted. Word processing is an essential tool that the library staff should master.

Data Trek Circulation System

USIS has purchased the Data Trek Circulation system for the BNC library. This system will allow the library to automate book check-out procedures. In order to implement the system, each book in the library's collection will have to have a bar-coded ('Zebra code') label attached to it. In addition, each borrower will need to be issued a library card with a bar-coded label on it. When books are checked out, the circulation clerk will wave a wand over the user's library card and over each book label. The Circulation system will record that the book has been checked out. The system allows books to be checked-in, reserves to be placed on books, overdue notices to be generated, and a variety of reports on the use of the library's collection, and use by borrowers to be generated. It is a powerful tool to help manage the collection.

It is recommended that the implementation of the Circulation system be deferred until the Catalog system is working well, the staff has mastered Crosstalk, and they are familiar with word processing. The present manual circulation system is adequate and there is no urgent requirement to proceed with automation of the circulation function. The staff should begin practicing with the use of the system.

During the training period it appeared that the printer attached to the Wang 280 personal computer did not print bar coded labels correctly. There was insufficient time to investigate this problem, but if it is correct, there may be a need for an additional printer. Some libraries purchase an additional printer for such a purpose if only to avoid the time and effort of constantly changing forms when performing a new printing project. The library also needs to purchase a bar-code reader (wand) in order to experiment with its use in the circulation system.

Dbase IV Database Management System

During the consultancy visit training was provided in the use of the Dbase database management system. This system allows the library to store and maintain files of information. The example that the staff choose to use for the training exercise was to maintain a name and address list of individuals to whom the library wanted to provide outreach service. During the training program the staff saw that it was relatively easy to design a database for this purpose and to produce several reports from it.

Dbase has many applications in libraries and the staff should be encouraged to master it as one additional tool in their repertoire. The BNC should purchase a copy of the package and the staff should continue its training in it.

Lotus 1-2-3

The Lotus 1-2-3 spreadsheet program is an easy and convenient way to let the library track financial and statistical data. The BNC should purchase a copy of the program and the staff should receive training in its use.

ADDITIONAL PERSONAL COMPUTERS AND LOCAL AREA NETWORK

If it is the library's intention to automate its circulation activities and if it intends to use the Data Trek catalog module as a way of providing better reference services for outreach and for its DRS members, then it will need additional computers. The optimal arrangement is to purchase one machine for the circulation desk, one for the reference desk, and one for the technical processing room. The existing computer can be used for one of these functions. The library has one CD-ROM reader which is planned to be used for reference services. An additional CD-ROM reader will be required for the machine in the technical processing department to allow use of the BIBLIOFILE (or equivalent) system.

The Data Trek software is designed to allow data files to be shared. This means that there is a common file of bibliographic data stored on one personal computer and that all other machines share it (almost) simultaneously. Likewise there is a common file of data on borrowers and circulation records and this file can be accessed by any of the computers. In order for such an arrangement to take place, the three computers have to be connected into what is termed a 'Local Area Network'. In a LAN, each machine is connected to the next machine by coaxial cable, and a computer program called a Network Operating System manages the communication between the machines. Such an arrangement requires an additional computer, called a file server, which contains the common files. The network operating system allows each of the individual personal computers to access the files on the file server as if the files were located on the individual machine itself.

The library should begin planning for the installation of a LAN. Given the physical arrangement of the library and the desire to automate the circulation function, a LAN makes sense. LAN's are relatively complicated to manage, but the USIS Wang System

Manager has the capability to be trained to provide assistance to the library for this function.

SUMMARY

The library has just started using personal computers; every indication is that they will be successful. The library director is highly motivated and highly intelligent and recognizes the potential of automation.

Additional funding, physical space, training, software, and hardware will be essential for the success of the program. But there is little doubt that it will be a success.

RECOMMENDATIONS

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. Purchase an Uninterruptable Power Supply system for the current personal computer. If a network is installed, insure that at least the server has a UPS attached to it. \$3000.
2. Purchase a 0.25" tape backup unit. \$1500.
3. Purchase the Lotus 1-2-3 spreadsheet program. \$500.
4. Purchase the Dbase IV database management system program. \$500.
5. Sign a maintenance contract with Data Trek, Inc. for the maintenance of the Data Trek Catalog and Circulation modules. \$500/module/year.
6. Arrange for training for staff in online searching techniques.
7. Arrange for continued training for staff in library automation concepts. Suggest 1-2 additional weeks.
8. Close the library one hour in the morning for at least one month and have staff devote that time to practicing with the library automation systems.

9. Arrange for the USIS Wang Systems Manager to be allowed to be a consultant to the BNC library on computing matters as part of her ongoing duties at USIS.
10. Remodel the library storage area into an attractive technical processing area and move the Wang computer into this room.
11. Subscribe to the BIBLIOFILE CD-ROM system. \$900/year.
12. Purchase the Data Trek DataBridge Module and maintenance contract. \$1800 purchase + \$500/year maintenance.
13. Purchase supplies such as continuous form catalog-card stock, continuous form spine labels, book pocket labels, etc. \$1000.
14. Budget \$5000 for online search services.
15. Sign contract with Chilepac for telecommunications network services.
16. Sign contract with Lexis/Nexis for online search services.
17. Sign contract with Dialog Search Services for online search services.
18. Purchase a bar-code wand for the circulation system. \$500.
19. Consider purchasing an additional printer to print bar-code labels if current printer does not function correctly. (Further testing required before commitment necessary).

The following are recommendations for future expenditures (6 months - 2 years from now). The exact date of the expenditures will depend on the rate of progress with the current system.

20. Purchase two additional personal computers: one for the circulation desk and one for the reference desk. \$3000-\$4000 each.
21. Purchase one additional CD-ROM reader. Move existing CD-ROM reader to technical processing room and attach new reader to machine in reference area. \$1500.
22. Install a Local Area Network to interconnect the three machines (existing machine, two machines in #20 above) with a fourth machine (the file server).
 - a. Purchase a personal computer for a 'file server' for the network. \$6000-

\$8000.

b. Purchase Local Area Network Operating System. Novell is recommended. \$1500.

c. Purchase four network (hardware) cards - one to be installed in each machine connected to the network. Arcnet is recommended. \$400 each.

d. Purchase coaxial cable to interconnect the four machines.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO BNC LIBRARY SANTIAGO DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the library during the consultancy:

1. Gave tutorial on DOS concepts to senior staff.
2. Assisted in the installation of the Data Trek Catalog module.
3. Provided training in the use of the Data Trek Catalog module.
4. Assisted in the installation of the Data Trek Circulation module.
5. Provided training in the use of the Data Trek Circulation module.
6. Gave tutorial in telecommunications concepts.
7. Assisted in the installation of the Crosstalk communications package.
8. Coordinated with Packet Switching Company vendor in the use of the system at the BNC library.
9. Consulted with the following individuals during visit:
 - a. Public Affairs Officer
 - b. Cultural Affairs Officer
 - c. Assistant Cultural Affairs Officer
 - d. Assistant Cultural Affairs Officer - Designate
 - e. Regional Library Officer
 - f. Bi-National Center Director
 - g. Library Director
 - h. Senior library staff
10. Helped reorganize the Wang personal computer disk.
11. Helped revise Wang Services menus for access to library automation software.
12. Gave tutorial in use of DOS BACKUP and RESTORE commands.

13. Gave tutorial in the use of the Dbase database management system, its report writer, and its label printing program.
14. Provided training in the use of the DIALOG system DIALMAIL facility.

LIBRARY AUTOMATION AT THE USIS LINCOLN CENTER BUENOS AIRES

INTRODUCTION

The Lincoln Center library is located on the second and third floors of a building on one of the principal shopping streets in Buenos Aires. The second floor of the library is divided into two rooms, one housing the periodicals and audio-visual collections and the other holding the monographs. On the third floor are the offices of the Center director, the Library director, the head of technical processing, along with the technical processing department. A Regional Library Officer has offices on the fourth floor of the building and the Regional Book Office is on the third floor. Although the entrance to the library is unmarked from the street, it still attracts a large daily crowd of users.

HARDWARE AND SOFTWARE

The library has three personal computers, one located in the Technical Processing department, one in the Reference department and one in the Periodicals and Audio-Visual room.

Technical Processing Department Computer

The machine in the technical processing department is a Wang APC with an IBM emulation card installed. This machine has 640K of memory, one 360K 5.25" floppy disk drive, and one 33MB hard disk drive. It has a color monitor attached, and two Wang Printers. One printer is a Wang PM060 - a dot matrix printer with a 14" carriage and capable of letter quality output. The second is a PM16 - daisy wheel printer. An IBM Memory Wheelwriter 5 daisy wheel typewriter is also in the office and can be connected to the Wang. The APC machine has its hard disk partitioned with 8MB reserved for Wang operations including Wang Word Processing, and 24MB reserved for IBM DOS Version 3.2 operations (including library automation, Multimate word processing, and Dbase database management). It is used for administrative word processing (report and cable preparation), and for library technical processing (cataloging and acquisitions). The machine is old and awkward to use because of the IBM emulation card. Programs that run under the Wang Operating System work without difficulty, but in order to run a program that operates with the IBM DOS Operating System, the computer must be restarted with a DOS Operating System disk in the floppy disk drive and any time a new

application is started, the DOS disk must be in the floppy disk drive. Aside from this difficulty, the machine has a very slow processing speed and is not adequate for library applications. It is recommended that the machine be devoted to Wang Word Processing and that a new machine, equivalent to a Wang 380, be purchased for the technical processing department.

Reference Department Personal Computer

The personal computer in the Reference Department is an IBM Personal Computer (8086) with two 360K 5.25" floppy disk drives and a monochrome monitor. It has an external 10MB hard disk drive, an Epson LQ1500 printer, as well as an Hitachi 1503S CD-ROM disk drive. One 300 baud modem is attached to allow direct dial phone calls to database suppliers in the U.S, and a 1200 baud modem is also attached to allow access to the State Department telecommunications lines.

This machine has two major functions: it is used to perform online searching of a number of databases including the PDQ database at USIA, Washington, the Dialog Search Service databases in California, and the Lexis/Nexis legal databases. It is also used to search databases such as Books in Print, Dissertation Abstracts, Readers Guide, and Ulrichs Periodicals, all on compact disk. The machine is also used for word processing.

A number of software packages are installed on the machine including Dbase III database management system, Multimate word processing package, Logicat technical processing system, Crosstalk communications package, Pro-cite system which allows bibliographic data to be stored and maintained, and the Psearch system. The purpose of Psearch is to minimize the database charges and telecommunications costs of a search by preparing it before connecting to the search service.

Periodicals and Audio-Visual Room Personal Computer

The library recently obtained a Wang 280-3 personal computer. This is an IBM clone that has an 80286 central processing unit and is much faster than either of the two other PC's. The machine has a 35MB hard disk, 640K of main memory, a color monitor, one 1.2MB 5.25" floppy disk drive, and one 360K 5.25" floppy disk drive. It has a Wang PM060 printer attached. The library plans to use this machine to maintain its membership roles, to produce mailing lists, and ultimately to use it to automate the manual circulation operations. At the moment, it is used for training and for mailing list maintenance.

TELECOMMUNICATIONS

Online searching is an integral part of the library's outreach service and service to its DRS members, yet it has almost come to a standstill during the last couple of years. The library has two alternatives for making a telecommunications data connection to the U.S. One is via the State Department lines through the U.S. Embassy in Buenos Aires, and the other is via the Argentine packet switching company, ARPAC.

Use of the State Department lines requires a dedicated circuit between the library and the Embassy. The State Department line comes from Washington as a synchronous communication signal. When it reaches the library it is converted from a synchronous to an asynchronous signal and then processed by the Crosstalk communications package in the personal computer in the Reference department.

This circuit has been connected, but has only sporadically worked during a two year period. The Regional Library Officer has acted as an intermediary to try and help solve the technical problems with the line, but there has been no success. Frustration with this problem reached the point where the U.S. Ambassador to Argentina wrote a letter to the Argentine telecommunications agency hoping for some action, but nothing has been resolved yet.

The result of this impasse with access to the State Department lines is that when the library needs to do an online search, it sends one of its staff members to the Embassy. This is time consuming and an ineffective use of staff time even though direct telecommunications costs are reduced.

Two years is too long to wait for a resolution to this problem, and the library should simply start using ARPAC on a regular basis to do its online searching. The Public Affairs Officer has agreed to this strategy and if it is not followed, the library runs the risk that the online searching skills it has developed in its staff may disappear for lack of use.

TECHNICAL PROCESSING SOFTWARE

Relative to other USIS libraries, the Lincoln Center is in a good position to successfully automate its technical processing operations. This comes about because the library has not completely committed itself to any one technical processing system and has been experimenting with two. The two are the Logicat system from Sistemas Logicos of Mexico City and the Data Trek Catalog and Acquisitions Modules from Data Trek, Inc. of

Encinitas, California. During the trial period, the head of technical services has reached the conclusion that the Data Trek Catalog module offers more capabilities than the Logicat system and he plans to implement it. This consultant agrees with that decision.

In the past the library has done almost all its own cataloging rather than rely on catalog cards from its book jobbers. The staff felt that the changes to the card sets supplied with the books were so numerous that it was not worth obtaining them. One compromise that should be considered is to purchase the BIBLIOFILE compact discs that contain Library of Congress cataloging. If the library purchased this CD-ROM it could search BIBLIOFILE, make any changes to the cataloging copy it wanted, and then use the Data Trek DataBridge module to feed the BIBLIOFILE records into its Catalog module. A subscription to BIBLIOFILE is in the range of \$800-900 a year and makes economic sense. The library will need to purchase a second CD-ROM reader for the technical services department unless it wants to do its bibliographic searching in the Reference department.

Data Trek Acquisitions Module

During the consultancy visit, the technical processing staff was trained in the use of the Data Trek Acquisitions module. The staff correctly expresses some reservations about using the system given that they place a large percentage of their book orders from USIA in Washington rather than from book jobbers such as Baker and Taylor, or Blackwell North America. When most orders go to Washington, the record keeping requirements are minimal since all that is sent as an order is a cable with Book and Document numbers on it. Nevertheless, the Data Trek Acquisitions module has the ability to track orders and gives the library considerable control over order status and fund usage.

The library is also beginning to place more orders with Baker and Taylor. If this trend continues, the Acquisitions module will be an important tool to monitor orders. The library should be encouraged to use the Acquisitions module.

AUTOMATION OF CIRCULATION SYSTEM AND MEMBERSHIP LISTS

The problems of automating the library's circulation system and its membership lists are intertwined because of the nature of the software products available and the tasks that the library wishes to accomplish. Among the objectives of having a computerized file of members are to use this list as a basis for determining if a borrower is authorized to use the library, to produce mailing labels to members for announcements of Center events, to

keep track of member interest profiles for outreach services, and to record the types of materials sent to members as a basis for improving the quality of outreach service provided.

The library has purchased the Data Trek Circulation system which offers the capability of keeping track of borrower information (library members) as part of its circulation activities. The Circulation module also stores information about each copy of a book the library has on its shelf. Both the library card issued to the borrower, and each book have a bar-coded label on them and when borrowers check out books, a bar-code reader (wand) is passed over the borrower card and the book label.

Membership Lists

A number of attempts have been made by the library to use a personal computer to maintain its membership lists and it has also used manual methods. A variety of lists exist in card or machine form but this is not a serious problem since the Library Director has indicated that there is a turnover in membership every two years, thus many of these lists are obsolete.

Not all the goals of automating the membership lists can be met by using the Data Trek Circulation module. The Data Trek system allows users to access its databases through the Dbase database management system. Thus the library can take the Data Trek member database and use it with the Dbase system to produce reports such as mailing labels. This must be done with extreme caution since some changes to the database could severely damage the ability of the Data Trek Circulation module to function. If the library chooses this alternative it should make a copy of the database before using it with Dbase.

