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On the cover: Information managers can save clients both time and money; marketing know-how can be an effective tool. Cover illustration by Tom Tilton.

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Marketing Measures for Information Services

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■ Despite their leadership in developing information services, special librarians often express frustration with the design and evaluation of the programs by which they market these services. This paper explores the problem by analyzing and synthesizing ideas from the literature of marketing and performance evaluation. Potentially useful approaches and quantifiable measures for market structure analysis, design decision-making, and marketing program evaluation are identified.

Introduction

THE MARKETING of information services has been a popular topic in the library profession in recent years. For special librarians, neither the concept nor the practice of marketing is new; both have been part of the special library idea for a long time (*1*). This "special library idea" maintains that the manager of information services must be *proactive* rather than *reactive* to user information needs and demands. The basic idea of marketing is that *responsiveness* to client needs and demands is the key to success in the marketplace (*2*). Actually, both ideas speak to an understanding of needs and preferences and to meeting them in advance of extensive demands.

The telling characteristic of a responsive organization (in marketing terms) has two sides. On one side, the organization encourages its clients to participate outspokenly in its activities. On the other side, the organization wholeheartedly accepts these needs and demands, as stated, in the design and delivery of products or services. Open, personal communication is the key.

The opposite kind of organization is the bureaucracy, routinized in its operations, delivering services according to its own version of need, carrying out impersonal policies through a rigid hierarchy of command—a truly unresponsive organization. A bureaucracy makes it difficult for its clients to voice their opinions, and it takes no initiative in finding out the precise needs or preferences of these clients (*2*). Such unresponsive, bureaucratic organizations are the antithesis of "the special library idea." As would-be service organizations, they fail in both the profit and the nonprofit sectors. The organization that succeeds is "responsive" in marketing terms, "proactive" in the thinking of special librarians.

Despite their belief in the special library idea and despite the relationship between this concept and current marketing beliefs, many special librarians have expressed frustration in their efforts to apply the basics of marketing as it is practiced in the for-profit sector to their own not-for-profit information agencies. This frustration reaches acute levels when it comes to the evaluation of the marketing programs they design and mount. (Note that we describe special libraries and information centers as "not-for-profit" even when they are located in commercial organizations. We do so because this is the traditional management view on which corporate accounting rationale is so often based.)

We believe that an examination of key marketing concepts and of selected evaluation techniques currently in use by some special librarians will show a convergence that would be helpful to others who attempt to increase the responsiveness of their information agencies through marketing programs. We also believe that the suggestions we will make at the conclusion of this paper will, if acted on by special librarians, lead to a new rationale for accounting the value of special libraries, information centers, and information services. Although we are presenting this trend in terms of corporate libraries, it will be evident that it also has potential for information agencies in government, academe and other locales.

Key Marketing Concepts

Basic to all of the marketing is the idea of "responsive organization" just described. Given an organization that is open to personal suggestions from its clients and that is flexible and creative enough to adapt itself or its services to meet the changing needs and demands of these clients, certain questions face the organization. Five key marketing concepts relate to these questions. All five concepts are in use, in greater or lesser degree, by some special librarians.

Market Segmentation is the name of the concept which states that a marketplace is comprised of individuals, some of whom will have a need for your organization's services, though in varying degrees; some, of course, will be uninterested in your offerings. No organization can be successful by treating the entire marketplace as if it will show equal interest in the organization's products or services. The process of determining the proportion of individuals already demanding your service, and the proprotion that will never be interested, is called "market segmentation." It answers the following questions: Who, exactly, are your clients? To what extent are they similar, to what extent different in their needs and demands? Which groups, among your clients, are your most intensive users? Least intensive users? (*2*). Segmentation is a marketing measure that holds considerable significance for special librarian managers.

Public libraries have traditionally segmented their clients on the basis of demographic characteristics. Academic libraries have segmented their markets by academic factors. Special librarians must use factors such as internal structure of the company, the organizational position and mission of the information service and the division of work responsibilities within the parent company's total work force. Geographical relationships between the information service and the company units it is assigned to serve, as well as selected demographic characteristics of the work force, may also be important. A graphic design of the library's marketplace for a given special library results from a market analysis—a measure already somewhat in use by many special librarians, probably under another name.

Given such a graphic design which identifies markets and their size, with supplemental data about total information resources within and available to the company, a special librarian would then be able to move on to answering questions about prioritizing groups of clients and types of services. This is the process of *market positioning.* It results in policy statements about who are the primary client groups, about the expenditure of library resources in relation to each group, who pays for service to each, even what proportion of cost must come from what sources, and possibly policies about what services shall be left to the competition (*2*). Having arrived at these policies, the librarian will be able to establish both short- and long-range goals, and state these goals in such a way that quantitative measures can be used to determine the extent to which each is achieved.

From analysis of market segments and choice of a market position, the special librarian who is implementing marketing concepts will move on to *consumer analysis.* This process answers questions about the extent of the need for homogenous subgroups, even individual clients, the significance of each need in relation to company objectives, the preference for delivery of information products or services, the perceptions of members of client groups about library/information center service. Measures used in consumer analysis concentrate on obtaining detailed quantitative data. Information gained provides the foundation for planning a marketing program (*2*).

The concept of a *marketing program* underlies the coordinated effort which utilizes information gained and policies established in the interests of the parent company. The purpose of this step is to arrive at a customized plan for the optimum mix of product or service, price and cost, place or mode of delivery, and promotion of the products or services within your company (*2*). Without such an inclusive customized plan, with its own built-in goals and measures for defining success, libraries and other information agencies cannot be said to be truly engaged in marketing. Although they may be using some marketing concepts, without well-defined marketing *programs,* much of the potential impact of market segmentation, positioning and consumer analysis will be lost.

Finally, a *marketing audit* completes the cycle and sets the stage for the next cycle of planning, implementation and review. Such an audit, or evaluation, uses multiple measures to quantitatively study the results of the marketing program. It answers questions about the effectiveness of marketing programs and sets the stage for expansion or retraction, continuance of discontinuance of specific parts of the

Figure 1. Key Marketing Concepts, Their Nature and Significance

KEY CONCEPTS	Nature/Significance of Concepts
1. *Market Segmentation*	Identification of actual and potential markets and nonmarkets within company. *Information gathering. Quantification.*
2. *Market Positioning*	Prioritizing clients, groups and information services. *Policy Making.*
3. *Consumer Analysis*	Determination of needs and preferences. *Information gathering. Quantification.*
4. *Marketing Program*	Determination of optimum mix of product, price, delivery mode (place), promotion. *Planning. Customization. Coordination.*
5. *Marketing Audit*	Evaluation of plan and implementation. *Information gathering. Quantification. Making Judgements. Reporting.*

N.B. Marketing is a cyclical process, comprised of five major steps, represented by the five concepts above. Each of these five concepts includes secondary concepts, thus each step in the process includes secondary steps. "Secondary" does not mean less important, but rather hierarchical in relation to the five key concepts/steps shown here.

Figure 2. Hypothetical Company in Which Library is Assigned Responsibility to Company Management, R/D, & Sales

Work Units by Structure	No./Sub-Unit	No./Major Unit
Corporate Management		100
Officers	5	
Personnel	20	
Marketing	10	
Legal	5	
Finance	5	
Non-exempt personnel:		
Office management	10	
Computer operations	20	
Other support	25	
Research / Development		50
Unit Managers	5	
Unit 1	5	
Unit 2	10	
Unit 3	15	
Non-exempt personnel	15	
Sales		350
Regional Managers	20	
Account Executives	200	
Advertising	20	
Non-exempt personnel	110	

program. If there have been changes in the parent company or in the library's professional environment outside the company, additional studies relative to revised market segmentation and positioning may be needed as part of the audit. High turnover or new work assignments to significant portions of the client groups may call for new consumer analyses (*2*). The marketing audit sets the stage for the next phase of library/information agency service.