The simplest procedure for maintaining member profiles and lists of materials sent to users is to keep separate databases of this information. The most sophisticated way of doing this is to use a relational database model. In essence this assumes that separate databases are maintained for separate purposes. In this situation, the library would have the Data Trek Circulation system's database of members, their own database of member profile information, and another database of materials sent to members. All three databases would be linked to one-another by a common field that would be found in each database, namely either the member name or the member identification number. When reports were to be produced, the databases could be "joined" together. This approach is within the capabilities of the Dbase system. The library needs to purchase a current version of Dbase (Version IV).

Maintaining separate databases of each type of information reduces the likelihood that duplicate data will have to be stored in any one. For example, a simpler approach to the problem might be to store the member name and address in each of the three databases so

that without joining the databases together reports could be produced. This has the undesirable consequence of having the library maintain a users correct name and address in more than one database but it may be conceptually simpler to handle.

There is no clear indication of the type of library information nor the form information should take to be fed into the Buenos Aires USIS DRS system. When the library implements the above scheme, it will be able to produce a variety of information products, and/or floppy disks. It will only need to know what the DRS manager needs to be able to supply the data.

Circulation System

The library should automate its circulation system using the Data Trek Circulation module. This will require that the staff be thoroughly trained in the use of the Circulation system. It will also require that bar-code labels be put on each book in the collection, that a bibliographic record be entered about each book into the Data Trek system, and that a bar-coded library card be issued to each member. Entering bibliographic data about each book should be done through the Catalog module and the bibliographic data should be obtained from BIBLIOFILE as mentioned earlier. Once the book has been cataloged, the Data Trek system will make the bibliographic record available to the Circulation system. At this point a bar-code label for the book can be attached to the book and it will be ready to be checked out.

Bar code labels can be purchased pre-printed and they can be printed locally. The best strategy is to purchase pre-printed labels for the initial bar-coding of the collection and have the capability of printing bar-code labels on a local printer as a supplement. The library needs to test if its printer can successfully print bar code labels and if not invest in one that can.

LOCAL AREA NETWORK

Once the library has implemented the Acquisitions, Cataloging, and Circulation systems it will have the major components of an integrated library automation system. There will be logistic problems that will prevent full integration until a Local Area Network is implemented. A Local Area Network will allow each of the three personal computers to be interconnected and will allow one central file of information to be maintained rather than separate files on each personal computer.

It is feasible for the library to continue with its current plan of using separate computers for each function. The most difficult aspect of this arrangement will be keeping the Circulation system's bibliographic data in synchronization with that of the Catalog system. The library will have to keep two copies of the Circulation system operating - one on the Circulation department's computer and one on the Technical Processing department's computer. When records are added to the Catalog module in the Technical Processing department, the records will be automatically moved to the Circulation module on the Technical Processing department's machine. These new records will then have to be transferred to the Circulation department's Circulation module via floppy disks.

A Local Area Network will eliminate this kind of problem and insure that all workstations have access to a common up-to-date files of data. When the library purchases a new machine for the Technical Services department, this machine should have the capability of acting as a "file server" for the Local Area Network. A file server is the machine that is the central repository of data files for the network.

When a local area network is implemented, the library will need to purchase an additional workstation for the Technical Services department (since a file server is generally used only to manage a network, not be a file server and a workstation). It will need to purchase cards (hardware) to put into each workstation to allow network interconnection, a Network Operating System, and coaxial cable to interconnect the four machines (server, Technical Processing machine, Circulation machine, Reference machine). It is reasonable that this could take place within six months to one year from now assuming the implementation of the Data Trek modules goes well.

BUENOS AIRES AS A REGIONAL LIBRARY AUTOMATION CENTER

The head of technical processing and one of the Reference staff of the Lincoln Center show considerable aptitude with automation. With the assistance from a Buenos Aires vendor of Local Area Networks the staff members should be able to manage a library network themselves. This is indicative of a relatively high level of understanding on the part of these individuals of personal computer concepts and suggests that these two members could serve as a resource for the rest of the American Republics on library automation topics. It must be stressed that this arrangement depends on individuals not on institutions. The talent of the individuals is essential for a regional center to work.

This arrangement will require that the Lincoln Center acknowledge that some working time of these individuals will be taken up with training and advising other Posts. Some funding for this should come from the AR Area office in Washington, as well as E/CL in Washington, and perhaps the Regional Library Offices in the AR Region. If training time or consultation time is excessive, the Post requesting assistance should be prepared to help pay for it. The library must assume financial responsibility for its own automation projects. It should not use the fact that it is a regional center to avoid the responsibility of making a substantial financial commitment to library automation.

SUMMARY

The Regional Library Officer in Buenos Aires and E/CL in Washington has supplied the Lincoln Center with a variety of computer hardware and software for its library automation program. The library has two talented individuals who can guide the Center into a successful implementation. So far the Center has financially contributed very little to this arrangement. It must now decide whether to use what has been given to it until the hardware and software wears out or becomes obsolete, or make a continuing financial commitment to the project. The payoff to the library of automation is high in terms of improved staff productivity, better outreach service, enhanced online searching, more sophisticated access to the library collection, better financial control over library acquisitions expenditures, data on user information needs, and improved knowledge about how the library book collection is used.

RECOMMENDATIONS

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. A new personal computer should be purchased for the Technical Services department. This machine should be in the 80386 class, have at least an 80MB hard disk, and be capable of acting as a file server for a network, should the library decide to implement one. \$6000-8000.
2. The existing Wang APC computer should be devoted to Library Administration activities.
3. Immediately begin using the Argentine packet switching company, ARPAC, for telecommunications access to online databases in the United States.
4. Actively follow-up with the Argentine telecommunications agency on its problem with its dedicated line to the Embassy.
5. Begin production use of the Data Trek Catalog module as a way of producing catalog cards, acquisitions lists, and to build in machine-readable form an online catalog.
6. Sign a Maintenance Contract with Data Trek for technical support and periodic updates to the Catalog module. \$400/year.
7. Purchase the BIBLIOFILE CD-ROM product as a source of cataloging copy. \$900/year.
8. Use the Data Trek DataBridge module to convert BIBLIOFILE records to the Data Trek Catalog.
9. Sign a maintenance contract with Data Trek for the DataBridge module. \$250/year.
10. Consider purchasing a second CD-ROM reader for the Technical Services department. \$1500.
11. Begin using the Data Trek Acquisitions system for book orders to the Agency and to other book jobbers.

12. Sign a maintenance contract with Data Trek for technical support and updates to the Acquisitions module. \$400/year.
13. Train staff in use of the Data Trek Circulation System.
14. Use the Data Trek Circulation system to record member information.
15. Sign a maintenance contract with Data Trek for the Circulation System. \$400/year.
16. Develop separate databases to hold member profiles and outreach requests filled.
17. Begin retrospective conversion of library collection to machine-readable form using BIBLIOFILE and begin bar-coding collection for the automated circulation system.
18. Purchase a bar-code wand. \$500.
19. Purchase printer to print bar-code labels, if necessary.
19. Begin planning for the implementation in six months to one year from now for a Local Area Network to interconnect the Technical Processing, Circulation, and Reference computers with a file server.
 - a. Purchase an additional personal computer for Technical Processing department. \$3000-4000.
 - b. Purchase a Network Operating System. \$1500.
 - c. Purchase network cards for each of four machines. \$400/each.
 - d. Purchase coaxial cable to interconnect machines and wire center with the cable.
20. Purchase a copy of the Dbase IV database management system. The library currently has Dbase version III which is two versions behind the current one. It should update to version IV. \$500.
21. Purchase a 0.25" tape backup unit to be able to backup catalog and circulation files onto tape rather than floppy disk. \$1500.
22. Purchase a copy of the Lotus 1-2-3 Spreadsheet program Version 2.01 or greater, to run under MS-DOS. \$500.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO USIS LINCOLN CENTER BUENOS AIRES DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provide to the library during the consultancy:

1. Assisted in reorganizing the Reference department personal computer's hard disk.
2. Helped reinstall the Books in Print CD-ROM system on the Reference department hard disk.
3. Analyzed the library's telecommunications problems in connecting to the State Department lines in the Embassy.
4. Assisted in reorganizing the Periodicals and Audio-visual department personal computer's hard disk.
5. Assisted in reorganizing the Technical Services department personal computer's hard disk.
6. Helped install the Data Trek Catalog module.
7. Gave tutorial to staff on use of the Data Trek Catalog module.
8. Helped install the Data Trek Circulation module.
9. Gave tutorial to staff on use of the Data Trek Circulation module.
10. Helped install the Data Trek Acquisitions system.
11. Gave tutorial to staff on use of the Data Trek Acquisitions system.
12. Helped install the Data Trek Data Bridge module.
13. Gave tutorial to staff on use of the Data Trek Data Bridge module.
14. Advised staff on best approach to automate membership files.
15. Gave staff tutorial on use of the Dbase database management system, including database creation, label production, report writing, and joining separate databases.

16. Gave demonstration on how to access the Data Trek databases from Dbase.
17. Gave tutorial on use of Dbase for statistical record keeping.
18. Reviewed concepts of local area networks with staff.
19. Gave briefing to Public Affairs Officer on library automation at the Lincoln Center.
20. Consulted with the Center Director, Library Director, and Regional Library Officer about library automation strategies at the Lincoln Center.
21. Gave tutorial on the use of the Lotus 1-2-3 spreadsheet program.

LIBRARY AUTOMATION AT THE CENTRO COLOMBO AMERICANO BOGOTA

INTRODUCTION

The library in the Centro Colombo Americano has done a very good job with its automation activities with very little. For a number of years it has managed to perform miracles with an Apple IIe computer and a computer program called PFS - Personal Filing System. It has stored member lists in the machine as well as bibliographic records of its core collection. During March 1989 it finally received a respectable sized personal computer and is embarking on an ambitious program with little financial or technical support - it needs a lot more of both.

The library is part of a Bi-National Center (BNC) in located Bogota that is supported in part by USIS. The collection consists of about 10,000 books. In addition to ordering books for its own collection, the library orders for nine other BNC's throughout Colombia. The Bogota library director has enhanced the subject headings normally assigned to the books with ones more appropriate to Colombia, and when books arrive, they are cataloged and prepared for distribution to the other BNC's and to the Bogota Library. A recent exception to this procedure is orders for the BNC library in Medellin. The library was bombed, and the collection destroyed. The Medellin library is now ordering and processing its own materials because of the volume needed to be handled.

This report summarizes the results of a consultancy visit to the Centro Colombo Americano in Bogota for two days during April 1989. Appendix I analyzes the library automation program at the BNC in Medellin. Appendix II contains a summary of specific types of assistance provided to the Bogota library.

HARDWARE AND SOFTWARE

The library has an Apple IIe personal computer with 64K of memory, a monochrome monitor, and two floppy disk drives. It has a Transtar 130 Daisy Wheel printer attached which produces letter quality output. The major software tool used on the machine is PFS, a simple database management system that lets the library design the structure of

files of information, then lets the library enter and maintain the information, and to print reports from the files. There are two other PFS packages that are used: PFS Report, which allows reports to be printed from the files, and PFS Sortworks which sorts the files in preparation for producing reports.

The Apple computer has reached its capacity: it has run out of main memory space for many of its applications, needs a hard disk to store information more efficiently, and is in almost constant use. It needs to be replaced with another machine similar to the one just purchased for the library (AST Premium/286). In addition, funds need to be made available for the library to hire competent staff to help convert the data files from the Apple computer to the new machine. This will require at least two months of a full time bilingual data entry clerk.

The library recently obtained an AST Premium/286 personal computer with an 80286 central processing unit chip. It will operate at a clock speed of 6, 8, or 10 MHz and uses the MS-DOS Version 3.3 Operating System. This IBM-clone computer has a 33MB hard disk, one 5.25" 1.2MB floppy disk drive, and a color monitor. An Hitachi CDR1502S CD-ROM disk drive is also attached to the machine.

An extensive set of reference materials have been obtained on compact disk but most are available for a short time for an upcoming book fair in which the library will demonstrate the use of CD-ROM's in libraries. The products include Public Affairs Information Service (PAIS); Wilsondisc Readers Guide; Ulrich's Plus Serials database; University Microfilms' Dissertation Abstracts Ondisc, Newspaper Abstracts Ondisc, ABI/INFORM Ondisc, and Resource/One Ondisc. Additional CD-ROM products at the library include the Grolier Electronic Encyclopedia, Bowker's BIP+ (Books in Print), the Microsoft Bookshelf, and a compact disk containing the holdings of the Universidad Nacional Autonoma de Mexico.

While the AST computer came with the DOS Operating System, no additional software packages were purchased. The library needs to purchase a copy of Dbase IV, the database management system, the Lotus 1-2-3 spreadsheet program Version 2.01 or later, and a word processing package such as Word Perfect Version 5.0.

Most of the word processing in the library is performed on a Wang PC XC1-3 personal computer. It has a 30MB hard disk, two 5.25" 360K floppy disk drives, and a Wang PM101 daisy wheel printer. This machine does not have an IBM emulation card in it, is not connected to the USIS or Embassy offices, and only operates as a stand-alone word processor. The current version of Wang DOS installed on the machine allows software emulation of IBM DOS functions and thus the machine can convert Wang document files to IBM DOS ASCII files for transfer to the AST Personal Computer.

The library's productivity could be improved considerably if a telecommunications link were established between it and the USIS offices for electronic transmission of cable traffic, memorandum, reports, and reference questions and answers.

CURRENT LIBRARY APPLICATIONS USING THE APPLE IIe COMPUTER

The PFS File database management system is used to maintain the following files of information:

1. Books in the library's core collection.
2. Periodicals held by the library.
3. Subject headings used to index the materials in the vertical files of each of the ten BNC libraries.
4. Library members.
5. Individuals to whom the library supplies outreach services.
6. Names and addresses of librarians in Bogota.
7. Bibliographies of economic articles.
8. Annotations of the materials announced in the Agency's Books and Documents list.

The Word Juggler word processing package is used as the major tool for library correspondence. The library makes extensive use of it for normal correspondence and also has more than 25 form letters stored in it which are called up to simplify corresponding with users, vendors, and other agencies.

The library uses a program called K-12 Micro Media Catalog Card and Label Writer from Wehner Education Software to print catalog cards. A staff member types in bibliographic information and the program prints catalog cards from the data. Unfortunately the program does not store the data, it only formats it for printing and prints it. Thus there is no machine file of the cataloging data, only printed cards.

The Visicalc spreadsheet program on the Apple is used to prepare monthly statistics for the library.

CURRENT LIBRARY AUTOMATION APPLICATIONS USING THE WANG WORD PROCESSING SYSTEM

The Wang Personal Computer is used to perform word processing that cannot be handled on the Apple computer. Since the staff has not received adequate training in the use of the system, much of its potential is untapped. Nevertheless, the library makes heavy use of the machine. One word processing document stores lists of reference questions that have been answered since 1974. This list is distributed to all the BNC's in the country so that if a similar question is asked, the BNC can refer the question to Bogota for a quick response. Another word processing document contains a list of all the Video Cassette Recordings the library holds. Still another document has a list of all the books the library knows are missing from its collection. Many of these lists could easily be managed with the Dbase database management system on the AST computer, and they should be moved to that machine. This process can be performed manually, but with some outside expertise it can be accomplished with simple computer programming.

TECHNICAL PROCESSING AUTOMATION

The library's computing activities can be divided into two groups: technical processing and public services. In order to automate both parts and have adequate staff access to the computing power it needs, two IBM or IBM-clone personal computers are necessary. The Apple IIe should be replaced with an IBM personal computer for technical processing activities, and the new AST computer should be used for public service activities.

Cataloging

After a thorough evaluation of alternatives, the Library Programs Division (E/CL) of the U.S. Information Agency in Washington has recommended that Posts adopt the Data Trek, Inc. library automation computer programs in their libraries. (See Cable UNCLAS USIA 17185 Dated 21 March 1989). The Data Trek system consists of a number of separate programs or modules that allow the library to automate its book ordering (acquisitions), cataloging, circulation, and periodicals (serials) management. The Data

Trek cataloging module is appropriate for the Bogota library and it is recommended that the library purchase a copy, sign a maintenance contract for periodic updates to it, install it, and begin using it for cataloging.

When the Data Trek Catalog module is installed, the library will be able to create a computer file of its holdings. This has a number of advantages:

1. Much more sophisticated access to the library holdings are possible. The staff can search for a book using a combination of subject headings (Boolean searching), as well as easily find all the books published in a certain year, or by a certain author.
2. Selective lists of the library holdings can be produced and forwarded to DRS or outreach members in response to their needs.
3. If the library is physically destroyed, a machine-readable copy of the library's holdings will be available since a backup copy will be kept off-site. Once the library is rebuilt, a new machine can be installed and the file used as a basis for reordering. This would require literally thousands of hours of time to do manually.
4. If the library eventually decides to replace it's card catalog with computer terminals that allow online access to the catalog, creating machine-readable records of the holdings is an essential first step.

Beside the advantages cited above, the Data Trek Catalog module will do tasks the library needs now. It will print catalog cards, it will maintain an authority file of author, subject, and added entry names, and it will streamline technical processing operations.

The library has two alternatives in deciding how to enter bibliographic data into the Catalog module. One to proceed the way it has been doing things in the past - entering the data manually. Another is to get cataloging copy from a compact disk product such as BIBLIOFILE which contains Library of Congress cataloging. The library could subscribe to BIBLIOFILE, search for the cataloging copy it needs using BIBLIOFILE, and then transfer the copy to the Data Trek Catalog module. This would require a subscription to BIBLIOFILE and the purchase of an additional Data Trek module called DataBridge. This module allows records from external sources (such as a CD-ROM) to be moved into the Catalog module. It is recommended that the library use the Catalog module for six months before deciding whether it needs BIBLIOFILE.

PUBLIC SERVICE

The personal computer just purchased for the library is adequate for the library's public

service department. The CD-ROM reader is attached to this machine and it can be used to answer queries using the databases the library has on compact disk.

A computer file of member records is maintained on the Apple IIe computer. It should be converted to the AST computer. It may be possible to find an organization that can perform the conversion, but more than likely the data will have to be re-entered into the AST machine.

The Dbase IV system is generally recognized as the standard for personal computer database management systems. The library should design a database for its member records in Dbase and then enter the member data into it. Dbase allows extensive reports to be produced as well as a sophisticated query facility. The library will find that conversion to Dbase will considerably enhance the uses it can make of its membership files.

FUTURE AUTOMATION ACTIVITIES

There are a number of other functions that the library can automate in the future. It was recommended earlier that the library acquire a copy of the Lotus 1-2-3 spreadsheet program. This program is extremely useful for keeping library statistics, and for preparing and maintaining budgets. The library staff should be trained in the package and begin using it since they currently find Visicalc on the Apple inadequate.

Numerous applications of the Dbase system are also possible in the library. They include maintaining a database of information in the library's vertical file, recording information on outreach services provided to users, keeping a file of books on order, building a catalog of video cassettes and/or audio cassettes, to name but a few. The staff should have a training course in the use of Dbase IV.

RECOMMENDATIONS

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. Provide an adequate and continuous level of funding to the library for its automation program.

2. Replace the Apple IIe computer with a machine similar to the one currently purchased (AST Premium/286). The new machine should have a 33MB hard disk, 640K of memory, one 1.2MB 5.25" floppy disk drive, one 360K 5.25" floppy disk drive, a color monitor, and an Epson dot matrix printer. \$1300.
3. Hire staff for two months to help the library convert its data files from the Apple computer to the new computer. The staff needs to be bilingual and conversant with IBM computer operations.
4. Purchase a copy of the Dbase IV database management system. \$500.
5. Purchase a copy of the Lotus 1-2-3 spreadsheet program. \$500.
6. Purchase a copy of the Word Perfect 5.0 (or similar) word processing package. \$500.
7. Establish a telecommunications link between the library and the USIS offices to allow electronic transmission of cables, memorandum, reports, and reference questions and answers.
8. Purchase a copy of the Data Trek Catalog module. \$1800.
9. Sign a maintenance contract with Data Trek, Inc for periodic updates to the Catalog module. \$400/year.
10. Install the Data Trek Catalog module.
11. Consider subscribing to the BIBLIOFILE CD-ROM service as a source of Library of Congress cataloging. \$800-900/year. Purchase the Data Trek DataBridge module if the BIBLIOFILE system is acquired. \$1000. Maintenance \$250/year.
12. Use the Dbase IV database management system on the Public Services department computer to store the library member lists.
13. Provide training to staff in use of the Lotus 1-2-3 spreadsheet program.
14. Provide training to the staff in the use of the Dbase IV database management system.

APPENDIX I

AUTOMATION ACTIVITIES IN MEDELLIN BRANCH

A bomb destroyed the Medellin library nearly a year ago and since then the library has been under reconstruction. Before the bomb blast, the Medellin library had developed its own computer programs to help with circulating books and other applications. Before the bomb, the Center Director in Medellin had decided that the library had outgrown its Apple computer and decided to purchase a more sophisticated machine.

The Director felt that priority should be placed on having a multi-user system and that the UNIX Operating System was the appropriate choice for a microcomputer. This continues to be the right decision. For all practical purposes, there are no other serious contenders, and as of the date of this report the Microsoft Corporation has not released a multi-user version of its DOS Operating System.

The Medellin Center purchased a Proteus computer with an 80386 central processing unit, 7MB of main memory, and a 140MB hard disk. They also purchased the Santa Cruz Operations (SCO) version of the UNIX Operating System for personal computers, called XENIX Version V. The plan for the automation project is to distribute 15 computer terminals throughout the library and another 5 in other parts of the Center. The library purchased twenty Wyse Model 50 terminals for this purpose. The INFORMIX database management system was acquired, as was Word Perfect for XENIX, and the 'Professional' spreadsheet program from SCO, which is an adaptation of Lotus 1-2-3 for XENIX. The VPIX program from SCO was also purchased to let DOS programs run under XENIX.

To support this sophisticated and powerful hardware and software configuration, the Director has hired, on a temporary basis, an individual knowledgeable about the UNIX system and INFORMIX. This individual will be assigned to install the system and train the staff in its use.

The Center director is now reviewing library automation programs that can operate under the XENIX Version V system. A leading contender is the MultiLIS package from the Sobeco Company of Montreal Canada. MultiLIS has a number of modules including an online catalog, an acquisitions system, a circulation system, an authorities module, a report generation program, and a program that allows bibliographic records from the major bibliographic utilities (OCLC, UTLAS), from magnetic tape, and from CD-ROM to be imported into the system.

There is no question that the hardware and Operating System chosen for the library are excellent. The major problem is selecting a library automation package to run under

XENIX. The Center Director has not yet been able to determine if MultiLIS will run under XENIX. Although the MultiLIS advertising claims the system will operate under UNIX, it cannot be assumed it will run under XENIX. All UNIX systems are not necessarily alike internally. Assuming that the MultiLIS system will run under XENIX, it may be very costly. The promotional information indicates the system has many complex features, many of which are expensive to implement, and many of which may not be needed by the library. In general, this consultant believes that while the specifications for MultiLIS describe a very attractive system, they exceed the requirements of the Medellin library.

The library has considered one alternative if it cannot find a suitable automation package. That is to use the INFORMIX database management system and write its own software. Numerous libraries and private companies have tried this approach and only a few have succeeded. No doubt the library could produce some adequate software, but it could be very time-consuming, costly, and the software that was produced could lack the minimum functionality the library desires.

Another alternative should be considered. The library could abandon the idea of using the XENIX operating system in favor of a Local Area Network running the Novell Operating System, and DOS under the Novell Operating System. The Proteus machine would become the file server for the network, and the Wyse terminals would have to be replaced with personal computers. Each personal computer would have an ArcNet interface board in it to allow connection to the network. The size of the network would probably dictate the use of Novell Active Hubs to interconnect the workstations.

The result of this new configuration would be that the library could spend a very nominal amount of money for software that would run under DOS and would definitely meet its needs. For example, the Data Trek Circulation system costs about \$1800 and runs on a LAN. If the library wanted an online catalog it could purchase the Data Trek Catalog module for an additional \$1800.

This alternative is not inexpensive. It requires selling the Wyse terminals and buying small personal computers. It also requires purchasing a new operating system and network cards for each machine. However, it could be that this alternative is less expensive than purchasing the MultiLIS software, if in fact MultiLIS runs under XENIX. In any event, the last alternative the library should consider is developing its own software.

APPENDIX II

SPECIFIC ASSISTANCE PROVIDED TO CENTRO COLOMBO AMERICANO LIBRARY DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the library during the consultancy:

1. Gave tutorial on DOS concepts, including DOS commands, subdirectories, and PATH statement.
2. Assisted in reorganizing the personal computer's hard disk.
3. Explained concepts of autoexec.bat file and config.sys file.
4. Assisted in installing the following CD-ROM databases and their search software on the AST personal computer:
 - a. Public Affairs Information Service database
 - b. Wilsondisc Readers' Guide database
 - c. Ulrich's Plus Serials database
 - d. University Microfilms' Dissertation Abstracts Ondisc, Newspaper Abstracts Ondisc, ABI/INFORM Ondisc, and Resource/One Ondisc databases
 - e. Grolier Electronic Encyclopedia
 - f. Microsoft Bookshelf
 - g. Bowker's BIP+ (Books in Print) database
 - h. A compact disk containing the holdings of the Universidad Nacional Autonoma de Mexico
5. Provided a brief tutorial on Dbase concepts.
6. Demonstrated a methodology for transferring data files from the Wang personal computer to the AST personal computer.

LIBRARY AUTOMATION IN USIS EUROPE REGION - A SUMMARY

INTRODUCTION

This report summarizes consultancy visits to six USIS libraries in Europe during May-July 1989. The visits were funded by the Posts themselves, the EU Area office, and mainly by the USIA Library Programs Division (E/CL). The purpose of this report is to synthesize library automation trends in the USIS EU sites visited, not to repeat information contained in separate reports prepared after visits to Madrid, Rome, London, Paris, and Bonn. Brussels was also visited, but, by prior agreement with E/CL, a separate report was not prepared. Rather, brief evaluative comments about it are contained in this summary.

STATUS OF AUTOMATION IN USIS EU LIBRARIES VISITED

Over the past three years, this consultant has visited nineteen USIS libraries. During the last six months fourteen visits were made, beginning in EA, AR, and ending in EU. The effect of the present sequence of visits was to see the progress in library automation in other areas before coming to EU. When viewed in this context, the accomplishments in EU are not as impressive as they could be.

In general, funds for library automation are allocated by the Public Affairs Officer, Cultural Affairs Officer, Center Director, Area Office, Regional Library Officer, or E/CL. These individuals have to be convinced that library automation is worthwhile before they are willing to commit their scarce resources to it. In EU the result is mixed. Several Posts visited have highly successful automation programs while others have made very little progress.

The benefits of automation are substantial:

1. Library automation improves the quality of outreach services. One major goal of USIS libraries is to reach a highly selective audience. With library automation, staff can carefully extract materials that match user interests and deliver that information to the users.
2. Library automation improves the quality of support activities that help the library operate. By automating functions such as book ordering, cataloging books, and recording

the receipt of issues of magazine subscriptions, the staff exercises considerable control over these 'back room' functions and allows improved access to the library collection.

3. Library automation does not save money. Library automation improves the productivity of staff so that they can concentrate on meeting their target group's information needs.
4. Library automation improves management control. Computer programs that are used for library automation give sophisticated management information about the use of materials in the library, the amount of money spent on book and periodical orders, and the users of the library, to name but a few examples.
5. USIS libraries become a showplace for the latest American technology when they are automated.

Two types of automation activities must be distinguished:

1. The use of online searching.
2. The use of computer programs to automate basic library functions such as book ordering, circulating books to users, recording the receipt of magazine issues, or cataloging books.

All the libraries visited are proficient in the use of online searching to access computerized databases in the U.S. such as Dialog, the Agency's PDQ system, or Legislate. These databases are used to answer questions from library patrons that can not be answered from the books that are in the library's collection.

Several of the EU libraries visited are just beginning to move into the second category of automation. The reason for this late start is not obvious, but certain conjectures can be made:

1. EU Posts have many other competing demands for their funds and they are reluctant to allocate money to libraries.
2. Foreign Service Officers do not see the value of library automation programs.
3. Foreign Service Officers are unwilling to trust the judgment of their Foreign Service National staff that automation results in the improvements discussed above.

4. Regional Library Officers have limited experience with library automation and thus cannot be forceful advocates of the benefits of library automation to the Public Affairs Officers, Cultural Affairs Officers, or Center Directors.

5. Library directors often receive no formal commitment from their Foreign Service Officers as to the amount of money they have available to spend during the year. They are simply told to 'order books until we tell you to stop', and this strategy gives the director no capability of adjusting priorities to deal with library automation or automation training.

In the Posts visited, the use of computers for activities besides online searching is mixed. Madrid has one Wang PC Classic that it uses for online searching and Wang word processing. It does not have any library automation software and has not received training in the use of the one machine that it does have. Rome has survived for a considerable length of time using a Wang PC Classic for online searching and word processing. It has used the word processing system on the Wang to do creative things. A month ago, it received a new Wang PC which it is using for managing its magazine-periodical (serials) collection. London also has a Wang PC Classic and one newly-arrived machine, which it has used for the same functions as Madrid and Rome. In addition, one staff member has developed some library automation programs using the Dbase III+ database management system. Paris is in almost an identical situation to London. Bonn has a Local Area Network-an interconnection of personal computers that allow common files of information to be shared. Bonn has been experimenting with the use of four library automation programs from Data Trek, Inc, of Encinitas, California to help it with its ordering, cataloging, and serials management activities. It has been operating these systems in parallel with manual operations and has not committed itself to automation to the exclusion of the manual processes.

In contrast, Brussels can be considered a fully automated library by any standards. The Chief Librarian has taken the initiative, and his library has the most sophisticated automation system of any USIS library. The Brussels configuration consists of five personal computers forming a Local Area Network. One of the computers is a 'file server' which stores all the files of information used by all the staff. The other four computers are used as 'workstations' - each member of the staff has his or her own personal computer which is used to maintain files of bibliographic data, order books, check in serials, or check out books to users. All staff members have commented that the system took considerable effort to implement, but the result is a sophisticated tool that lets them focus their energy on supplying information to their clients not on performing clerical functions.

TRAINING

One of the first things that needs to be done in EU to support library automation is to provide considerable training to library staff in automation. With perhaps one or two exceptions, none of the FSN staff have received adequate training in the use of personal computers, the use of the Disk Operating System (DOS) that manages the operation of most personal computers, the library automation software that the Agency recommends to the Posts (Data Trek modules), the Dbase IV database management system, Local Area Network Operations, and telecommunications operations. On the other hand, Posts have received good training in online searching of Dialog, PDQ, and Legislate to answer reference questions. This imbalance needs to be corrected with a vigorous training program for the FSN's.

The FSN's are not alone in needing information about library automation. As mentioned earlier, several Foreign Service Officers do not recognize the value of automation, and need some introduction to the benefits that it can offer. In addition, many Regional Library Officers need a more detailed hands-on introduction to library automation so they can serve as consultants on this topic as well as on more traditional aspects of library management.