Measures Used in the Implementation of Key Marketing Concepts/Steps

Of the key concepts just identified, three require the use of measures for quantification in their information gathering. (Several utilize other kinds of information as well; we are concerned here only with measures for quantification.) We'll look at these in the order of their usage in marketing.

Market Segmentation. Market segmentation is based on descriptive data such as the total number of individuals in each category under study. For interpretation, these data are often converted to proportions. When studying an individual library market, it is critical to identify categories that are meaningful in relation to company structure, nature of the work performed by each company unit, and company priorities.

Company structure comes straight from the organization chart and, since most companies are structured functionally, the chart tells you a good bit (but not all) about the work performed in each unit. Your company personnel office can supply you with the numbers.

For example, an initial market segmentation chart might look like Figure 2, in a Hypothetical Company in which the information service is assigned the responsibility for meeting the needs of company management, research and development, and sales.

This kind of information tells you how many individuals you have in your total market, and it gives you the broad dimensions of your subject coverage and your services. You also need to know the intensity of interest in these market segments at the beginning of your planning. This information is available to you from library records or from your users. The picture might look like Figure 3.

Now you know, by company units, where the intense segments of interest are. In corporate management, for instance, your officers, marketing and financial executives and your computer managers are heavy users. Similarly, you would have the picture for research and development and sales. Your mission is to serve all of these units, so you have question marks in your mind beside the non-intensive user units, to call them to your attention later in the marketing process. Some of these work units are potential markets. Some may be non-markets, depending on company priorities, alternative information sources available to the workers, limitations of library resources, or for other reasons. All of this information helps you in the key step called market positioning, in which library priorities are determined and service policies are formulated in relation to your own users and to other suppliers.

Consumer Analysis. Consumer analysis is the detailed study of the characteristics and information-seeking behavior of your users. Data collection techniques include direct and indirect (unobtrusive) observation as well as the collection of user-supplied data. The latter, familiarly known as "surveys," are by far the most often used, and the name covers a broad range of more or less formal, more or less rigorous activities. The results are, therefore, more or less valid and reliable. This is not the place to go into the nature or mechanics of a good study, as numerous textbooks are available (*3*).

Examples of survey instruments abound in the literature. One bibliography, covering the literature from 1965-1982, identified 57 studies in which instruments used in special libraries and information centers are reproduced (*4*). This bibliography has been updated as part of our work. Selected examples are listed in an appendix to this paper. (Copies of the complete bibliography are available from Dr. Williams.)

Results of a consumer analysis survey might look like Figures 4 and 5 (plus, of course, considerable additional data).

Consumer analysis surveys will provide information for choosing between optional designs of the same service, especially when the options represent dif-

Figure 3. Intensity of Current Library Usage by Work Units

Company Work Units	**% of Unit Workers Using Library**			
	1/week	**1/month**	**1/3 mos**	**1/6 mos**
Corporate Mngt (N = 100)				
Officers (n = 5)	90	10		
Personnel (n = 20)	10	10	30	10
Marketing (n = 10)	80	10	10	
Legal (n = 5)	10	10	20	30
Finance (n = 5)	90	10		
Office Mngt (n = 10)	30	10		
Computer Mngt (n = 20)	80	10	10	
Support Staff (n = 25)		10	20	10
Research/Development				
Sales				

Figure 4. Levels of Information Used Regularly in R/D Unit

R/D Units	News/ Update	Research Reports	Manuals	Govt Regs	Secondary Reference
	Percent of Sample Giving Highest Priority to and Using at Least Once per Week				
Unit Managers (n = 5)	60	20		20	
Unit 1 (n = 5)	20	80			
Unit 2 (n = 1)				100	
Unit 3 (n = 2)		50		50	
Non-exempt (n = 2)			50		50

ferent cost levels. Consumer analysis surveys can also provide information about how to customize the delivery and promotion of your services. In short, consumer analysis is a *sine qua non* of marketing. It provides you with specifics on which to base your decisions about each of the four P's of marketing: products, place or methods of dissemination of your products, price or cost of products, and methods of promotion of your products. Without consumer analysis, you simply are not into marketing.

Marketing Audit. Now we move to measures used during the marketing audit. The audit is the evaluation step, used after the marketing plan (based on information gained in the previous steps) has been implemented. A critical part of that plan consists in the setting of measurable goals.

It is our belief, based on the literature, that a new understanding of goals needs to be developed among special librarians. Cost-effectiveness goals have been emphasized in the past. Performance goals are currently popular. However, these kinds of goals result in measurement categories that speak more to cost containment of the work done in the library, than to successful marketing or the impact of the library on the parent agency. Failure to differentiate between administrative goals for the operation of the library and marketing goals for getting services and products out of the library may well be the cause of the frustration special librarians voice about the evaluation of their marketing efforts.

This is not to say that cost containment is unimportant. For routine internal administrative purposes, budget justification, and in periods of company retrenchment, it is critical to have such information and be able to present it convincingly. Marketing measures, however, have a different purpose and require a different rationale.

Remember that marketing is a process for determining what information ser-

Figure 5. Delivery Preference for Selected Services by R/D Units

R/D Units	News/Update*				Research Reports*			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Unit Managers (n = 5)		80	20				90	10
Unit 1 (n = 5)		20		20	60	20	20	
Unit 2 (n = 1)							100	
Unit 3 (n = 2)							100	
Non-exempt (n = 2)								

* Numbers 1-4 represent alternative kinds of delivery, such as: routing, notifying with request capability, notifying without request capability, SDI, on-demand searches.

vices are needed by company personnel and customizing those services in such a way as to get the company's work done effectively in the marketplace. The marketing audit is the evaluation of how well one has accomplished that purpose during a specific promotion or over a given period of time. The measures used during your audit must relate specifically to the goals of your customized program. They can never exclude the users of the offered information services. Top management is interested in the worth—to the users and therefore to the company—of specific services or products. Thus cost-*benefit* measures speak with greatest power in marketing audits.

Cost-benefit analysis answers the question: Is the benefit, in dollar value, more or less than the cost, in dollar value? A particular activity in the company is considered worthwhile when its benefits exceed its costs. Benefits are all of the contributions the particular activity makes to the company's objectives, just as costs are all of the resources the activity will divert from alternative objectives (*2*).

This rationale (which is standard business usage) places critical importance on the parent organization's objectives—not only on its long-range objectives but also, perhaps more importantly, on its immediate objectives. It places emphasis on company values which are the philosophic foundation for management of the company. Among the values expressed by top management, and used for operational decision-making, are:

- To be first in the marketplace with new products on a regular basis;
- To be competitive by economic marketing of existing products;
- To turn the company away from declining markets for once standard products toward expanding markets for what will become enduring new products; and
- To maintain a specific company image in the local community.

From these and other kinds of values, top management derives company goals related to sales volume, profit level, return on investment, level of market share, company image, company resource accumulation, and social goals (*5*).

Special librarians need to study their own company's values and objectives in order to determine the market positioning of their information services and to develop customized programs for marketing these services. We need to develop measurable goals for our marketing programs *in company terms.* It will be especially helpful if those who do carry through on this will publish their experiences so that other special librarians can begin to identify commonalities and to draw generalizations. Commonalities and working generalizations can in turn become the basis for the assumptions and hypotheses of needed research.

Measures used in the past to describe special libraries to top management, as reported in the literature (*6, 7*), have been about ninety-nine percent oriented to internal management, i.e. staff activities (e.g. circulation and reference transactions, each more or less subdivided in different libraries). There has been little effort that we can find to convert these data to terms of impact on company goals, of impact on profit centers and revenue earning programs, and on the perception of this impact by profit center managers. It is in these terms that we must describe our benefit to the company if we are to impress top management (*8*).