As an interim solution to developing Regional Library Officer competency in library automation, the EU Area Office in conjunction with E/CL should consider funding a library automation specialist who could advise Posts and solve technical problems. There are two parts to such a job:

1. Help Posts with planning and with the use of pre-written computer programs such as the Data Trek suite.
2. Help write specific computer programs to meet the needs of an individual Post.

An ideal candidate for the first position is the current director of the USIS Brussels library. He has considerable expertise with library automation as a user, has excellent interpersonal skills, and has won the confidence of all the librarians in EU by being responsive to their inquiries and giving sound advice when asked. It is recommended that the Brussels librarian be given this responsibility for a year and at the end of that time an evaluation of his performance be made.

Finding a person to fill the second position is more difficult and no immediate solutions come to mind. It is possible that the Brussels librarian can do part of this job, but some tasks are beyond even the competence he admits to.

FUTURE HARDWARE AND SOFTWARE REQUIREMENTS

The individual reports prepared for each Post outline specific hardware and software needs in order to automate. In general, the libraries that have one Wang PC Classic need to upgrade their machines to ones capable of running library automation software. Those libraries that do not have Local Area Networks installed will need to purchase them, for library automation is simply not viable if centralized files of information are not sharable between all staff.

Future automation in London, Brussels, and Bonn are slightly different. In London, the Cultural Affairs Officer has conceived of the idea of an automated reference center. This is a very novel concept, will require a Local Area Network, but will also require the development of computer programs which may be beyond the current level of skill of the staff. London will have to invest in training for the staff member who will have major responsibility for this project, and probably will have to contract for some programming support.

Brussels, as was mentioned earlier, is very advanced in automation. It has automated all its technical processing operations (book ordering, cataloging, circulation, and serials control). It has also converted all its card catalog records to computerized form. The next step is to replace its manual card catalog with computer terminals so that a user will search for books with the terminal rather than through a drawer of cards. Brussels will need several more Personal Computers to accomplish this final step in automation, but then will become the first fully automated library in the USIS system, and a showplace for American library automation technology.

Bonn provides technical processing support for its own library as well as seven other branches and five bi-national centers. This support includes ordering books, cataloging, supplying catalog cards, and ordering serials. Bonn's own automation plans are easy enough to formulate - a Local Area Network with an online catalog, an online book ordering system, and online serials control system. When future automation must take into account the best way to provide services to all the branches, the problem becomes much more complex and could have Area implications. Bonn could either promote Local Area Networks in each branch and supply databases to these branches over telecommunications lines, or it could set up a central computer system in Bonn and let each branch have terminals (instead of personal computers) to access the central database. The problem is complex and deserves considerable study of the costs and effectiveness of the alternatives.

SUMMARY AND RECOMMENDATIONS

The following section enumerates the comments and recommendations made in the text of this report.

1. Library automation in EU is not as advanced as in the USIS libraries visited in AR or EA.
2. Library automation can help support a number of USIS objectives and library automation programs deserves the support of USIS Foreign Service Officers.
3. All libraries visited showed complete competence with the use of online searching of bibliographic databases.
4. Regional Library Officers need additional hands-on training in library automation techniques and hardware and software packages.
5. USIS libraries need to be given a fixed budget to work with each year so they can decide on their spending priorities.
6. The EU Area office needs to allocate funds to replace ageing equipment and give libraries enough equipment to work efficiently.
7. All libraries will eventually need to install Local Area Networks in order to make the most efficient use of their equipment and databases.
8. Almost all staff needs training ranging from the most basic introduction to personal computer concepts to the use of word processors and database management system, to library automation computer programs.
9. Foreign Service Officers need an introduction to library automation concepts and how library automation can help them do their job more effectively.
10. The EU Area Office in conjunction with E/CL should allocate funds for a library automation specialist. This person would provide technical support for library automation in EU. It is recommended that the Brussels Chief Librarian be asked if he is interested in this position.
11. London will require assistance from the Area Office for funds to pay for programming of some parts of its ambitious 'automated reference center' plan.
12. Brussels will require Area funds to complete its automation program by purchasing

three additional personal computers to be used for access to its collection by computer instead of card catalog.

13. Bonn will need to undertake a study to determine the most cost-effective way to provide support services to its branches.

LIBRARY AUTOMATION AT THE WASHINGTON IRVING CENTER MADRID

INTRODUCTION

The Washington Irving Center Library in Madrid has about 14,000 books and 240 periodicals in its collection and it circulates 1,500 - 2,000 books a month. Its library automation activities have been confined to the use of Wang Word Processing and online searching of U.S. databases. The library is well managed, the staff is competent, and it is time to start a more extensive automation program. This will require adequate funding for personal computers, for a local area network to interconnect the computers, for library automation computer programs, for hardware and software maintenance fees, and for training of the staff.

This report summarizes the results of a three day consultancy visit to the library during May and June 1989. Appendix I to the report contains suggestions for future automation activities at the BNC library (Instituto de Estudios Norteamericanos) in Barcelona. Appendix II list the specific types of assistance provided to the library during the visit.

CURRENT HARDWARE AND SOFTWARE CONFIGURATION

The library uses a Wang Personal Computer (8086) with a 10MB hard disk, one 5.25" 360K floppy disk drive, and 256K of main memory as its main automation tool. The machine has a Wang PC-PM012 Daisy Wheel printer attached. It currently uses a very old version of the Wang DOS Operating System (Version 2.1) and it needs to be upgraded to Version 3.3. Additional memory needs to be added to the machine to raise it to 640K so that it can run library automation software packages as well as current versions of spreadsheet and database management system programs. A Hayes-compatible 1200 baud modem is attached to the machine but is not currently operational. A new modem or a new asynchronous communications adapter card needs to be purchased and installed so that the library can use this machine for online searching. In addition, a software communications package such as Crosstalk should be purchased to facilitate online access.

This machine is used exclusively for word processing. The library prepares bibliographies, a periodicals catalog, a video tape catalog, an authority file for its vertical

file subject headings, and correspondence and memorandum on it. Several of the staff are familiar with the word processing system but have had limited training on the use of other parts of the system.

Because the modem or the asynchronous communications card attached to the Wang PC has not functioned properly, the library has been using a Texas Instruments Silent 700 portable terminal with an acoustic coupler and thermal printer to access databases. This machine has a built-in modem and does nothing but act as a terminal. It has no local computing capability and no disk storage facility. Thus online searches can not be saved on disk, only logged to thermal paper for future reference. Once the modem and communications software is operational on the Wang PC, this machine should be retired.

The library uses the Spanish packet switching system (IBERPAC) for its telecommunications access to the U.S. This system allows the library to make a local call and be connected to the U.S. Telenet or Tymnet packet switching systems for interconnection to the DIALOG Information Service databases.

A Wang computer terminal has been installed in the library. This terminal is hard-wired to the Wang OIS system located in the USIS offices in the same building, and is used for word processing. The library needs the terminal to supplement the Wang PC because of the volume of word processing performed.

FUTURE AUTOMATION ACTIVITIES

There are ample reasons why the Washington Irving Library should launch a library automation program. First, the library is well managed and the manual procedures for running the library are well established and codified. Thus there is an existing structure within which tasks are performed and this makes an automation program easier to implement than if chaos reigned. Second, and most important, there are substantial benefits to be gained by an automation program. These include better access to the collection through an automated card catalog, better fiscal control over the book ordering process by the use of an automated acquisitions system, and better knowledge of which materials in the collection are lightly or heavily used through an automated circulation system.

The library could proceed piece-meal by purchasing one new personal computer and the necessary software packages to begin its automation program. But given there is capable management, the library staff is well organized, and there is considerable automation expertise in a nearby USIS library (Brussels) there is no reason not to proceed with an ambitious, but not unreasonable, automation plan.

A suggested automation plan is as follows: The library should automate its card catalog, its circulation system, and its book ordering system at the same time. This should be done by purchasing a total of seven personal computers. Two of the personal computers would be used by patrons of the library to access a computerized card catalog. One personal computer would be used by the Cataloging department to catalog new books with the automated system. One personal computer would be used to check books out to borrowers. One personal computer would be used by the Acquisitions department to order books, and one would be used at the Reference desk to help answer reference questions. The final personal computer would be a 'file server', that is it would be used to store centralized files of bibliographic information, book ordering information, circulation data, and patron address records. All seven computers would be interconnected via coaxial cable to form a Local Area Network (LAN) and the six workstations would be able to access the centralized files on the file server through the LAN.

The library automation software that is recommended for the Center is from Data Trek, Inc. of Encinitas, California. This software has been widely used in other USIS libraries and has been subject to critical evaluation and endorsement by USIA E/CL Library Programs Division. The library should purchase the Data Trek Catalog module, the Circulation module, the Acquisitions module, and the Data Bridge data conversion module and pay for yearly maintenance contracts for these modules. In addition to the Data Trek software, the library needs to purchase three general purpose software packages: a word processing system such as Word Perfect, a spreadsheet program such as Lotus 1-2-3, and the Dbase IV database management system. These packages are essential in order to have the necessary tools to fully automate.

HARDWARE AND NETWORK SPECIFICATIONS

As mentioned above, the library automation network in the Center will consist of six workstations and one file server. Four of the workstations should be IBM PS/2 Model 50 or equivalent computers each with a minimum of a 30MB hard disk, at least 640K of main memory, one 5.25" 360KB floppy disk drive, and one 3.5" 1.44MB floppy disk. They should be equipped with color monitors. The two workstations designed to be used to access the card catalog do not need to have the 360KB floppy disk drive, but do need to be equipped with relatively inexpensive printers so that users can print copies of the search results they obtain from the online card catalog. IBM Proprinters are appropriate.

The file server should be an IBM PS/2 Model 80 or equivalent computer with a hard disk of at least 120MB capacity, at least 2MB of main memory, one 5.25" 360KB floppy disk

drive, one 3.5" 1.44MB floppy disk drive, and a color monitor. This file server should have a laser printer attached to it so that high quality output such as bibliographies, correspondence, and printed catalogs, can be produced. The Hewlett-Packard LaserJet Series II printer is recommended.

The Local Area Network will require a Network Operating System software program, and network hardware boards will need to be installed in each of the seven machines. The Novell Advanced Netware Operating System is recommended as the Operating System. The library has a choice of either using ARCnet-type network boards in each workstation or Ethernet boards. Local area networks are relatively difficult to install but relatively stable to operate once they are running. It is recommended that the library purchase the local area network hardware boards and Operating System from a vendor in Madrid and insure that the purchase price of the hardware and software includes installation. The Data Trek system is not difficult to install once the network is operational, and training and assistance with this phase of the project could be provided by the Chief Librarian in USIS Brussels, if he is willing, and if suitable financial compensation can be made to Brussels for one to two weeks of his time.

A number of other items will be necessary to install the network. One important item is a tape backup unit. The library must be able to create a back-up copy of its data files and the only efficient way to do this is via a tape backup unit. Other items include coaxial cable and connectors to interconnect the workstations, a bar-code wand (to be attached to the workstation that is to be used for checking books out to users), bar code labels (to be inserted in the books), and bar code labels to be attached to borrower identification cards. Some of these items can be supplied by the vendor of the Local Area Network and some can be supplied by Data Trek.

STAFF TRAINING

A few of the library staff have received formal training in the use of Wang word processing and one person has learned to use other software packages on the Wang PC. In general, all the staff needs considerable training in the use of personal computers and software packages. This training should include courses in Personal Computer fundamentals, the use of the IBM DOS Operating System, the Novell Network Operating System, data communications concepts and the Crosstalk communications package, the use of Dbase IV, the use of Lotus 1-2-3, and the use of Word Perfect. In addition, the staff should receive training in the Data Trek library automation packages. Total training time will probably average 3-4 weeks per person.

DATA CONVERSION STRATEGY

A major task facing the library is the conversion of its existing card catalog to machine-readable form. This is a labor intensive task that cannot be expected to be performed in addition to the staff's normal responsibilities. The library should expect to have to hire a temporary staff member for 6-12 months to either help with the conversion or to perform duties that regular staff fulfill while the regular staff does the conversion.

The USIS Brussels library has already converted its collection to the Data Trek system and has offered to make the computerized catalog available to Madrid. This is a generous offer. Given the likely high degree of overlap between the Madrid and Brussels collection, the Madrid library can expect to save considerable effort. One strategy for molding the Brussels catalog to match Madrid's holdings is to install the Brussels catalog on Madrid's file server. Then the Data Trek software can be used by the staff to locate a bibliographic record that matches each shelf list card in the Madrid catalog. When the record is found, the call number and subject heading can be changed in the computer file, if necessary. If the record is not found, it can be entered into the computer system at that time. Each time a record is found a special code should be placed in it to indicate that it matches a record in Madrid's library. When the conversion process is completed, all records that do not have the special code should be deleted from the file.

Undoubtedly some records in the Madrid collection will not match the Brussels catalog and will have to be keyed into the new online catalog. If this is expected to happen frequently, the conversion could become a time-consuming process. Instead of keying the record, the library should consider purchasing a compact disk player to be attached to one of its workstations. This CD-ROM reader could be used with compact disks containing bibliographic citations from the Library of Congress (the BIBLIOFILE system). The library would search the BIBLIOFILE CD-ROM disks for the records it needed and with the aid of the Data Trek DataBridge module transfer the records into the new online catalog.

RECOMMENDATIONS

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations. The upgrade to the Wang PC described in recommendations 1,2, and 3 represents a poor alternative to recommendations 4-10. If the library chooses to install the Local Area Network it should give the Wang PC to another USIS department rather than upgrading it as suggested in recommendations 1-3.

1. Upgrade the Wang Personal Computer's Operating System at least to Version 3.3.
2. Add additional memory to the Wang Personal Computer to raise it to 640K.
3. Purchase a new Hayes-compatible 1200 baud modem for the Wang Personal Computer or install a new asynchronous communications card, or both, depending on the recommendations of the Wang field engineers.
4. Purchase the Crosstalk communications package for the Wang PC. \$120.
5. Purchase the following library automation programs from Data Trek, Inc.:
 - a. Data Trek Catalog Module. \$1800. Yearly maintenance \$400.
 - b. Data Trek Circulation Module. \$1800. Yearly maintenance \$400.
 - c. Data Trek Acquisitions Module. \$1800. Yearly maintenance \$400.
 - d. Data Trek Data Bridge Module. \$1000. Yearly maintenance \$250.
6. Purchase the following general purpose software packages:
 - a. Word Perfect Version 5.0 word processing system. \$500.
 - b. Lotus 1-2-3 Version 2.01 (or later) spreadsheet program. \$500.
 - c. Dbase IV database management system. \$500.
7. Purchase the following workstations:
 - a. Four IBM PS/2 Model 50 or equivalent personal computers each with at least a 30MB hard disk, at least 640K of main memory, one 5.25" 360KB floppy disk drive, one 3.5" 1.44MB floppy disk drive, and a color monitor. \$3400 each.
 - b. Two IBM PS/2 Model 50 or equivalent personal computers each with at least a 30MB hard disk, at least 640K of main memory, one 3.5" 1.44MB floppy disk drive, and a color monitor. \$3000 each.
 - c. Two IBM Proprinters, or equivalent, to be attached to the IBM PS/2

Model 50 (or equivalent) workstations used by patrons to access the online card catalog. \$400 each.

d. One IBM PS/2 Model 80 personal computer (or equivalent) with a hard disk of at least 120MB capacity, at least 2MB of main memory, one 5.25" 360KB floppy disk drive, one 3.5" 1.44MB floppy disk drive, and a color monitor. \$8000.

e. One Hewlett-Packard LaserJet Series II printer to be attached to the file server for high quality printing. \$1800.

f. Seven copies of the IBM Disk Operating System Version 3.3 or later. \$120 each.

8. Purchase the following Local Area Network hardware and software:

a. Novell Advanced Netware Operating System. \$1500.

b. Either seven ArcNet network cards or seven Ethernet cards for the seven workstations. \$500 each.

c. Coaxial cable and coaxial cable connectors to interconnect the seven workstations. Cable \$0.20/foot.