The problem is that we do not need reports of staff activities, per se, nor reports of self-justificaiton of library budgets. What we need are reports that show the *impact* of the library on company goals. One group of special libraries has been very concerned on this point: hospital libraries. There a concerted effort is being made to demonstrate a strong positive relationship between high quality library service and high quality patient care (*9*). It is essential that hospital libraries be able to do so because of their need to demonstrate this relationship to third party payers for hospital care. Unfortunately, no convincing measure has yet emerged.

One additional difficulty in developing and using marketing measures in special libraries stems from the emphasis in our literature, and in the minds of many librarians, on a need for performance standards against which the activity in an individual library may be described and evaluated. These standards are conceived as being industry-wide, or at least applicable to broad segments of the world of special libraries. Such standards, were they available, might be very useful to library managers; however, few have been developed and virtually none have been validated.

Instead of continuing the search for the unicorns of performance standards, special librarians should adopt the attitude of Brown: the idiosyncratic nature of performance measurement and the relation of such measures to the specific objectives of individual special libraries preclude standard performance measures (*7*). Rather, we should be trying to identify to which of those company goals of sales volume, profit level, return on investment, level of market share, company image, company resource accumulation and social goals the library *does* make a high quality, essential contribution. Then we should find measures that will express, in company terms, what that contribution is.

The measure with the greatest potential that we have seen reported is that of "return on investment." In a 1982 study of the Department of Energy Technical Information Center and its Energy Data Base, King Research used sophisticated economic modeling methodologies to determine costs and values of specific services and products and of the data base (*10*). Return on investment for the Energy Data Base, for example, was determined by comparing its overall production costs to its value to users. Value was determined by surveying users regarding their time and effort saved by using the data base. Application of the economic model to survey responses showed that reading a periodical article was worth $590, and reading a technical report was worth $1,280. The overall return on investment for the Energy Data Base was about 220% or 2.2 to 1. Similar savings and return were calculated for online searches, printed indexes, specific areas of Department of Energy funding. Consequences that would occur if the services were not available were also projected.

Manning has used a different way to convert the measure of time saved for researchers by library activities to a return on investment figure which is very impressive to top management (*11*). She assumes that the amount of dollars saved the company when the library does an hour's work for an engineer is the amount of an engineer's salary for that hour, using an average supplied by the personnel department. That is, of course, the gross saving, or benefit. The net benefit is the amount of the engineer's salary less the library's cost in substituting for the engineer during a specific period of time. Subtleties (such as the value of the work

Figure 6. Manning's Formula for Return on Investment

Step 1. (average hours per month saved)(number of responses) = total hours per month saved

Step 2. (total hours per month saved)(average $ per engineer hour)(12 months) = gross benefit in dollars

Step 3. (gross benefit) − (cost of library services) = net benefit in dollars

Step 4.

$$\frac{\text{net benefit}}{\text{total cost of library services}} = \text{return on investment (\%)}$$

N. B. Manning used this formula to obtain a return on investment in total library services. To use it in a marketing audit one would substitute cost of the specific marketing plan, or even cost of one or more specific products or services.

actually done by the engineer while the library is engaged in doing work formerly done by the engineer, or allowing for same library work being used by more than one engineer) are not included in the formula at present. The net benefit divided by the company investment in library services equals the percentage or proportion called "return on investment."

In Manning's usage, the total amount of time saved is calculated from the average of the responses to the question "How much time do you estimate that library services save you per month?" The formula shown in Figure 6 was used to convert data obtained in surveys to a return on investment figure which ranged, in different years of an annual survey and on different groups of employees, from 400% to 1200%. The use of measures such as those of King Research and Manning, some complex but some fairly simple, will enable special librarians not only to calculate a variety of general and specific returns on investment but also to evaluate specific marketing strategies.

Conclusions

As in business ventures, market segmentation, consumer analysis, and the marketing audit call for the use of quantitative measures. Market segmentation and consumer analysis utilize measures well-known to special librarians, though marketing effort will be best served if librarians now move away from mere opinion surveys to new levels of sophistication in their data gathering and, as a consequence, in their interpretations of market needs, demands and usage of information products.

Evaluation of marketing plans (the marketing audit) is the most difficult step for special librarians for several reasons:

1. The lack of quantitative measures that are being widely used, and thereby tested and reported.
2. A dearth of critical examination of the assumptions underlying those evaluation measures that are being tried. Many of these assumptions are researchable questions themselves, but one cannot expect busy practitioners to undertake this research.
3. Failure of special librarians to relate the measureable objectives of their marketing programs to company objectives and to carry out and report their audits in terms meaningful to top management. Return on investment is one such measure which has been reported in the literature.

Marketing is planning that focuses on products, place or mode of delivery, adjustment of cost/price to the market, and promotion to specifically targeted segments of the special librarian's market. As such, marketing is in its infancy in application by special librarians. Marketing is, however, a logical extension of our historically valued and highly successful proactive style of information service, worthy of continuing application and critical discussion.

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Appendix

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The Information Scientist as Database Manager in a Corporate Environment

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■ Traditionally, librarians and information scientists have worked with existing data files such as book collections and online bibliographic files. Special librarians are now in a unique position to become directly involved in the design, development, and management of automated in-house databases. Software packages called application generators enable the librarian/information scientist to develop database applications for themselves and others without programmer intervention and with very little or no knowledge of programming languages. The role of the information scientist as database manager in a corporate environment is described, with special emphasis on the technological tools available to support this activity.

Introduction

TRADITIONALLY, librarians and information specialists have worked with established collections of information and data which follow pre-determined rules for cataloging and classification. Rarely has the special librarian or information scientist had the opportunity to design a database from the ground up, which includes specifying the actual machine instructions, implementing the application, and retrieving both online and printed reports. Over the last 20 years, the influx of computers into information management activities has brought about changes in the role of the information specialist. Once primarily a *user* of databases, the information specialist has progressed to being a *developer* of automated file structures for themselves and others. The advancement of computer technology and the refinement of applications software tools have made this transition possible.

Today, the special librarian who is interested in converting an existing database or developing an entirely new automated file structure has a wide range of design options available. If a mainframe is required because of the size and/or processing requirements of the database, the librarian will probably be part of a team that develops the application. The team approach means that the librarian is only peripherally involved in an application development project, having little direct control over the design and development of the database. Even traditional database development on a minicomputer involves the indirect participation of the librarian. But as microcomputers become more prevalent in the library setting, the information scientist has greater opportunities for hands-on, direct participation in the entire process of designing, developing, and implementing a database application for themselves and others.

These changes in applications development have been helped along by advancements in database management software. The writing of machine instructions for defining and developing a database once depended solely upon the knowledge of specialized procedural languages, such as FORTRAN, COBOL, PL/1, BASIC, etc. This process was very time consuming and resource intensive; corporate data processing departments experienced huge backlogs as more and more users desired a piece of the computer's power. To help reduce the number of applications waiting to be processed, programmers developed software tools to enable them to do their jobs more efficiently. These tools became known as program generators, application generators, and report writers. They have been primarily used by data processing departments, but are now being discovered by end-users eager to develop and maintain their own databases. End-users find these data management tools easy to master as they do not require extensive programming knowledge or experience with computers in order to produce applications in a very short period of time.

Program generators assist programmers in developing a discrete set of instructions for the computer to perform a specific task. Application generators help programmers and end-users develop several programs or modules which link together to perform a variety of functions. With report writers, end-users are able to retrieve information from a database and present it in a specified format, with little direct knowledge of the way in which the database is structured or defined. The dividing line between these three software tools is very thin and the functional overlap is great.

In the special library setting, there is great potential for the use of these software tools to develop and maintain automated in-house databases. The information specialist has the unique opportunity to serve as both an end-user of database management software when setting up library-based applications, and as an intermediary when developing databases for others. The librarian's extensive knowledge of the organization and retrieval of information, combined with specialized knowledge in a subject area, provides the necessary expertise for database management in a corporate environment. Application generators are the tools which provide the means for librarians to achieve the goal of becoming database managers.

In this paper, the characteristics and uses of application generators will be more thoroughly covered than the other two tools. Most users will require an entire application which covers all the functions of a database, rather than one program which performs a specific, isolated task, or a report which reads and presents information from an already-established database. The general process of application development is described, with an emphasis on the use of software tools which make the task easier. Following this overview of database development, the integration of end-user applications development into a corporate research information program is described.

Designing an Application

The first step in developing a database application is to determine the purpose and requirements of the database. This activity consists of a dialogue between the database developer and the user, and is very similar to the kind of interaction which takes place during the traditional "reference interview." Some of the important points to be covered during the discussion are outlined below.

• The overall structure of the application and its component files must be determined during the design phase. An application may be very simple, consisting of one data file. However, most applications consist of several files and the interrelationships between the shared and unique data elements should be determined.

• The expected size of the data file(s) is an important consideration as it may affect the physical location of the file on the disk. The size also affects the kind(s) and frequency of maintenance tasks which are required for timely processing and retrieval.

• The most detailed discussion concerns the fields which comprise a record within each file. A record consists of several discrete pieces of information, called fields, which, when seen as a whole, describe a unique occurrence within the database. With the user's help, the database developer must determine the size (number of characters) and type of information each field is expected to hold (alphanumeric, integer, decimal, date, etc.).

• The database developer needs to determine which fields the user would like to search and also the kind of searching the user plans to conduct. Searchable fields may be set up for exact-match retrieval (such as a social security number), or "free-text" browsing (such as all the titles containing the word "gasoline"). Determining the searching requirements at the time of database design helps ensure that the outcome will match the user's needs and guards against retrofitting.

• Data entry requirements are another consideration at the time of database design. Some fields may be best assigned automatically by the system (such as a sequential identification number), while most will be keyed by the operator. Still other fields may be calculated by the system based upon entry by the operator, such as a total cost based upon a number times a unit cost rate.

• Standard data forms may be required. For example, the operator may enter a set of initials in the primary file which matches against a secondary file or table and then displays the full name. The user may need to be prompted for the standard data forms and, if so, a mechanism set up to provide prompting information to the operator. The database developer should include customized prompting messages wherever possible to assist the operator in entering standard data forms.

• Data entry rules must be established and followed. Is a field required or optional? Will the system accept an entry which does not match a standard set of data? The database developer, with the user's assistance, must establish the rules and then decide how the system will handle the deviations. Any system messages to the operator should be informative and non-threatening.

• Estimating the updating frequency helps to determine a maintenance schedule. Certain housekeeping chores, such as indexing and reorganization, must be performed periodically and regularly to ensure the integrity of the data file. A file that is updated frequently requires more frequent indexing and reformatting to keep processing and retrieval time to a minimum.

• Security considerations are of great concern to the user and the database developer must set up the restrictions accordingly. First, file access must be considered, followed by access to fields within the file. The type of access must be determined, including the operation(s) (add, delete, change, or search) permitted on each field of data.

The above list covers the major aspects to be addressed by the database developer and user during the initial design phase. Depending on the application generator used, the database developer may need to determine a slightly different set of database requirements.

Developing an Application

With the design scoped out, the database developer is ready to interact with the computer and create a prototype of the application. Here is where the application generator assists the database developer and provides a nearly mistake-proof environment for application development. The generator leads the user through a series of menus which contain fill-in-the-blank type questions. The database developer answers each question according to the design requirements as discussed with the user. The application generator actually leads the developer through each logical step of defining a database and describing the attributes of each field.

Even the layout and design of the data entry screen are defined by the database developer. Most application generators allow the developer to direct the placement of fields, masks, and text on the data entry screen. This feature is extremely helpful in providing a unique, "user-sensitive" product tailored to meet the needs of the requestor.

When all the relevant questions for the application have been answered by the developer, including those directing the format of the data entry screen, the application is ready to be generated. During this phase, the software translates the user's requirements into instructions which the computer can act upon. Without an application generator, this would mean writing the program code in a procedural programming language, following all the necessary rules of that language's syntax, etc. Through the use of an application generator, the database developer sits back and waits while the machine automatically generates the program code. The generator uses the definitions provided by the database developer during the question and answer phase to produce the complete application. The time of generation varies with the type of machine and application; on a minicomputer-based system, applications consisting of from 2000 to 6000 lines of code are generated in 10 to 15 minutes. Following generation of the source code, the programs are compiled; all associated files and program modules are integrated into the application. When this process is complete, the application is ready for testing and re-design.

The database developer and user then test the application by entering a few records and reviewing the functions of changing, deleting, and searching. At this point, the user may choose to revise the original design by changing any of the requirements of the application. The database developer should encourage the user to make changes at this point because the design is still negotiable and easy to modify. Once the user begins entering records and building up the database, however, it becomes increasingly difficult (although not impossible) to change the initial design of the database.

If any changes are required by the user, the database developer goes back and redefines the file definition accordingly. The application generator contains provisions for making such changes, so the revision should be no more difficult than the original definition. When the design is acceptable to the user and incorporates all the intended pieces of information in the proper format, the application is ready for implementation.

Implementing an Application

Implementation involves activating all the security features so that the application is accessible to those with permission and inaccessible to those without. For implementation to be effective, user training is essential. All users should be trained according to their anticipated usage of the system. For instance, the primary operator requires extensive training in all aspects of the application, whereas the project supervisor may need only retrieval capabilities. The database developer is responsible for conducting these training sessions and should be prepared to answer many questions during the first few weeks of use of the application.

A written user guide is a valuable adjunct to the training sessions. The guide is time-consuming to produce, but well worth the effort from the user's point of view. The documentation should cover standardized activities and rules within the database, thus picking up where the online prompting messages leave off. If distributed during the training session, the guide provides a handy reference tool for the user immediately after training. Later, it is especially helpful in training new and/or infrequent users of the application.

Maintaining an Application

Once the application is implemented and starts accumulating data, maintenance is required. The procedures of indexing and reformatting of the data files are quite simple, because the generator produces the instructions automatically. The database manager then executes those instructions on a regular basis by selecting a menu option from the data dictionary.

As the data file grows, processing time for searches and reports may become quite lengthy. It may become necessary to segment the file, using the new year as a logical cut-off point. The older file may be archived (i.e., stored on an offline disk) and only the most recent records included in the active portion of the file. Other maintenance activities include refresher and new user training, password changes, etc. These activities are ongoing and should be monitored frequently and regularly by the database manager.

Benefits

For the librarian embarking on database development for the first time, an application generator provides many benefits. The inherent characteristics of the generator, such as its ease of use and non-requirement of intensive training, combine to assist the experienced application *user* in becoming an application *developer.* The application generator allows the developer to concentrate on the structure, organization, and usage of files and data elements, instead of requiring close attention to detailed machine instructions. Therefore, with an application generator, the information specialist is able to use his/her skills in organizing information to meet the needs of the user in a computerized environment, without getting bogged down in the technicalities of a programming language.

Once in use, the time and cost savings of the application generator become apparent. One organization notes that the use of an application generator saved them 25% over the cost of writing applications in COBOL by hand (*1*). With a minicomputer-based application generator, multi-file databases are generally designed and developed in six to ten *hours,* versus four to six *months* required by a programmer. The efficiency of the application generator results in obvious productivity benefits for the database developer and for the organization as a whole.