9. Purchase the following supplies:

a. Bar-code wand. \$400

b. Bar code labels for insertion in books.

c. Bar code labels for attachment to borrower library cards.

10. Purchase a tape backup unit to be able to create a tape copy of the library's databases. \$1600.

11. Train staff in the use of:

a. Personal computers

b. IBM Disk Operating System (DOS)

c. Word Perfect

- d. Lotus 1-2-3
- e. Dbase IV
- f. Crosstalk communications package
- g. Data Trek Catalog, Circulation, and Acquisitions systems.
- h. Novell Network operating system

12. Use the USIS Brussels Data Trek Catalog as a basis for developing Madrid's online catalog.

13. Hire one temporary staff member for 6-12 months to aid in the data conversion process.

14. Consider buying an Hitachi CDR-1503S CD-ROM reader (\$1500) and a subscription to BIBLIOFILE (\$900/year) to facilitate conversion existing card catalog records to an online catalog.

15. Arrange with the USIS Brussels Chief Librarian for technical assistance in installing the Data Trek software and training in its use.

APPENDIX I

LIBRARY AUTOMATION AT THE BARCELONA BNC

The Chief Librarian of the Instituto de Estudios Norteamericanos in Barcelona was present for two of the three days of the author's consultancy visit in Madrid. During that time the status of library automation in the Barcelona BNC library was discussed and future plans reviewed.

The Barcelona library operates in extremely cramped quarters and the BNC is in the process of searching for a new facility to house the administration and the library. The library has one IBM Personal Computer (8086) with 128K of main memory, two 5.25" floppy disk drives, a monochrome monitor, and an Okidata printer attached. The machine and the printer are very old and need to be replaced before maintenance costs overwhelm replacement costs.

Some years ago the previous library director arranged for software to be written to print catalog cards and to manage the book ordering process. The software works adequately now, but there is little documentation, and it is extremely hard to coax the author of the software to fix problems or make changes to it. The library needs to get on with its automation program and the easiest way to do this is to buy one new personal computer with 640K of main memory, with a 30MB or larger hard disk, and with a color monitor. A new printer should also be purchased as should the Data Trek Catalog and Acquisitions modules. The library should purchase the Dbase IV database management system and the Word Perfect word processing system so as to make maximum use of the computer.

With these purchases, the library can begin entering bibliographic data into the system and begin building a computerized catalog. When the library moves into new quarters, the library will be able to consider replacing its card catalog with the online catalog. The Data Trek acquisitions module will let the library manage its book ordering process efficiently. This is a simple first step. The chief librarian has a good grounding in personal computer fundamentals and is well equipped to undertake the project.

APPENDIX II

SPECIFIC ASSISTANCE PROVIDED TO THE WASHINGTON IRVING CENTER LIBRARY DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the library during the consultancy:

1. Reviewed current library automation activities at the Madrid library.
2. Consulted with Center Director and Library Director on goals for library automation.
3. Helped develop long range plan for library automation.
4. Gave tutorial on Dbase III+ concepts and the use of Dbase for library applications.
5. Helped analyze data communication problems and test and install communications software and hardware.
6. Reviewed current library automation activities with Barcelona BNC library director.
7. Helped Barcelona BNC library director develop intermediate range library automation plan.

LIBRARY AUTOMATION AT THE USIS ROME LIBRARY

INTRODUCTION

Automation activities at the USIS Rome library have concentrated on word processing and online searching. Until a month ago the library was using an old Wang Personal computer and a Texas Instruments Silent 700 terminal. It recently received a Wang PC280 computer and the Data Trek Inc. Serials system and is ready to begin a much more ambitious automation program.

Future automation plans should include the installation of additional workstations for the library, a Local Area Network, and the purchase of the Data Trek Acquisitions, Catalog, and DataBridge modules. In addition, the staff should receive training in the use of the Disk Operating System, other personal computer software, the Data Trek modules, and the Network operating system.

This report summarizes the results of a consultancy visit of three days to the Rome library during early June 1989. The final section of the report itemizes the recommendations in the text, and the Appendix lists specific tasks accomplished during the visit.

CURRENT HARDWARE AND SOFTWARE

The library's hardware consists of a Wang Personal Computer (8086) with a monochrome monitor, 740K of main memory, a 5.25" 360K floppy disk drive, and a 10MB hard disk. The machine has a good Wang Daisy Wheel printer attached, along with a 300 baud modem. Access to the State Department telecommunication lines is available through a Racal Milgo ComLink III modem. Unfortunately, technical problems have prevented the use of this line, and the library has had to resort to the use of the 300 baud modem to connect with the Italian government packet switching company (ITALPAK) for its online searching of U.S. databases.

This Wang Personal Computer has reached the end of its useful life for library applications. When this consultant arrived, there was a total of 4096 bytes left on the machine's hard disk (out of 10MB), and it was running a very old version of the Wang

DOS Operating System (Version 2.1). The machine could be upgraded by adding a larger disk, and installing a new version of the Wang Operating System. However, it is too slow for library applications, and is quite old. It should be replaced with another Wang PC280 computer.

The Wang PC is used for word processing and online searching. Word processing applications include the preparation of memos, cables, letters, reports, and bibliographies. The library uses the Dialog Information Service's online databases for many of its searches, but relies heavily on the Legislate database for current information on issues affecting Italy. It also uses the Agency's PDQ database on a regular basis as well as the databases from the H.W. Wilson Company (Wilsonline).

The library just received a Wang PC280 personal computer with 640K of main memory, a color monitor, a 30MB hard disk, one 5.25" 1.2MB floppy disk drive, and one 3.5" 720KB floppy disk drive. The machine has a Wang Dot Matrix printer attached as well as an Hitachi CDR-1503S compact disk drive. The Wang DOS Version 3.2 operating system is installed.

This machine was purchased so that the library could run library automation programs and also access compact disks containing library reference information. To this end, the Data Trek, Inc. Serials module has been purchased and University Microfilms' Dissertations Abstracts (on compact disk) have been obtained.

Data Trek's Serials system will allow the library to manage its collection of periodicals. The system keeps track of each issue of a periodical that has arrived, can issue claim notices for issues that have not arrived, and can produce reports on expenditures as well as printed catalogs of the library's holdings. During the consultancy visit, the Serials system was installed and staff trained in its use.

COMPACT DISK DATABASES

Attached to the Wang PC280 personal computer is an Hitachi CDR1503S compact disk drive. This drive will be used to access databases on CD-ROM instead of printed volumes of reference works or online databases with the same information. To begin the experiment with CD-ROM databases, the library has purchased the University Microfilm's Dissertation Abstracts database. The intent of the experiment is to show users how their information needs can be met by this form of information service and also show users the latest American technology.

The library will need to decide whether more CD-ROM databases are cost-effective. The

trade-off is between the purchase of the printed reference work containing the information, performing an online search each time a request is made for the information, or subscribing to the CD-ROM version of the database. Prices of CD-ROM databases average around \$1000 per year.

TELECOMMUNICATIONS

Many information requests processed by the library result in the staff doing an online search. Unfortunately, productivity is impeded by the current telecommunications configuration.

A 300 baud modem is attached to the Wang PC and this modem serves as the principal means of access to the Italian packet switching system (ITALPAK). The library recognizes that 300 baud is very slow and has ordered a 1200 baud modem to replace it. When this modem arrives, it should be installed immediately on the Wang PC. The library should also experiment with using it on the Wang PC280. In order to do this, it will need to purchase a good data communications software program such as Crosstalk. The Crosstalk program will let the library develop 'scripts' which will automatically log the user into an online database simply by selecting the service to be used. This is a very productive package, since it will reduce staff time and will reduce the tedium of typing the same commands each day. The Crosstalk program offers another facility that the current Wang communications program does not - the ability to capture searches onto floppy- or hard-disk files so that they can be printed, or incorporated into word processing documents, at a later time.

The library is fortunate to have access to the State Department telecommunications line. The Embassy has installed a connection from its telecommunications section to the library, and at the library a Racal Milgo modem connects the line to the Wang PC. Unfortunately, the library has had very poor luck using the line and has had to resort to the public packet switching network for its telecommunications access to the U.S. It is very possible that once the library begins using Crosstalk, it will find the line usable. Other USIS libraries have had reasonably good luck with it, although the human factors in making a connection are far from simple.

The library has been offered a computer terminal which would be connected to the Embassy's Wang OIS system. This is very desirable, since it will facilitate electronic mail between the library and USIS, and facilitate the preparation of cables and memos destined for USIS and Embassy offices. The telecommunications line and terminal are scheduled to be installed in the next few months.

FUTURE AUTOMATION STRATEGY

Library automation is not a goal in itself. The major reason for undertaking it is to improve staff productivity. No claims can be made that automation will reduce costs, rather it will improve access to the library's collection of materials, provide management information about how the library is used, speed up the technical processing operations necessary to put materials on the library's shelf, and provide financial data that will improve management decisions.

Further automation in the Rome library will have the tangible benefit of making the collection of materials accessible to others in Italy. A number of scenarios are possible: Once the library has taken the information in its card catalog and stored it in a computer system, the bibliographic data can be shared with other libraries in Italy through the SBN library network. This network will eventually let a large number of libraries determine the materials in each-other's collection by a user interrogating a computer system. The USIS Rome library could contribute its computerized catalog records to this project. Second, the library could produce printed versions of its catalog to be distributed to American Studies' (and other) faculty around Italy. Third, the library could allow anyone in the world with a modem to dial up the Rome library and determine what books were in the library's collection. The extent to which one of these scenarios prevails depends on the level of automation the library chooses. (The last one would require equipment and software beyond that described here).

The library has two possible strategies that it can follow in its automation program. One is the conservative approach of purchasing an additional Data Trek library automation program (the Catalog Module) and purchase the machine that will replace the old Wang PC.

The second strategy is to purchase two additional personal computers (the machine that will replace the old Wang PC, and one other machine) and link the two new machines with the already-acquired PC280 to form a Local Area Network - an interconnection of personal computers all sharing the same set of data files.

If the library selects the first option, the initial cost will be less, but the logistics of implementing an automation system will be more difficult. The design of an automated system under the first option would have one personal computer devoted to the management of the library's serials (periodicals) collection. A second personal computer would be devoted to the creation and maintenance of a computerized card catalog. Each computer would be able to perform only its own functions. Again, this is the least expensive method of proceeding and would require the purchase of one additional personal computer and the Data Trek Cataloging module.

The second alternative is to purchase two additional personal computers and connect them with the existing PC280 to form a Local Area Network of three personal computers. With this configuration, one of the machines would become the 'file server'. The file server would be the central repository of all the files of information used in the library automation system. The other two machines would be able to simultaneously access the central files. The difference between this design and the previous one is that any machine on the network could perform any function. Without an interconnection of machines and a common set of files, one machine can only perform one library automation task. Clearly, the second alternative is better, but it is more costly.

Both configurations will require that the library purchase the Data Trek Catalog module, at least one additional personal computer, a tape backup unit with which to save the library's data files, and a high quality laser printer. The second configuration will require that the library purchase two additional personal computers, an Operating System to manage the Local Area Network, and computer boards (network boards) to be inserted in each personal computer to allow the machines to be physically interconnected. Coaxial cable will also need to be purchased. If the second configuration is chosen, the network boards, the cable, and the network operating system should be purchased from a local vendor who also agrees to install the network.

Installation of the Data Trek Serials and Catalog module on the LAN is not difficult. The library can save considerable effort if it capitalizes on the work already done in the conversion of the USIS Brussels library card catalog to the Data Trek system. USIS Rome could arrange with USIS Brussels to obtain a copy of the Brussels catalog and install it on the Rome LAN. Then it could modify the Brussels records to conform to its catalog, thus saving some effort. It would be advantageous for Rome to enlist the services of the USIS Brussels Chief Librarian for one to two weeks of consulting services to help install the Data Trek modules on the LAN and also install the Brussels database.

It may be possible that not all the books that Rome has in its collection are in the Brussels catalog. If that is the case, the library will need to type into the Data Trek Catalog module its own records. If there are a lot of records to enter, the library should consider purchasing the Bibliofile CD-ROM system. This set of software and compact disks contains MARC catalog records from the Library of Congress. The library would search the Bibliofile compact disks for records it needed, and then use the Data Trek DataBridge program to move the records from the Bibliofile system to the Data Trek Catalog module.

After the library has successfully installed the Catalog module, it may want to consider purchasing the Data Trek Acquisitions (book ordering) system. Since the library's manual acquisitions process is working very well at this time, there may be more payoff to installing the Catalog system first and postponing the purchase of the Acquisitions system until a later date.

Several other software programs are essential tools for a library automation program. These include a good word processing program like Word Perfect, a spreadsheet program like Lotus 1-2-3, and the Dbase IV database management system. Dbase is very useful in conjunction with the Data Trek programs, since it lets the staff do much more sophisticated things with its data that Data Trek provides. It is recommended that these programs be purchased.

TRAINING

The staff has learned to use Wang word processing by itself, and has received some training in computer concepts from the Embassy computer staff. They need systematic training in the use of the Disk Operating System, in telecommunications concepts, the Crosstalk program, and in the use of the Data Trek Catalog system. If the library goes ahead with the purchase of a LAN, the staff will need training in the LAN operating system, and LAN fundamentals. The staff should also be given courses in the use of Word Perfect, Lotus 1-2-3, and Dbase IV.

RECOMMENDATIONS

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. Replace the Wang Personal Computer with a Wang PC280 with 640K of main memory, a color monitor, one 5.25" 1.2MB floppy disk drive, one 5.25" 360K floppy disk drive, and a 30MB hard disk.
2. Install the 1200 baud modem that is currently on order and begin doing online searches at 1200 baud.
3. Consider attaching the 1200 baud modem to the Wang PC280 computer rather than the Wang PC. This will allow more sophisticated communications software to be used (Crosstalk), and will improve searcher productivity.
4. Purchase a copy of the Crosstalk communications software package for the PC280 computer. \$120.

5. Once the Crosstalk software has been installed, renew experiments to use the State Department line for telecommunications access to U.S. database suppliers.
6. Purchase the Data Trek, Inc. Catalog module (\$1800) and contract for yearly maintenance on the system (\$400/year).

Assuming that the personal computer discussed in Recommendation #1 has been purchased, and assuming that the library decides to implement a Local Area Network, the following items should be obtained:

7. Purchase one IBM PS/2 Model 80 personal computer (or equivalent) with a hard disk of at least 120MB capacity, at least 2MB of main memory, one 5.25" 360KB floppy disk drive, one 3.5" 1.44MB floppy disk drive, and a color monitor. \$8000.
8. Purchase one copy of the IBM Disk Operating System Version 3.3 or later. \$120.
9. Purchase the following Local Area Network hardware and software:
 - a. Novell Advanced Netware Operating System. \$1500.
 - b. Either three ArcNet network cards or three Ethernet cards for the three workstations. \$500 each.
 - c. Coaxial cable and coaxial cable connectors to interconnect the three workstations. Cable \$0.20/foot.

Whether or not the library decides to implement the LAN, the following recommendations hold:

10. Purchase a tape backup unit to be able to create a tape copy of the library's databases. \$1600.
11. Purchase a Hewlett-Packard LaserJet Series II printer for high quality printing. \$1800.
12. Use the USIS Brussels Data Trek Catalog as a basis for developing Rome's online catalog.
13. Arrange with the USIS Brussels Chief Librarian for technical assistance in installing the Data Trek software and training in its use.