The application generator helps promote a closer cooperation between the database developer and the user of the application. The entire design, testing, and implementation process involves interaction and cooperation to ensure that the user's needs are fully met by the final product. Since the application generator encourages user participation and iterative modifications, the user feels that he/she is truly a part of the application development and gains direct benefits from its products.

Along with the intangible, qualitative benefits, there are technical benefits to be gained from using application generators. In the way that application generators draw together common program modules to produce an application, they generalize and standardize the functions commonly used by systems. Data storage and retrieval, security rules, report writing, error handling, terminal log-in procedures, and housekeeping activities are carried out by separate, standardized modules. The common modules are then customized according to the particular application and linked together with a skeletal program under the direction of a set of "rules" as determined by the database developer. These "rules" then provide the desired computer application function through the modules they modify and link together. The modular aspect of the application provides for both continuity and flexibility in the design of databases.

Occasionally, the database developer may need to alter the program code so that the application performs functions specified by the user but not provided within the standard programs. Since the generated source code follows a uniform format and style, the database developer does not have to spend a lot of time "figuring out what the programmer was doing." Customization of well-documented, uniform source code produced by an application generator is far easier than revising programmer-developed code.

All of this adds up to the reduced involvement of programmers in the development of in-house applications. Some users may wish to develop their own applications by using a generator, but, as with online searching, most will want a skilled intermediary to assist and/or completely develop the application under their direction. This is where the information organization and handling skills of the specialist come into play: the computer-skilled librarian is perfectly suited to the role of database manager. Whether it be for their own use or for the eventual use of others, information specialists should consider using an application generator to become more effective in shaping and directing the outcome of computer-based file designs.

Experiences at REHD

At Exxon Corporation's Research and Environmental Health Division (REHD), information specialists have used database management software tools to develop in-house applications since the late 1970s. This activity grew out of a need within the Information Services Unit to increase the efficiency and productivity of providing indexing and retrieval services to the rest of the Division. The first efforts were aimed towards automating the centralized, manual collections of published literature and proprietary information. This project is detailed elsewhere (*2*) and mentioned here for its importance in expanding the REHD information specialist's role from a *user* of databases to that of a *developer* of databases for themselves and others within the organization.

Since the 1950s, the REHD Information Center has housed a collection of information pertaining to the needs of its primary users: toxicologists, industrial hygienists, and epidemiologists. The collection was originally organized in a manual system of indexing, storage, and retrieval. Over the years, as the topics of interest to our growing staff expanded, we outgrew the manual system. In 1978, the Information Services Unit decided to automate and build a computerized database of its environmental health information. We chose a mainframe software tool which processed bibliographic data and produced several indexes. Use of the information management software required a minicomputer for local entry of the data and transmission to a remote mainframe. In 1980, REHD acquired a minicomputer to perform these information handling activities and to provide support for office automation applications, such as word processing, calendar management, electronic mail, tickler, etc. Management of the minicomputer became the responsibility of the Information Services Unit. This activity, along with the files automation project, provided REHD's information specialists the background and experience necessary to begin developing and managing database applications for others within the Division.

As REHD's researchers began to see the advantages of using a computerized system for indexing and retrieval, they turned to our information specialists for assistance in organizing specialized collections, such as published analytical methods or regulatory notices. We used the mainframe software tool to build these specialized databases when the user needed several access points for retrieval. Although the mainframe software performed some functions very well, it did have certain limitations. The biggest limitations were the inability to perform numeric calculations and the lack of online searching and editing capabilities. These limitations caused us to look for a database management tool that would provide mathematical capabilities and be easy enough for end users to enter and retrieve their own data.

To meet part of this requirement, we acquired a spreadsheet package which provided superior capabilities in the manipulation of numeric data. Managers found this tool very useful for budgeting and planning activities. For online storage and retrieval of both numeric and textual data, we acquired two separate but compatible tools: a data entry program and a report writer. The information specialist created files using the data entry program; the end-user could then access the files with the report writer and produce online and hardcopy reports. These two programs worked well for organizing and searching small, simple file structures.

By this time (approximately 1982), the Information Services staff had firmly established themselves as designers and managers of in-house database applications for the Division. Our users became more and more sophisticated and their requests for applications became increasingly complex. Soon, we outgrew the report writer and data entry program for specialized end-user applications. We then purchased a software package which integrated the functions of a data dictionary, an application generator, and a report writer. We were limited by our pre-existing hardware, and so chose the most efficient package that was compatible. This software tool is used frequently today for developing specialized end-user applications. The system is menu-driven, with clear, consistent messages to the user. This menu-driven approach makes the system easy to use by both the database developer and the end-user.

At the heart of the software package is the data dictionary. This module provides the framework for the specification of all file, field, and array definitions; the identification of keys and indexes for data file access; verification of data entry edits; design of data entry screen formats and prompting messages; specification of standard table values; and documentation of files and fields. System utilities, which are available as menu options from the data dictionary module, provide program generation, report generation, and file and data dictionary maintenance. Applications created from the data dictionary provide online, interactive access to data files.

One of the strengths of this particular software package is that it generates source code which is accessible to the database developer. This code is identical to that which would be written by a programmer. As a result, the software-generated programs may be easily modified by insertion of customized user coding. By customizing, the database developer can provide extra features not automatically provided by the software-generated programs, thereby meeting nearly 100% of the user's requirements.

A separate, yet related, module is the report writer which functions in much the same way as the data dictionary / data entry portion. The report writer has its own dictionary which contains specifications for the file(s) to be accessed, the column and heading designations, and the sorting and selection criteria. Report programs are generated in source code and these, too, are accessible for customized user coding.

At REHD, this database management tool is used by nearly all groups within the Division. The Information Services Unit uses an application to distribute technical reports and other Company information to all interested parties throughout the Exxon circuit. Toxicologists use the software to track health and safety phrases assigned to various products and chemicals. Industrial hygienists maintain a log of descriptive information concerning samples analyzed within the laboratory; monthly reports provide a basis for billing affiliates for analytical services. The secretarial staff uses a timekeeping application to track employee absences and produce detailed reports for payroll and benefit calculations.

All of these applications, along with others not mentioned, have been developed by REHD's information specialists. The information specialist performs the functions of setting up the application, generating the programs, implementing, testing, and maintaining the applications. The end-users are trained to perform their own data entry and online retrieval. Reports are also developed by the information specialist and then placed on a menu for the user to choose when processing is required.

Lessons Learned and Implications for Others

The addition of in-house database development to the list of services provided by a corporate information center requires planning and consideration. It is best to start out on a small scale by developing single file applications and then advance to more complicated, multi-file applications. Demonstrations of initial applications to key groups within the organization help users see how they may benefit from specialized database applications. The growth of end-user applications is analogous to the expansion of online searching in the special library setting: the service starts out with a few interested users and then expands as others learn of the advantages and benefits.

In the beginning, it is worthwhile to develop applications intended for use within the library/information center. This gives the information specialist time to understand the software and work out any quirks within the system. The process of applications development is a cumulative one, so that the lessons learned in the beginning will assist the database developer with projects later on.

Management of end-user applications by special librarians and information specialists provides an integrated approach to solving corporate information needs. Researchers who routinely turn to the information center for literature searches and document delivery will begin to include requests for specialized database development. The usage of database management software tools helps the information center provide a full range of services to the organization. The benefits from merging end-user computing with library services are two-fold: the organization enjoys the services of a broad-based information center, and the information specialists experience the added challenges of direct involvement in database management.

For the information specialist to take a leadership role in the management of end-user database services, it is necessary to maintain awareness of computer technology and information management software as they relate to the organization's specific needs. As the area of end-user applications expands and more researchers require specialized databases, the information specialist will be called upon to provide the necessary support. Now is the time for special librarians to prepare for these changes by gaining the knowledge and expertise required to meet the expanding needs of the organization for a wide range of information services.