14. Consider subscribing to the BIBLIOFILE CD-ROM system (\$900/year) to facilitate conversion of the existing card catalog records to an online catalog.
15. Consider purchasing the Data Trek DataBridge Module to help in converting the card catalog to the Data Trek system. \$1000. Yearly maintenance \$250.
16. After the Data Trek Catalog module has been installed, consider purchasing the Data Trek Acquisition module. \$1800. Yearly maintenance \$400.
17. Purchase the following general purpose software packages:
 - a. Word Perfect Version 5.0 word processing system. \$500.
 - b. Lotus 1-2-3 Version 2.01 (or later) spreadsheet program. \$500.
 - c. Dbase IV database management system. \$500.
18. Train staff in the use of:
 - a. IBM Disk Operating System (DOS)
 - b. Word Perfect
 - c. Lotus 1-2-3
 - d. Dbase IV
 - e. Crosstalk communications package
 - f. Data Trek Catalog and Acquisitions systems.
 - h. Novell Network operating system

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO THE USIS ROME LIBRARY DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the library during the consultancy:

1. Gave staff a tutorial on DOS concepts.
2. Helped reorganize PC280 hard disk.
3. Explained concepts of subdirectories to staff.
4. Presented tutorial on the DOS PATH statement.
5. Helped install the University Microfilms Dissertation Abstracts CD-ROM database.
6. Provided training in the use of the Data Trek Serials module.
7. Guided staff in installation of the Data Trek Serials module.
8. Helped load the USIS Brussels Serials database into the Data Trek Serials module and test the results.
9. Gave demonstration of techniques for transferring output from the Data Trek system into a Wang word processing file.
10. Discussed long range plans for automation with Library Director, Regional Library Officer, and library staff.

A PLAN FOR AUTOMATION AT THE REFERENCE CENTER USIS LONDON

INTRODUCTION

'The Reference Center' is a USIS library that principally offers reference service to its users. In contrast to other USIS libraries, The Reference Center circulates almost no books and receives (by appointment) an average of only three users from outside the American Embassy each day. It is, as the name implies, a reference center, and is recognized within and outside Great Britain as providing excellent reference service to its clients.

Service Activities

Two major categories of reference requests are received by the library. One is quick reference inquiries from the general public, which require simple factual answers. These requests arrive through letter and telephone. The volume of letter requests is so high that the Center contracts with a vendor to handle the least difficult of these, and the volume of telephone requests is so high that the phone lines are only answered three hours per day. During the last six months of 1988, the Center staff received, on average, 825 letters per month, of which they answered 294, and sent 531 to the contractor for answering. Telephone requests during the same period averaged about 1100 per month.

The second category of reference service is provided to the library's target audience: Parliament, other British Governmental agencies, and industry, as well as Embassy and USIS staff. These requests average 30-40 per day and tend to be substantially more complex than the first category.

Library Automation

The Center occupies a part of a lower level of the American Embassy on Grosvenor Square in London. The area is due to be extensively remodeled and the result will be a

significantly improved working space for the library. This remodeling comes at the same time as an initiative developed by the current Cultural Affairs Officer to automate many of the library's activities. This initiative proposes that the library rely extensively on computing technology and computerized databases to improve its delivery of information.

The present report proposes a design for the automation of The Reference Center. The report was prepared during a visit in June 1988 in consultation with the library staff, the Regional Library Officer for the Area, and the Cultural Affairs Officer at the Post. The final section of the report summarizes recommendations made in the text, and, where possible, indicates costs of various options.

CONCEPTUAL OVERVIEW OF AN AUTOMATED SYSTEM

The services the Center provides can be divided into four very basic activities: receive requests for information, answer questions, disseminate the answers, and manage the process. Many more tasks support these services, including ordering materials used to answer questions, making the ordered materials available to the staff (technical processing), maintaining databases of information used to answer questions, performing online searches to answer questions, and a myriad of clerical functions like filing and xeroxing.

There are three goals for automation of The Reference Center:

1. To increase reliance on computerized databases to answer questions
2. To provide a computerized environment which will expedite the electronic receipt of inquiries and the distribution of answers.
3. To support the library staff by computerizing the record-keeping and clerical functions necessary to provide reference service.

These goals can be met by using currently available computer and database technology along with computer programs written especially for the library. The approach includes supplementing the library's collection of reference books with databases on compact disks (CD-ROM), and expanding the use of online bibliographic searching, extending development of its own computerized databases. Another dimension involves installing workstations for each library staff member that give access to a central file of computerized information and to computerized support functions that the staff needs.

DATA SOURCES TO BE USED IN THE AUTOMATED SYSTEM

The Reference Center will use a variety of data sources to meet its goals. In the automated system, these databases will be maintained and accessed using a computerized database management system. Most of the information to be stored in the databases is already accumulated by the library in paper form or in Wang Word Processing documents. The automated system will consolidate these data sources so they will be accessible from any workstation in the library.

The data sources can be divided into three major categories: bibliographic databases, factual databases, and user databases.

Bibliographic Databases

Bibliographic data sources include the following:

1. Article Alert database. The library currently disseminates a document announcing materials the staff feel will be relevant to their clients. The document is now maintained as a word processing document and should be converted and maintained as a Dbase IV database as soon as possible.
2. Government documents database. The library recognizes that it lacks adequate bibliographic control over its collection of documents. A Dbase IV database should be developed to hold descriptions of this material.
3. Vertical file database. The Reference Center, like many libraries, maintains a 'vertical file' of materials it believes will be useful in handling user queries. The nature of the materials in the file vary considerably but bibliographic records representing each item should begin to be stored in a Dbase IV database.
4. Video library database. The library currently has a Dbase III+ database designed for its nascent collection of Video tapes. This effort should be continued.
5. Periodicals database. One of the major sources of information for answering reference queries is the library's periodicals collection. The library has two alternatives for automating access to its holdings. One is to develop its own database of bibliographic records of its collection, or modify the one used by the

USIS Bonn library. Another is to use the automation program developed by Data Trek, Inc. to manage library Serials' collections. This Serials module is currently being used by a number of other USIS libraries.

6. Microform database. The library needs to establish a Dbase database of its microform holdings.

Some of these six databases already exist, and others will need to be created. When they are created, they will provide a valuable computerized file to aid in providing reference service. In addition to these six, the library regularly uses printed reference materials and performs online searching to answer queries. With an automated system, CD-ROM databases will be added to supplement the collection.

Retain Existing Hard Copy Collection

It is unreasonable to expect that CD-ROM sources or online searches can entirely replace printed materials as a source for providing reference services. These two sources are simply two additional places to find answers. At the initial stages of the automation project, the library should supplement its printed data sources with CD-ROM and additional online searches. But it should not replace any of its existing materials with CD-ROM or rely on online searching until it is convinced by experimentation that the CD-ROM or online source is better or at least equal.

There are a number of reasons for adopting this strategy.

1. It may not be cost-effective to use CD-ROM or an online search to answer a query. The cost per use of subscribing to a CD-ROM database or performing an online search may significantly exceed the cost per use of subscribing to the hard-copy version of the database.
2. There may not be computerized databases that exactly overlap with the reference requirements of the library. For example, the library could decide to discontinue purchasing one hard-copy reference source only to discover that certain types of information can only be found in that book and not in the online or CD-ROM 'equivalent' version.
3. Not all the material that the library disseminates is textual. Some of it is graphic and there is no standard method for electronic transmission and receipt of graphic information. Some CD-ROM databases will display graphics in response to queries, but these products require specialized hardware, and the total number of such products is

very few.

4. If the library relies exclusively on CD-ROM or online databases and cancels its subscriptions to hard-copy reference sources, it is putting itself at the mercy of the vendors. The library would be forced pay higher prices for the services, even though it no longer felt it was worthwhile.

5. If a hard-copy service was cancelled and later reinstated, the library would have a gap in its holdings that could jeopardize its future ability to answer reference questions. From the data made available to this consultant, it appears that approximately \$7000 is necessary to keep the library collection as is while adding CD-ROM products and conducting online searches. This is a small price to pay for the security of knowing that reference service can be continued if there should be problems with the technology or if the databases prove to be unsatisfactory.

Factual Databases

A second category of databases that the library should begin to build or supplement are those containing specific pieces of information necessary to answer reference questions. Like the bibliographic databases, some already exist in computerized form in the library, and some will need to be built or transformed. These include:

1. Quick Reference Database. The library has already developed a Dbase III+ database of specific facts it needs to answer many reference questions. A member of the staff has written Dbase programs to support the application and the programs are in daily use.
2. Standard Reply's. Many of the responses the library makes to requests repeat themselves. A number of word processing documents have been created to simplify answering these questions. These documents should be converted and stored in a Dbase IV database and be available for producing letters on demand of the staff.
3. Legislate Briefings. Currently, the library performs an online search of the Legislate database and prints out and distributes a list of briefings each day. These briefings should be stored as a Dbase database and made available to the staff for searching online.
4. Biographic Data. Many requests are made of the library for biographic information. Many of these can be satisfied by using standard printed reference sources. Others are more specialized and could be completed if the library were to maintain its own database. It is recommended that such a project begin, and

the biographies stored in a Dbase database.

User Databases

One of the benefits that will come with automation of the library will be better management information about the activities the library performs and better data about the library's users. An important repository of this information will be a series of databases storing information about library users. They include:

1. Address information. This database will contain information about the user's home and business address, phone numbers, etc. It will be used for producing mailing labels and addressing correspondence.
2. Subject interests. This database will contain information about the user's areas of interest. It will be used as a basis tailoring outreach services and selective mailings.
3. Outreach requests. This database will record the sequence numbers of the Alert Documents that users have requested from the library. The database will be used to generate work orders for xeroxing materials to be sent to the user.
4. Other reference services. This database will record the reference questions asked by the user and responses provided. It will be used to generate form letters in response to queries and serve as a file of pending requests for information.

HARDWARE AND SOFTWARE CONFIGURATION

Each member of the staff needs access to the three categories of databases described above. In order to accomplish this goal there needs to be a workstation for each person, and the files of information need to be shared amongst the staff. A hardware configuration that will allow this is a Local Area Network (LAN). A LAN is an interconnection of personal computers such that each personal computer can either work by itself or it can access programs and data on one central personal computer - the file server. The library needs to install a LAN with a minimum of four workstations and one file server. Additional workstations should be added to meet the needs of library users, who will require access to the same databases and CD-ROM products as the staff.

With this hardware configuration, the staff will be able to develop Dbase IV applications

which will help them access computerized data sources and manage the receipt and dissemination of reference information. Most of the programming necessary to automate is well within the capabilities of the staff, once they have received proper training. Other programming, and the installation of the LAN and the Wang-Library LAN link (described below) should be done by contract.

Access to Computerized Data Sources

To help access computerized data sources, staff workstations will have 2400 baud modems attached and an external telephone line to each modem. This will allow any staff member to use his or her personal computer to perform an online search without leaving it. With software such as Crosstalk, the staff member can automatically log onto a search service such as Dialog, PDQ, or Legislate, conduct a search, and capture the search results to a personal computer disk file where they can be saved, printed, or routed to the requestor in a manner described in a following section ('Dissemination of Reference Information').

Likewise, each of the workstations will have CD-ROM disk drives attached to them so that CD-ROM databases can be searched from any one. It may be possible to attach multiple CD-ROM disk drives to the file server so that the CD-ROM databases can be shared over the LAN. As of this date, the technology for such a configuration is available but not proven in a high-volume working environment. The safest course of action would be to purchase multiple drives and disperse them over the workstations on the network.

Each of the Bibliographic, Factual, and User databases will be available to each workstation on the network. The staff will be able to search each database, as well as add new records, and change and/or delete existing records from the databases. Programs will be available to print out individual records from the databases, as well as print complete listing of the databases in a variety of arrangements. A laser printer will be attached to the file server to allow high-quality output, and an inexpensive printer will be purchased to print mailing labels. The programs to support these tasks will be written in Dbase IV.

Receipt of Requests for Information

A variety of methods will be used by the Center to receive reference requests. The

telephone will continue to be an important means by which a user can communicate with the library. But a variety of other methods will be available and encouraged. These include telefaximile machines and electronic mail. A FAX machine will be installed in the library and users will be able to send requests to the library this way.

The library will open an account with British Telecom (Great Britain's telecommunications organization) so that it can have an electronic mail box on the organization's Telecom Gold electronic mail system. Users will be encouraged to send requests to the library through the Telecom Gold system, and the library will check its Telecom Gold mailbox several times a day for electronic messages.

The library's LAN will be connected to the Embassy's Wang VS system and software will be purchased to allow electronic mail messages from the Wang VS system to be received by the library's system, and messages from the library's system to be transmitted to users on the Wang VS system. This will allow any user who has a Wang account to be able to electronically transmit requests and messages to the library.

The local area network will have an electronic mail software package installed on it so that staff members can send mail to one-another, thus expediting the handling of reference requests and minimizing the amount of paper memorandum generated.

Dissemination of Reference Information

A variety of methods will be used to transmit the results of an inquiry back to the user. The user database will have the user's telephone number in it and programs will be obtained or written that will allow the reference staff to select a user record from the database and have the program dial the user's phone number. Automatic re-dialing will be available if the staff member requires it.

Just as the user can transmit requests to the library through FAX machines, the library can transmit the answers back to the user through the FAX machine. The library will also install FAX boards in some of its workstations so that faximilies of word processing documents can be transmitted to the user's FAX machine without going through the intermediate step of printing the word processing document and then transmitting the printed copy through the stand-alone FAX machine.

Responses to user queries will also be transmitted back through the Telecom Gold electronic mail system, and to Embassy users to their Wang VS accounts.

The library will dedicate one of its workstations to an Electronic Bulletin Board System

(BBS) which will allow general information to be made available to anyone with a terminal and a modem who wishes to telephone into the system. Information such as the Books and Documents list, parts of the Wireless file, and commonly posed reference questions could be made part of the BBS's database. Similarly, the library will post these same files of information on the National Educational Resources Information Service (NERIS) computer system so that educators can access the information.

EXAMPLES OF SYSTEM OPERATION

The following scenario's are intended to illustrate how the computerized system would work:

1. The user telephones the library and identifies him- or herself. The staff member searches the database for the user record. The user indicates that he or she would like copies of several documents announced in the Alert list. The staff member enters the numbers of these documents in the user record, the program generates a mailing label to be affixed to the envelope that will contain the xeroxes of the articles, and the program generates a work order on the laser printer telling the clerical staff member which articles to xerox and to whom they are to be sent.
2. The library receives a request via a user's Telecom Gold electronic mailbox. The request calls for a search of one of the library's CD-ROM databases. The staff member does the search, captures the search results onto a disk file, and then uploads the results to the library's Telecom Gold account where it is forwarded to the user's mailbox. The staff member records the service performed in the user database so that statistics of the transaction can be summarized at the end of the month and year.
3. A staff member receives a request for information from a member of the Embassy staff, say the Press Section. The request is sent by the Press Section through the Wang VS system to the library's LAN. The staff member receives the message, does an online search to obtain the necessary information, and sends the result back to the Press Section through the LAN's electronic mail system. The staff member again updates the user database with a record of the work performed.
4. A letter is received requesting a specific piece of factual information. The staff member enters the user's name and address in the user database, selects one of the 'pre written' answers from the factual database, and instructs the system to print a letter to the requestor with the answer. The letter is printed on the laser printer and sent through the mail to the user.

TRAINING

The library staff has received very little formal training in the use of computers and has had little release time from their ongoing duties to teach themselves about computing concepts. A comprehensive training program must be initiated in order for the system described above to be successfully implemented. Staff members should complete training courses in the following topics:

1. Personal Computer fundamentals.
2. Disk Operating System (DOS) concepts
3. Telecommunications concepts
4. Local Area Network operations
5. Dbase IV concepts
6. Dbase IV programming
7. Lotus 1-2-3 concepts

This training program should take from three to five weeks of time per staff member and should not commence until each staff member has his or her own personal computer with which to experiment. Sufficient release time from ongoing duties must be made available after each class is completed for the staff member to be able to use what has been learned without the pressure of the normal workload.

RECOMMENDATIONS

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. Begin building the bibliographic databases described in the text of the report.
2. Acquire CD-ROM databases to replace some existing hard copy sources, but maintain overlap during first year of the project.
3. Purchase four Hitachi CDR1503S CD-ROM disk drives and controller cards.
4. Begin developing or expanding the factual databases.
5. Begin developing the user databases.

6. Immediately replace the Wang Classic Personal Computer with an IBM PS/2 Model 50 personal computer with a minimum of 640K of main memory, a color monitor, one 5.25" 1.2MB floppy disk drive, one 5.25" 360K floppy disk drive, and at least a 30MB hard disk.
7. Purchase three additional IBM PS/2 Model 50 computers, as described in item 6 above, as workstations for the staff.
8. Purchase one IBM PS/2 Model 80 personal computer (or equivalent) with a hard disk of at least 120MB capacity, at least 2MB of main memory, one 5.25" 360KB floppy disk drive, one 3.5" 1.44MB floppy disk drive, and a color monitor. This machine will be used as the file server for the LAN.
9. Purchase the following Local Area Network hardware and software:
 - a. Novell Advanced Netware Operating System. \$1500.
 - b. Five Ethernet (Token Ring) cards for the four workstations and one file server.
 - c. Coaxial cable and coaxial cable connectors to interconnect the three workstations.
10. Purchase a tape backup unit to be able to create a tape copy of the library's databases. \$1000
11. Purchase a Hewlett-Packard LaserJet Series II printer for high quality printing. \$1800.
12. Purchase a printer to be devoted to printing mailing labels. \$500
13. Purchase five copies of the IBM Disk Operating System Version 3.3 or later. \$120 each.
14. Purchase four Hayes (or compatible) 2400 baud internal modems.
15. Purchase copies of the Crosstalk communications package for use with the modems. \$120 each.
16. Install telephone lines to each workstation.
17. Purchase a stand-alone FAX machine for the library and install a telephone line to it.

18. Open an electronic mail account with Telecom Gold.
19. Obtain software and hardware for the Wang VS and the Novell Local Area Network to allow the Wang VS system to interconnect to the library's LAN.
20. Purchase an electronic mail system to run on the library's Novell LAN.
21. Purchase two FAX boards and software for the PS/2 personal computers.
22. Purchase an additional PS/2 Model 50 personal computer to be used as the hub for the electronic bulletin board system. Purchase BBS software.
23. Purchase the following general purpose software packages:
 - a. Word Perfect Version 5.0 word processing system. \$500.
 - b. Lotus 1-2-3 Version 2.01 (or later) spreadsheet program. \$500.
 - c. Dbase IV database management system. \$500.
24. Train staff in the use of:
 - a. IBM Disk Operating System (DOS)
 - b. Word Perfect
 - c. Lotus 1-2-3
 - d. Dbase IV
 - e. Crosstalk communications package
 - f. Novell Network operating system

LIBRARY AUTOMATION AT THE BENJAMIN FRANKLIN DOCUMENTATION CENTER USIS PARIS

INTRODUCTION

The Benjamin Franklin Documentation Center is located on the second floor of a beautiful building near the Place de la Concorde in Paris. The library contains about 10,000 books (that do not circulate) and receives roughly 250 periodical titles. During April 1989, nearly 1000 people came to the library, and the staff answered close to 2000 reference questions (divided three-quarters quick reference, one-quarter research). Slightly more than 60 percent of all reference activity was done via telephone. The library also has an active outreach service.

The library staff are active users of their one IBM Personal Computer. The machine is so heavily used that there are 'friendly wars' among the staff to get access to it. The staff is enthusiastic about the automation program, but it needs an infusion of new equipment, software, and training to advance. The results will be impressive once these ingredients are supplied.

This report was prepared during a three day consultancy visit during June 1989. It reviews the state of automation and makes suggestions for future automation activities. The final section summarizes the recommendations in the report, and the Appendix lists specific accomplishments during the visit.

HARDWARE AND SOFTWARE CONFIGURATION

The library currently uses both its own IBM Personal Computer and two terminals connected to the USIS Wang OIS System located on another floor in the same building. The terminals are used for word processing. The library also has a printer attached to the OIS.

The personal computer is an IBM PC/XT with 640K of main memory, one 10MB hard disk, one 20MB hard disk on a card (hardcard), a monochrome monitor, an internal 1200 baud modem, and two 5.25" 360KB floppy disk drives. The IBM Disk Operating System

Version 2.1 is used on the machine. It should be upgraded to Version 3.3 or later, although a better strategy would be to replace the machine (see below 'Hardware Configuration to Support Automation Plan'). An IBM Wheelprinter Model 5216 (daisy wheel) is attached, and although it is slow and in need of repair because of a paper-feed problem, produces high quality output.

From time to time, the library has experimented with the use of the State Department telecommunication lines for access to databases in the U.S. A Racal-Milgo MPS 24 Modem is attached to the machine for this purpose, but there has been such bad luck using the line that the experiment has been abandoned in frustration. The French PTT's packet switching system (called TRANSPAC) is used instead.

One of the main uses of the PC is for database searching. A combination of hardware card, modem, and software communications program, called Kortex, has been installed on the machine and is used daily to access the Dialog Information Service, the Legislative databases, the French Minitel (Viewdata/Teletex) system, and occasionally the U.S. Information Agency's PDQ database. Kortex has a number of desirable features, but seems to lack the ability to run 'scripts' that will reduce the tedium of logging onto database services. The library should experiment with the Crosstalk system to see if it can be used instead of Kortex for applications other than Minitel.

The Center has purchased several library automation computer programs developed by Data Trek, Inc. of Encinitas, California. These programs include the Data Trek Serials system, the Acquisitions module (manages book orders), the Catalog module (allows the creation of a computerized catalog of the library's holdings), and the DataBridge system (lets bibliographic data be entered into the system without direct keying).

The Serials system allows the library to keep track of periodical titles, and issues of titles it receives, and automatically produce letters to publishers indicating that issues have not been received. The system will also print a catalog of serial titles along with the issues that the library holds. The library should continue to use the system and should contract with Data Trek to receive updated versions of the software.

Although the library has purchased the other Data Trek modules, it has not had the training, the time, or the computer hardware capacity to use them.

Two other computer programs are used frequently on the PC. These are the WordPerfect word processing system (Version 4.2), and the Dbase III+ database management system. Both these packages are essential to a library automation program, are excellent choices, and both need upgrading. The WordPerfect system Version 5.0 should be purchased, as should Dbase IV.

LIBRARY AUTOMATION APPLICATIONS

Almost all the letters, memorandum, and other written correspondence in the library is done using the Wang OIS word processing system, or WordPerfect on the IBM PC. Database searching is also a common activity and is used routinely to answer user queries. The Data Trek Serials module is used daily to record the arrival of individual issues of library periodicals.

One of the more innovative applications of computing the library has undertaken has been a database containing bibliographic records from its 'vertical file' and from its collection of government documents. This application uses the Dbase III+ database management system, and one staff member has written a series of Dbase programs to let other staff enter new records, search the files, and print out reports. This application is an excellent use of automation within the library. One staff member took the initiative to learn Dbase herself, figured out that it could be useful, designed an application, convinced the staff that it was a good idea, and trained the staff to use the system. If additional training were supplied, many more applications could be developed with corresponding improvements in staff productivity and access to the collection.

FUTURE AUTOMATION PLANS

With its one IBM Personal Computer, the library has made considerable progress with automation. The next steps are straightforward:

1. Continue developing the 'vertical file' database and the 'documents database' using Dbase. Order Dbase IV and shift applications from Dbase III+ to Dbase IV when Dbase IV arrives.
2. Continue using the Data Trek Serials module to record library holdings of periodicals. Once more equipment is available, discontinue the serials check-in procedures that use check-in cards to record arrivals and rely exclusively on the Data Trek Serials system.
3. Begin using the Data Trek Acquisitions module to generate orders for books, keep track of the finances of book purchases, and issue claims for materials that have not arrived.
4. Start to use the Data Trek Catalog module to store computerized records of the library's holdings. Consider using the catalog records from the USIS Brussels Library as

a basis for converting the Benjamin Franklin Library collection of bibliographic records to machine-readable form. Use the Data Trek DataBridge module to move bibliographic records into the Catalog module.

Hardware Configuration to Support Automation Plan

In order to proceed with the plan, each member of the staff needs to have her own workstation and access to the central files of information that are being built. This type of arrangement requires that the library install a Local Area Network, or LAN. A LAN is an interconnection of personal computers that allow the PC's to work by themselves or to access centralized files.

With a LAN, a staff could work on her own machine to do word processing using the WordPerfect system, or perhaps perform an online search. When she needed access to, say, the database containing the vertical file's bibliographic records, she could connect to the network and access those files of information. If she needed information on the library's holding of a particular serial title or a particular book, she could also access the files over the network.

The library should start with a minimum configuration for the LAN. This would require purchasing three personal computers to be used as workstations and one personal computer to be used as the 'file server' - the machine on which the centralized files of information would be stored. Details on the exact configuration of the hardware and software to be purchased are given in the 'Recommendations' section of the report.

Two additional pieces of hardware are necessary. One is a laser printer. One of the major activities of the library is to conduct outreach activities, and more than 2000 copies of the library's outreach bulletins are distributed each quarter. These, and many other published items could be made considerably more attractive, and printed much more quickly, if a laser printer were available. The printer should be attached to the file server so that any workstation could route materials to be printed to it.

The second piece of hardware the library needs is a tape backup unit. When the file server and the workstations begin to accumulate data on their hard disks, it will not be reasonable to make backup copies of the files on floppy disks. Currently, if the library wants to make floppy disk backup copies of the data on the PC/XT, it would require more than eighty (80) 360KB floppy disks if the hard disks were full. Using floppy disks is not an acceptable strategy for making backup copies of the databases, and a tape backup unit is essential.

TRAINING

Like many personal computer users, the library staff has taught itself the essential pieces of information needed to make progress with a personal computer. It has made great progress, but now is the time to give them formal training so they can move ahead rapidly. All the staff need a course in how to use the IBM Disk Operating System (DOS), the WordPerfect word processing package, and the Dbase database management system. The staff member who has developed the Dbase applications needs a course in Dbase programming and in Local Area Network fundamentals.

SUMMARY

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. Request competent assistance from USIA to solve problems with the use of the State Department telecommunications lines for online searching.
2. Experiment with the Crosstalk communications program and its script files, instead of Kortex, to see if it can be used to access U.S. database services.
3. Insure that a maintenance contract has been signed with Data Trek, Inc. to receive periodic updates to the Serials module. \$400/year.
4. Purchase the WordPerfect word processing program Version 5.0. \$500.
5. Purchase the Dbase IV database management system. \$500.
6. Once the Dbase IV system has been received, convert all current Dbase III+ applications to it. This will require minimal effort.
7. Purchase the following workstations and associated operating systems:
 - a. Three IBM PS/2 Model 50 personal computers each with at least a 30MB hard disk, at least 640K of main memory, one 5.25" 360KB floppy

disk drive, one 5.25" 1.2MB floppy disk drive, and a color monitor. One of these machines will be used to replace the IBM PC/XT which is nearing the end of its useful life.

b. One IBM PS/2 Model 80 personal computer with a hard disk of at least 120MB capacity, at least 2MB of main memory, one 5.25" 1.2MB floppy disk drive, one 3.5" 1.44MB floppy disk drive, and a color monitor.

c. Four copies of the IBM Disk Operating System Version 3.3 or later. \$120 each.

8. Purchase the following Local Area Network hardware and software (items 'b' through 'e' below were recommended in a slightly revised form by the company 'France Coordination' from whom the Center received a proposal on June 20, 1988):

a. Novell Advanced Netware Operating System. \$1500.

b. Multistation unit Model 8228 for IBM Token Ring Network.

c. Three Token Ring network cards for the IBM PS/2 Model 50 machines.

d. One Token Ring network card for the IBM PS/2 Model 80.

e. Coaxial cable and coaxial cable connectors to interconnect the three workstations, the file server, and the Multistation unit.

9. Purchase one Hewlett-Packard LaserJet Series II printer to be attached to the file server for high quality printing. \$1800.

10. Purchase a tape backup unit to be able to create a tape copy of the library's databases. \$1200.

11. After the Local Area Network has been installed, do the following:

a. Install the Data Trek Serials module on the LAN.

b. Begin paying maintenance fees to Data Trek for updates to the Acquisitions and Catalog modules (\$400/module/year), and the DataBridge module (\$250/year). If this is not possible, repurchase the modules (\$1800 each for Acquisitions and Catalog, \$1000 for DataBridge) and then pay maintenance fees.

c. Begin using the Acquisitions module for book ordering.

d. Begin converting the library's card catalog records into the Data Trek Catalog module. The database developed at the USIS Brussels library could be used as starting point for this conversion.

12. Train staff in the use of:

- a. IBM Disk Operating System (DOS)
- b. Word Perfect Version 5.0
- c. Dbase IV fundamentals for all staff, and Dbase IV programming for the staff member charged with Dbase application development.
- d. Data Trek Catalog and Acquisitions systems.
- e. Novell Network operating system

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO THE BENJAMIN FRANKLIN DOCUMENTATION CENTER DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the Center during the consultancy:

1. Reviewed current library automation activities.
2. Gave tutorial on DOS subdirectories.
3. Gave tutorial on use of the DOS PATH statement.
4. Helped reorganize the PC/XT's hard disks.
5. Met with Cultural Affairs Officer, USIS Executive Officer, Center Director, and head of Technical Processing to discuss future library automation activities.
6. Helped solve some WordPerfect problems and gave tutorial on WordPerfect techniques:
 - a. Line length and word wrap problems.
 - b. Importing and exporting ASCII text (including PDQ searches).
 - c. Use of the split screen and editing multiple documents.
 - d. Searching for text in documents.
7. Reviewed the Dbase applications that had been developed and dealt with a number of problems with the use of Dbase:
 - a. Gave examples of the use of programming to write Dbase reports rather than the use of the Dbase Report Writer.
 - b. Developed programs to show how on-screen reports could be prevented from scrolling off the screen.
 - c. Illustrated the use of indexes to speed searching files.

- d. Developed programs to illustrate the use of the Dbase SEEK command and FOUND() function.
 - e. Gave tutorial on the use of truncated searching in Dbase.
 - f. Gave suggestions on revising some of the 'Vertical File' programs to improve functionality.
 - g. Demonstrated how Report Writer commands could be combined with Dbase programs.
8. Gave tutorial on the use of the DOS EDLIN line editor.
 9. Gave tutorial on the use of the DOS BACKUP and RESTORE commands.
 10. Demonstrated the ability of the Kortex communications package to upload files (such as pre-written DIALMAIL messages).

LIBRARY AUTOMATION AT THE USIS LIBRARY, BONN

INTRODUCTION

The USIS library in Bonn is located in the American Embassy and is mainly a reference center and technical processing center. It performs all the ordering and processing of books and periodicals for seven other USIS libraries and for five bi-national centers throughout West Germany. The 13-library system has about 100,000 volumes comprising 25-35,000 unique titles. In addition, each library receives 150-250 periodicals.

This report summarizes a two-day consultancy visit to the library during early July 1989. The final section of the report reviews the recommendations made in the text, and the Appendix lists specific tasks completed during the visit.

CURRENT HARDWARE AND SOFTWARE CONFIGURATION

The library has a small Local Area Network (LAN). This LAN consists of two Compaq personal computers. One is a Compaq DeskPro 286/40 with 640K of main memory, a 40MB hard disk, one 5.25" 1.2MB floppy disk drive, one 5.25" 360KB floppy disk drive, and a monochrome monitor. The second is a Compaq Portable III/20 with 640K of main memory, a 20MB hard disk, one 5.25" 360KB floppy disk drive, and a monochrome monitor.