Notes

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Using Special Libraries To Interface with Developing Country Clientele

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Introduction

The spectre of starving Ethiopians that has come to haunt the airways of North America in the last year is only the most current and one of the most dramatic representations of a problem which has continually plagued mankind: hunger. In Ethiopia it has become clear that it is not so much the lack of food production that has caused the problem as much as a failure of the postharvest system. Food in abundance is available, at least now after the plea to the richer nations of the world. Yet non-existent transportation, insufficient port and warehouse facilities, and, most importantly, internal politics combine to interfere with the ability to get the available food to the refugees in the remote areas of the country.

Postharvest systems of handling, transportation, storage and marketing are the focus of two special collections that are described here. The Postharvest Institute for Perishables Information Center (PIPIC) at the University of Idaho in Moscow and the Postharvest Documentation Service (PHDS) at Kansas State

University in Manhattan are special or focused collections (information services) designed for use by a clientele from developing countries suffering a wide variety of food loss problems. Each collection was initiated by a U.S. Agency for International Development (USAID) contract to the respective universities following the U.S. National Academy of Sciences study highlighting the importance of *postharvest* (as distinguished from production-oriented) agricultural assistance. In spite of billions of dollars invested in the Green Revolution and other general preharvest approaches to ending hunger, as many as a billion people were cited in that (1978) report as being malnourished. (*1*) A special session of the United Nations General Assembly in 1975 set the international goal for reducing postharvest losses 50% by 1985.

The Needs

The importance of documentation as part of any problem-solving effort does not need to be justified to this audience. A few samples of agricultural library collections from developing countries where we are acquainted will briefly illustrate the limitations imposed on both pre- and postharvest efforts in these regions. Following this the PHDS and PIPIC "emergency information aid" will be described showing the kinds of assistance available for postharvest information. Like the concept current in agricultural circles, our operations seek "appropriateness" and immediate utility. Neither our services nor our developing country clients can wait for the elegant long-term solution.

Egypt. In Egypt, the library for an entire College of Agriculture, which serves some 300 faculty and approximately 3500 students, consists of one small room which houses perhaps 2500 volumes of textbooks in French and English, all published in the 1950s or before. It also houses its collection of theses and dissertations and the journal collection which consists of exactly 4 journal subscriptions outside those published by the College itself. There is no system for borrowing materials from libraries elsewhere in Egypt nor any international location. There isn't even a photocopy machine anywhere in the College to copy from any of the materials that are there.

Honduras. The library in Honduras, which has the same charge in regard to collection development as the U.S. National Agriculture Library, has a collection of approximately 15,000 volumes and receives about 100 subscriptions from around the world. It is the AGRIS (a computer-based, information network for agricultural libraries in developing countries) input center for the nation responsible for entering all Honduran publications into the world-wide AGRIS information network. Nonetheless, there is no book budget and never has been. This means that all publications are received as gifts at the whim of the donors. The nearest computer terminal for composing the entries for AGRIS are at another governmental bureau on the other side of Tegucigalpa. No one on the staff of this library is trained in data-entry, so they must rely on the free time of the staff in the agency with the computer to input their AGRIS data. Needless to say, this is a less than ideal solution for both agencies involved.

Materials in this collection are cataloged by title and author. Most of the classification is by publishing agency so there is not even the minimal amount of subject orientation that comes from a classed system. There are a few issues of the AGRIS index, but the staff says they are never used.

This center is loosely affiliated with a library in Costa Rica which coordinates the Latin American input into AGRIS. Through this affiliation, SDIs or retrospective bibliographies could be provided for materials related to at least Latin America (it was unclear whether there was access to all the AGRIS documents from other areas.). However, this had never been utilized by anyone on the staff or any other researcher in the country as far as the staff knew.

Pakistan. Even in Pakistan, where one of the newest libraries seen anywhere houses the main agricultural collection of the country, there is a minimum of access to the materials in the collection. Books are cataloged only by author and title; Dewey classing gives the only subject access. Journals are listed by titles and holdings are recorded, but there is only one index to allow access to the materials: the AGRIS Index. This is available only because this library, too, is the official Pakistani input center for AGRIS. This library, however, has one service which is unique within the country: computerized bibliographies on individualized topics can be requested as retrospectives or SDI's from FAO in Rome. Even with this service available, only 35 topics were requested during 1984.

This library is presently coordinating an effort to facilitate in-country interlibrary loan by creating a network of other agricultural libraries at government agencies, experiment stations, and universities. There are plans to create a union list of serial holdings and to eventually have a union list of monographic holdings. Nonetheless, this network has no plans for linkages outside of Pakistan even for interlibrary loan of journal articles. Currently, only one library in Pakistan, the Agricultural University of Faisalabad, will lend monographs to anyone else in the country, so the value of the proposed union list of monographs is questionable as well.

These three examples run the gamut from the worst to the best that we have personally seen in developing countries. While much better libraries undoubtedly exist, these can act to focus attention on the differences between the libraries we expect in North America and the reality of life for our colleagues in other parts of the world. It must be noted that the staffs of these institutions are all acutely aware of their limitations and are well informed about technological developments in the field. It is their awareness which creates to a great extent the demand which shapes the services from PHDS and PIPIC. We act as the short-term bridge to link the third world information seekers, such as those libraries mentioned, with modern technology.

The Solutions

Following a brief outline of our combined services, we will describe our separate activities in the following areas:

Communication and marketing
Collection building
Interpreting client needs and informing clients of new materials
Document delivery

Both PIPIC and PHDS perform the following functions as information centers:

- We each house a focused collection of documents based upon postharvest systems for specific commodities. The multi-disciplinary collections combine such areas as entomology, economics, engineering, nutrition and marketing.
- We maintain computer-searchable data files of bibliographic information with subject access from the collected documents.
- Our services announce their holdings in serially-produced acquisitions lists to a clientele whom USAID funds us to serve free of charge.
- We reproduce and mail copies of our documents to our international clients.
- We produce special subject bibliographies based upon our own initiative and upon specific client requests.

Post-Harvest Documentation Service of the Food and Feed Grain Institute

PHDS began in 1979 as an added component to the Food and Feed Grain Institute (FFGI), a multi-disciplinary faculty at Kansas State University. Housed in the Grain Science Department, but also representing faculty from Stored-Product Entomology, Agricultural Engineering, Agricultural Economics and Mycology, the Institute members focus their work on cereal grains and dry-seeded legumes. Limitation to these commodities, in contrast to perishables, gives the PHDS collection special stress on such subjects as long-term storage structures and economic stockpiling of grains. As part of a larger Institute which conducts in-country training and technical assistance, PHDS benefits from the contacts made by other FFGI personnel. The Documentation Service is not the sole recipient of the USAID grant, and must assert its own needs for funding along with those of the other FFGI components.

Communications and Marketing. At PHDS, the task of alerting potential clients of our services is shared by faculty of the FFGI. Through technical-assistance projects carried out overseas and through training programs the Institute provides both in Kansas and abroad, additional post-harvest personnel are added to PHDS' clientele and their publications are solicited for the collection. FFGI personnel often reduce the time it requires to obtain limited-edition foreign reports by bringing them from technical-assistance trips. Determining the currently most crucial subject areas for acquisitions is greatly assisted by PHDS' affiliation with these technical-assistance experts. Trends in post-harvest loss prevention, which gain or lose their utility due to various governments' support or cutbacks, are followed by FFGI personnel, and affect which materials PHDS will likely collect. This process is more dynamic than predictible, but it is necessary due to the nature of the material.

Collection Building. Located in a nation where "information overload" seems to be the plight of most librarians, PHDS has access to all of the high-technology systems of searching and retrieving documentation. The only database we have been unable to search online ourselves has been AGRIS, which is not yet available from an American vendor such as Dialog. (*Editor's Note:* Since the time of writing this article, AGRIS is now available through Dialog.) Instead, we utilize Agricola and CAB databases for retrospective searches, which are run as needed. We maintain SDI search profiles of these and other databases with the National Agricultural Library throughout its CALS program.

We were once asked why we do not search these databases directly for our clients when they write us with special information requests. Given our clients' resources and immediate needs, presenting them with the resulting bibliography would be more of a frustration than a service. Many of the documents cited in such searches are limited-edition reports of conference papers located in libraries with a wide variety of user policies. We would not be doing any favors to either our clients or to inter-library loan networks by advertising document locations worldwide. Instead, our goal is to acquire the appropriate items ourselves, then announce their availability as well as their contents to clients.

If we relied on other databases as our sole source for acquisitions, we could not consider ourselves very unique or up-to-date. It is our contact with the clients themselves and with the FFGI faculty involved in food loss prevention activities that exposes us to material not previously listed in other sources. PHDS clients contribute to acquisitions with donations of their own and with requests for particular articles that they bring to our attention. One specialist in rodent control measures in Malaysia regularly sends us lists of reference from other articles that he would like us to acquire. At times it is difficult to draw the line between post-harvest subjects and those topics that do not seem to contribute directly to post-harvest solutions. For example, we would avoid as a "pre-harvest" area documents on the genetics of new cereal cultivars, but we could not ignore research papers concerning development of those cultivars resistant to stored-product pests.

One of our acquisitions goals is to combine both practical and theoretical publications. On the one hand, we need as much "appropriate" extension material (publications that come out of agricultural departments of universities) as we can get for on-site implementation. On the other hand, we cannot avoid the "high technology" research papers which illustrate techniques and equipment necessary to a developing research laboratory.

Another "appropriateness" issue is the balance between making available to our clients the same literature that research and extension workers in North America have access to or developing a collection that reflects the special problems and solutions found in the developing countries themselves. For the latter emphasis, we encourage donations using a 2-for-1 exchange policy. Since the PHDS acquisitions lists offer approximately 400 items bi-monthly of which only 20 can be provided free-of-charge, the desire for additional copies can be met by one client donation for 2 extra PHDS items received. In some cases this has encouraged clients to mail us packages of their publications in advance, as credit for extra copies.

FFGI faculty assist in acquisitions when they embark on research and technical assistance projects. For example, materials from a bibliography on the larger grain borer were added to PHDS by one of the Institute's entomologists. Currently, we are preparing a bibliography on natural plant materials as pesticides for stored grain insects. Documents collected at professional conferences and workshops by FFGI staff are added to the collection and requests for specific titles from them, as from other clients, are valuable acquisitions aids.

The appropriateness of certain subjects may vary with the year or the season. Outbreaks of a certain pest will require a rush for information on the topic, and renewed interest in techniques that have been ignored for many years may require that we research in the not-so-recent literature. Without our limitation by commodity and by postharvest stage, acquisitions would often seem more governed by reaction then by plan of action.

Interpreting Client Needs and Informing Clients of New Documents. Our service by airmail rather than electronic telecommunications may put us in a low technology bracket relative to the available hardware in North America, but correspondence with clients this way is the most appropriate mode we have. We have not arrived at the point where clients can tell us what they need any more effectively or cheaply than by writing us a letter. Since our bi-monthly acquisition lists (written in English) provide document numbers and an ordering form, requests for document copies present no major communication problem. With computer search requests, we have more room for difficulties. While the process of sitting down to describe in writing exactly what information one wants is a helpful practice which aids any searcher, our lack of face-to-face interaction makes us rely on clients' well-worded written description to formulate an effective search strategy.

Two difficulties are continually presenting themselves. One is that English is a second language to most of our clients, and their descriptions tend to be vague or awkwardly written. We are encouraging native speakers of Romance languages to write us in their first language since FFGI employs a full-time translator to interpret such communications. The second problem is a lack of understanding about the computer search itself. We have had clients ask for "anything on postharvest aspects of cereal grains and dry-seeded legumes"—virtually the whole database. Our challenge in advertising the availability of searches is to include just enough of a description of the search process to encourage meaningful search requests, but not so much as to mystify the clients.

Document Storage and Delivery. At the outset, the PHDS collection was designed with document delivery to clients in mind. This meant that 1) we could only collect for distribution those items that any library could legally copy and mail, and 2) we would have to set limits on the number of free copies a client could receive, due to copying and postage costs. It has been a frustration to this librarian to see appropriate material that cannot be shared through our only channels because of copyright laws. During the upcoming year, we have decided to try announcing to our clients a limited number of in-print materials we were unable to copy. Publishers addresses and costs will be listed. Hopefully those clients with scant acquisitions budgets will be encouraged to devote special grants or USAID assistance funds to developing collections of these materials. Growth of agricultural libraries is one of our ultimate goals, so our announcements may provide an incentive for long-range collection development.

Limits on the amount of paper weight we can afford to send by airmail has caused us to use microfiche master copies for any document over 50 pages. PHDS has not advised clients in the purchase of microfiche readers in the past, but we are initiating special microforms demonstrations with those students and visitors to FFGI who might be forced to accept non-paper copies.

To make searches possible, and to format our bi-monthly acquisition lists, we store the bibliographic citations and abstracts to all PHDS documents on hard disks with the KSU Computing Center. Two files currently require storage: one of each of the citations and abstracts themselves, and an index derived from the former. The index that facilitates searching has grown to over twice the size of the abstract file and consists of all words derived from the titles and abstracts after a stop list of meaningless words has been weeded out. With as eclectic a field as postharvest subject matter presents, and with the quickly evolving vocabulary, it seems that an index derived in this way is more comprehensive and less time-consuming than one derived from controlled-vocabulary keywords. However, the index itself may become something of a dinosaur unless new data structures to break it down are introduced or sequential search techniques of the abstract file prove more cost effective than maintenance of the index.

Storage of the documents themselves is simply designed for quick retrieval and copying, not for browsing. Persons entering our work area may not recognize a library in the shelves of numbered folders containing photocopied journal articles, reports, and pamphlets. We are only now considering disposal of our card catalog, the last symbol of traditional library organization. What may appear in many libraries under the label "ephemera" is for us the information equivalent of emergency food aid to developing countries. If the collection were to disappear some day because its contents have been consumed and its function replaced by more permanent materials in the users home countries, we will have filled one special role in librarianship.

Postharvest Institute for Perishables Information Center

From its beginnings in 1981, this center has grown to include a collection of 8500 documents covering a multitude of crops: fruits, vegetables, root and tuber crops, nuts, oilseeds, spices, essential oils, and beverage crops. Basically, if it can be grown in the soil and eaten and isn't a grain or hard-seeded legume (which are covered by PHDS), PIPIC probably deals with it.

Communication and Marketing. These two concepts are linked together because, within our operations, the process of "marketing" is primarily one of communication. We have a need to communicate in two directions: potential users of our system and potential suppliers of resources to the systems. (It should be noted that frequently these are the same audiences.) Kotler has defined marketing as an exchange operation (*2*) and both PIPIC and PHDS operate very strongly from this premise. We expect users of the service to provide information to us on how well our services have done as well as information in the more concrete sense as copies of publications that have been personally useful which will be entered subsequently into the respective document collection.

Differences in the financial support of the two services has made important differences in the marketing/communications efforts of the two services. There are marked similarities, too. The simple act of having both services announced at different times in *L.I.F.E. Newsletter,* a small bi-monthly publication distributed by the League for International Food Education, caused a deluge of new clients to contact both of us. Communication can, thus, be very informal and even inadvertent, yet be valuable. PHDS realized that announcements such as the one in the *L.I.F.E. Newsletter* would put strain on its ability to provide adequate services to those already being served and has avoided mention in other publications. The newer PIPIC has actively sought similar publicity by advertising itself in the *Agricultural Libraries Information Notes,* in a paper which is part of *The Infrastructure of an Information Society* conference proceedings and several smaller publications. Other active means of acquiring clients used by PIPIC were to send brochures describing the service to all agriculture and science libraries in developing countries with a note to the head librarian to offer the brochures to any clients who might be interested. While this took a long time to bear fruit (in some cases two and a half years), several clients' initial referrals have been tracked back to these mailings.