The Novell ELS NetWare 286/2 Level I Version 2.0a Operating System is used to control the network, and each machine runs the Microsoft Disk Operating System (DOS) Version 3.3. The machines share a printer (Toshiba P351) through a manual switch. The DeskPro has an Hitachi CDR-1503S CD-ROM disk drive attached to it.

Through another switch both machines share a modem supplied by the German PTT. This modem is used for connection to the PTT's packet switching system, DATEX, which allows access to the online database services in the U.S. The Bonn library has a dedicated 1200 baud line from

the Embassy to Cologne. At Cologne the line connects into the DATEX computer system. This configuration allows very rapid access to the U.S. database vendors such as Dialog and Legislate. In contrast, the library tried for several years to use the State Department telecommunications lines and continually ran into technical troubles. They finally gave up and turned to DATEX, which has proven to be reliable and relatively inexpensive.

The LAN in Bonn is running well, but by the nature of the installation, it could be unstable. The LAN hardware and software was installed by a local vendor and has been maintained by the vendor ever since. During the first year of the installation, the network experienced periodic failures and in two cases the result of the failures was the destruction of the DeskPro's hard disk. Unfortunately, the staff has so many competing responsibilities that no member has received training or had time to fully understand how the network works. If anything goes wrong, the library has to call the vendor to solve the problem. This situation will repeat itself as more USIS libraries begin to use LAN's. Management must understand that external maintenance of the LAN will be a requirement. One way to ameliorate the situation is for the library director to take a course in LAN fundamentals offered by the supplier of the software.

The DeskPro computer has a Bernoulli box attached to it. The Bernoulli Box has space for inserting two 10MB cartridges. This device can be used as another disk drive, thus increasing the storage capacity of the DeskPro, and it can be used as a storage device for making backup copies of the information on the DeskPro's hard disk. With the advent of high capacity hard disk drives (some as large as 300MB), and the availability of backup units that use tape that is 0.25" wide and can store 150MB on a single small cartridge (3" x 5"), the need for the Bernoulli box has diminished. It is recommended that the library purchase a tape backup unit that will work in conjunction with its local area network and that it keep the Bernoulli box as an auxiliary storage device. As the size of bibliographic files increases, the library may want to move some of its applications onto Bernoulli box cartridges to save space on the 40MB hard disk. Soon the 40MB disk will not be adequate and it will have to be upgraded.

The library regularly uses online databases to answer reference questions. Among the databases it searches are Dialog, Legislate, and PDQ. It also has available databases on CD-ROM which include Bowker Books in Print+, Ulrich's Plus Serials Database, and WilsonDisk's Readers Guide.

Four library automation computer programs from Data Trek, Inc. of Encinitas, California are installed on the network. They are the Catalog, Acquisitions, Serials, and the DataBridge modules. The Catalog module lets the library maintain a computerized list of its holdings, produce catalog cards, print lists, and allow sophisticated access to the library's collection. The Acquisitions module is intended to manage the process of placing orders for books, issue letters when materials do not arrive in a timely fashion,

keeping financial records of the transactions, and producing status reports on the ordering operation. The Serials module lets the library manage the process of receiving, claiming, and reordering individual issues of a magazine or journal subscription. The DataBridge module allows bibliographic data to be transferred into the Acquisitions, Serials, and Catalog modules without it having to be re-keyed.

Acquisitions Module

The Acquisitions module has been in use in the library for two years while at the same time a manual system has been operating. The library director and the staff member responsible for the day-to-day use of the system have raised a number of valid criticisms of the system and have speculated about its usefulness. Of all the Data Trek modules, the Acquisitions module has the weakest design and the comments about it by the staff are well founded. However, there is a tradeoff between the features it offers, the features that it does not, and its cost. The Agency price for the module is around \$1800, and a combination of hardware and software system that would meet the specified needs of the library would probably cost one hundred times that amount.

During the consultancy visit a review of alternative methods of using the system were made. This review concentrated on two major issues: first that the method of handing the receipt of multiple copies of an order in the system was relatively complicated and not well designed. The second was that it was cumbersome to use the system to keep good financial records.

A solution to the problem with multiple copies was proposed whereby one order record was created for each item ordered. This solved the problem of managing receipt of the copies, but generated additional orders that the librarian felt impeded the receipt of the ordered materials. The second problem, cumbersome financial procedures, could be solved by not maintaining any financial records in the Data Trek module. The module would be used simply for generating orders, tracking the orders, and recording their receipt. Financial tracking of the orders would be done through a separate application. During the visit, the consultant developed and demonstrated a simple application using the Dbase III database management system to manage the financial part of the ordering process. Input to the system was demonstrated as were several types of reports from it. The library will have to decide whether the two alternative solutions to the Acquisitions module problems are satisfactory. But it is recommended that the library drop the manual procedures in favor of the Acquisitions module

Catalog Module

The library has also voiced criticisms of the Catalog module. Many of the problems appear to be software bugs that the vendor should be able to fix. Others are more serious and relate to the functionality of the module in the context of a technical processing center that supports many other locations. For example, the library would like the system to use the information on the number of copies of a book held in the collection to determine the number of sets of catalog cards to be printed. The system operates on the assumption that multiple copies are held in one location, not many, and prints a single set of cards for each bibliographic record. In order to print a varying number of card sets for each bibliographic record, the library must enter the information manually for each set to be printed. This is not a serious problem given the other substantial benefits of the Catalog module, such as catalog card printing, authority control, and new acquisitions lists. The library should commit itself to using the Catalog module.

Serials Module

The Serials module is also being used on an experimental basis, but the library feels that it is not cost-effective to use a computer program for only 240 titles. This consultant initially agreed with this idea but now believes the opposite for a number of reasons:

1. The Data Trek Serials module is one of the best designed of the suite. It has a very good user interface and provides good control features.
2. Although the library receives only 240 titles, these titles cause literally thousands of individual issues of items to be manually processed. For example, it is not unreasonable that 80-120 claims be outstanding during any one month. Control over these items can be substantially improved if an automated system is used.
3. The automated system improves the timeliness with which claims for missing issues of periodicals are issued to the vendors. Thus the number of missing issues that the library has is reduced.

It is recommended that the library commit itself to the Data Trek Serials module and use it to the exclusion of manual procedures.

The library staff has also made valid criticisms about the Serials module. One particularly important point is that the Serials system does not include information about the issues of the periodicals held by the library on printed lists of serials titles produced

by the system. This problem should be brought to the attention of Data Trek. In the interim, it should be possible to write a Dbase program to print the information the library requires from the Data Trek files.

In addition to the Local Area Network, the library has several Wang terminals which it uses extensively for word processing. The terminals are connected to Wang VS and OIS systems operated by USIS on another floor in the Embassy.

FUTURE AUTOMATION ACTIVITIES

Two major questions face the Bonn library with respect to library automation. One is nature of future automation activities in the library itself, and the second is how best to provide support to the twelve other libraries that Bonn services.

Automation in Bonn

The library operates both manual and automated systems for many functions. The reason for this is that the library feels there are a number of problems with the automated systems that prevent them being adopted fully. Nevertheless, it is foolish to duplicate effort and this consultant believes that the advantages outweigh the problems of the automated systems, and thus they should be used exclusively.

The implication of this conclusion is that the library will need to expand its hardware to provide better access to the Data Trek programs. A rather unusual hardware configuration currently exists wherein the LAN file server is used both as a server and a workstation. The first change to the configuration should be the purchase of a more powerful PC to be used as the server, and the shifting of the existing server (the DeskPro) to be a workstation on the network. Each of the two technical assistants needs her own workstation, and there needs to be a workstation on at least one of the desks used by the reference staff, and possibly one in the office of the library director. A laser printer needs to be purchased and attached to the file server, and as mentioned earlier, a tape backup unit is urgently needed. The laser printer will be used to produce high quality output from the system.

Given the new hardware configuration, how should each of the Data Trek modules be used?

1. Acquisitions. Use the acquisitions module to record all items on order. Replace the manual on-order file with computer records in the Acquisitions module. Do not enter any financial information into the Acquisitions module, instead rely on a separate Dbase program to manage the financial part of the ordering process. Make sure that financial data is only maintained once in a form suitable for use by the acquisitions unit and the library's budget analyst. Deal with the problem of staggered receipt of multiple copies of orders manually.
2. Serials. Use the Serials module to record titles held by the library and issues received. Do all claiming of issues through the Serials module. Eliminate manual check-in records in favor of the computerized system. Request Data Trek to include holdings information in printed lists of serials. In the interim, write a Dbase program to provide the information.
3. Catalog. Use the catalog module to build an online catalog of the library's holdings. Do this by continuing to enter bibliographic data for new titles that arrive without cataloging into the system. Extend this procedure by entering data for items that arrive with cataloging as well. Conduct experiments with the use of OCLC and the Bibliofile CD-ROM system to find out which system provides the most cost-effective method of extracting bibliographic information and loading it into the Catalog module. Develop a plan for retrospective conversion of the library's card catalog to machine-readable form and implement the plan to build an online catalog.

Automation of the USIS German library system

The second question that must be addressed is how best to provide technical services and public services support to the seven other USIS libraries and five other bi-national center libraries.

Given the assumption that Bonn continues to provide technical support for the branches, including book ordering, receiving, cataloging, and book preparation, then there are two possible models that could be used.

1. Each library has its own computing equipment which it uses to support an online card catalog, word processing, and a variety of specialized data files created and maintained locally. Each local system would consist, at a minimum, of two personal computers, interconnected to form a local area network, a printer, a modem, and general software such as the network operating system, the Disk Operating System, a word processing package, a database management system, and library automation software. The branch library's online catalog would be maintained in Bonn, and Bonn would ship the branch a

copy of it via telecommunications lines.

2. Bonn acquire a system more powerful than a personal computer-based local area network. This turn-key package of hardware and software would be obtained from a library automation vendor who specializes in supplying systems for medium-to-large installations. The basic structure of the system would have one central computer located in Bonn that would store all the bibliographic data about all the branch libraries. Bonn would enter new data into the system, and each library would have at least two computer terminals permanently connected by telecommunications lines to the Bonn computer. This configuration would eliminate the need for the branches to maintain their own local area network, but would increase the telecommunications costs because of the necessity of having lines dedicated to online access. The second option would also eliminate the ability of the branches to have much local computing capability unless the terminals attached to the central machine could be personal computers, and not just 'dumb' terminals.

It is recommended that a study be undertaken to analyze the costs of each of the two alternatives. The study should consider the costs of hardware, software, training, and telecommunications.

Local LAN/Branch LAN/Central System

No matter which alternative Bonn chooses, they will have to convert their card catalog to an online catalog. Such a conversion will result in a number of advantages to the staff and the users:

1. Boolean searching. Users will be able to perform very complex searches to find the materials they are seeking. Instead of an intensively manual process, users will be able to search for materials falling in a specific date range, having a combination of subject headings, and/or written by a certain author.
2. String searching. Users will be able to find bibliographic records that have a specific word or phrase imbedded within a title or a subject heading. They will be able to find author names that match partial information they may have.
3. Filing productivity. Card catalogs are expensive to maintain because of the manual effort of filing new cards amongst existing cards. Computer-maintained catalogs shift the burden of filing to the machine and produce a consistent catalog. Since West Germany has 8-13 branch USIS libraries, the manual filing that takes place in one location is

duplicated many times.

4. Improved access to the collection for Outreach Services. The USIS libraries try to select materials for their DRS members and other clients. An online catalog facilitates this by letting specific information requests be repeatedly processed and by processing these requests efficiently. Thus, the library should begin converting its card catalog to machine form. As a safeguard for the choice between a central system and one operating on a LAN, the library should save the MARC records it captures so they can be used for either alternative.

TRAINING

The library director received a three week course in personal computer fundamentals and has been able to use this and additional training to good advantage in supporting her staff and the staff of the other branches. However, she and the rest of her staff need additional training in the use of the Data Trek modules, DOS, Network concepts, and Dbase.

SUMMARY

The following list summarizes the recommendations given in the text of the report. Where prices are given, they should be considered APPROXIMATE guidelines, not exact quotations.

1. Have the library director enroll in a course in LAN fundamentals offered by Novell, the LAN hardware and software supplier.
2. Purchase a tape backup unit to be attached to the LAN. The unit should have the capacity to back up at least a 150MB hard disk onto 0.25" tape cartridges
3. Sign maintenance contracts with Data Trek, Inc. to receive periodic updates to the Acquisitions, Catalog, Serials, and DataBridge modules. (\$400/year for the first three, \$250/year for DataBridge).
4. Purchase the Dbase IV database management system.
5. Use the Dbase IV system to develop an application to manage the financial

transactions associated with book ordering.

6. Discontinue using the Data Trek Acquisitions module for tracking financial information about orders.
7. Discontinue the manual on-order file in favor of the Data Trek Acquisitions system.
8. Begin active use of the Data Trek Catalog module and build an online catalog of the library's holdings.
9. Begin active use of the Data Trek Serials module by building a database of serials holdings, checking in individual issues using the module, and issuing claims with the module.
10. Update the library's Local Area Network with the following equipment:
 - a. Two IBM PS/2 Model 60 personal computers each with at least a 30MB hard disk, at least 640K of main memory, one 5.25" 360KB floppy disk drive, one 5.25" 1.2MB floppy disk drive, and a color monitor.
 - b. One IBM PS/2 Model 80 personal computer with a hard disk of at least 120MB capacity, at least 2MB of main memory, one 5.25" 1.2MB floppy disk drive, one 3.5" 1.44MB floppy disk drive, and a color monitor. This machine will become the new file server for the network.
 - c. Three copies of the IBM Disk Operating System Version 3.3 or later. \$120 each.
 - d. Two Token Ring network cards for the IBM PS/2 Model 60 machines.
 - e. One Token Ring network card for the IBM PS/2 Model 80.
 - f. Coaxial cable and coaxial cable connectors to interconnect the two additional workstations and the file server.
11. Purchase one Hewlett-Packard LaserJet Series II printer to be attached to the file server for high quality printing. \$1800.
12. Request Data Trek to modify their Serials module to include holdings information in the printed catalogs. In the interim write a Dbase program to produce the information.
13. Experiment with both OCLC and Bibliofile as a source for retrospective conversion data. Purchase the Bibliofile system on an experimental basis for one year (\$900) for

evaluation purposes. Contact USIS Brussels to ascertain how the Brussels MARC records can be used to facilitate the conversion.

14. Develop a plan for retrospective conversion of the Bonn catalog to machine-readable form.

15. Conduct an evaluation of the two possible models discussed in the text for automation of the USIS West Germany library system.

16. Train staff in the use of:

a. IBM Disk Operating System (DOS)

b. Dbase IV fundamentals for all staff, and Dbase IV programming for the staff member charged with Dbase application development.

d. Data Trek Catalog, Serials, and Acquisitions systems for those staff not familiar with them. At the conclusion of the training, all staff should be able to operate all system.

e. Novell Network operating system.

APPENDIX

SPECIFIC ASSISTANCE PROVIDED TO THE USIS BONN LIBRARY DURING CONSULTANCY VISIT

The following is a list of specific types of assistance that were provided to the library during the consultancy:

1. Consultation with Library Director and Country Library Officer on planning for library automation.
2. Discussion with Cultural Affairs Officer about long range automation plan in Germany.
3. Discussion with Deputy Executive Officer regarding telecommunications networks and personal computer installations in USIS Germany.
4. Review of the use of the Data Trek Acquisitions module with library director and staff member using the module.
5. Development of a Dbase application to record financial information about book orders.
6. Review of problems with the Data Trek Catalog, Serials, and Acquisitions modules.
7. Analysis of use of the library's Bernoulli box.
8. Evaluation of the library's procedures for making backup copies of databases.