Provision of good service from both institutions has been the primary means of reaching others who need our services. Word of mouth referrals from colleagues has been responsible for a great number of new users. (At least occasionally we encourage this by reminding current users that they *can* make such referrals to us.) Approximately 50% of PHDS and 60% of PIPIC users have been referred by other clients. Such activities have caused our rosters of clients to grow to a combined total of 1125 (PHDS serving 425 and PIPIC serving 700). It should be noted that referrals are not always to countrymen. In fact, a colleague in a different country working on a similar problem is at least as likely to be referred as a countryman. As a result of this type of international cooperation, there are currently over 100 countries served by the two information centers.

From many of these clients come referrals to favorite sources of information or requests that we obtain materials from an outside source. These kinds of requests serve as the basis for expanding our ability to tap especially the emphemeral literature of the Third World. These materials prove often to be the most frequently requested by other researchers in developing countries. Our real regret is that we must rely on such a haphazard fashion for obtaining such materials.

Collection Building. The communications discussion leads inevitably into the collection building processes. Unlike mainstream libraries, which rely on library journals and book reviews to know about the materials in their fields, our centers are forced into less reliable means of finding information. As noted, we ask our clients for information from their personal experience and we use them to point out likely materials which our collections need. Some techniques common to others in special libraries have been used to a limited degree by our services. For example, at various times both of our services have used the services of the U.S. Department of Agriculture Current Awareness Literature Service (USDA CALS) as an SDI for postharvest topics, but the on-again-off-again nature of this has made it rather unreliable. One major source for knowledge of the available literature for PIPIC are the commercially-generated bibliographies which clients request. We scan these to locate materials that seem to be particularly important either for the particular client or for a broader audience.

A carefully developed plan to acquire root and tuber documents in the first year, fruit documents in the second year, then vegetables, nuts and spices in that order was quickly seen as irrational after a few months of PIPIC operations. Hence, we turned to the unconventional, or at least non-traditional, method of relying on demand from users. This now is the primary factor in determining the areas in which PIPIC collects and the depth to which we collect. While we ocassionally include a type of document just to see if there is interest (project management documents proved to be a very popular example of such "trial" material), the vast majority of the collection is included because there has been a request for the topic or a user has sent it to us as an example of something that had been useful personally.

Flexibility is the plan behind PIPIC's acquisitions. Since PIPIC deals with so many commodities, there is virtually no way to acquire systematically all the materials that are applicable and no way to determine priorities of crops among those collected. Hence, we see no alternatives to the haphazard collection policy. Client reaction has not been negative since we encourage all requests for information and attempt to fill them. There are annual client surveys which do ask about areas of research projected over the next couple of years or ask if there is interest in some of the areas we are considering for a "trial" subject. Thus, the central issue of communication again comes into play as a means of directing our operations, a means of determining "appropriateness."

Interpreting Client Needs and Announcing New Materials. While we assert that we are relying on our clients to define their needs and PIPIC, at least, is using those needs to build its collection, there is really a factor which we are ignoring. It is the interpretation of client needs from which the centers' staffs operate. Anyone who has ever performed any reference work is familiar with the problem of the client asking one question and really needing the answer to a totally different question. In a situation where the client is thousands of miles away, the difficulties burgeon. In most instances, the defined needs are being expressed in a tersely worded message probably written in the requestor's third or fourth language. It is written from the all to often culturally / socially embarrassing position of a petitioner / beggar where the tendency is to minimize the extent of need rather than to explain in great detail the deficiencies. All of this makes it very difficult in most instances to supply just the kind of material that is needed.

AT PIPIC the usual response, particularly for the first-time requestor, is to send a letter explaining our operations along with a brief bibliography on whatever topic was said to be of interest. We find almost all requests err on the side of being too general rather than being too specific. We encourage the new client to use a subject order sheet to define problems more closely and then work to meet the needs expressed to us the second time. Our experience has been that the longer a client works with our center, the less reticent he becomes. The effect is that we can provide more closely-targeted information. It also causes an increase in staff time involvement since filling specific needs is always harder than just sending what is generally related and readily available. The more closely defined needs also put us into the position of relying more heavily on the modern technology available to us in our centers. Requests for everything on storage and transport and marketing of all vegetables and fruits, for example, are answered by sending some issues of PIPIC's acquisition list. A slightly more specific request, say for everything on durians, will result in a bibliographic search of our own files (which are machine-readable, resident on the University of Idaho's mainframe IBM's and searchable using the STAIRS software). When a request comes in for something really specific, such as methods of determining hexanoic acid content in chillies, then we use the food and chemical databases as needed from Dialog, BRS, and Questel. Requests for training in a topic or for experts to work in a field are sometimes searched in the Develop database from Control Data Corporation or from our own roster which includes some 700 experts in various fields of postharvest perishables.

Interpreting specific needs for clients also reflects on delivery policies at PIPIC. General needs are often answered by seamail with the attendant delays which are well known to us and to our clients. Needs which have time deadlines again rely on increasing technology: airmail is used to get materials to places in a week to two, and in some rare instances PIPIC has used international Express Mail or mail couriers to get materials overseas in 3 days. When the nature of the information needed is just a few words rather than documents, Telex is used and is usually received overnight.

One of the most important actions in interpreting client needs is the means we use to track our degree of success. PIPIC queries users annually about level of satisfaction and suggestions for any changes in operations. In addition, we send a postcard with all orders which asks if that specific response was what the client wanted and if there is anything else that can be done.

Here is one example of information that has been gathered from the return postcards which has allowed us to better serve users while conserving resources as much as possible. One of the questions on this postcard asks how long it took for materials to be received. From this we get a good look at the international mail delivery system and its various quirks. This has shown us, for example, that surface mail to Thailand, the Philippines and Pakistan arrives as fast as airmail. Hence, we do not mail by air to these destinations any longer. (Our guess is that the U.S. military traffic to these areas must carry much of the mail.) By contrast, mail to India, Burundi, and Ghana is so slow that we mail nothing by sea. Sea mail to India takes about 8 months from the USA and mail from India to the USA takes a mildewy year or a bit more.

At PIPIC, a number of changes have come about as a result of the feedback generated from the postcards and annual surveys. Not only was the acquisitions policy revised as mentioned above, but the format of the new acquisitions bulletin was completely revised to include sources and authors rather than just the titles with subject supplementation which an advisory board had initially recommended. The same survey told us that less information on more items was preferred to a policy of abstracting just a few items. The staff was greatly relieved to be released from the burden of abstracting and agreed, both at the time and in retrospect, that the elimination of abstracting has been a benefit to our clients due to the vast number of commodities which are part of the PIP area of concern. The decision to mail more packages by sea mail was also preferred by clients to the alternative of limiting the amount of information which could be obtained. Thus, for PIPIC, the client feedback has performed the function of defining our shape, of making us "appropriate." Very little of what we do is considered immutable at PIPIC precisely because we are an agency provding a short-term solution to a problem which is in flux. If there is no flexibility in our operations, we will cease to provide the response the problem requires and will become as "appropriate" as a buggy-whip in twentieth-century North America.

Conclusions

The potential for extinction of our postharvest information services has been alluded to several times. However, this poses no real threat to the operations of our centers. Our "problem-solving" collections are essentially stop-gap measures to be used while institutions in developing nations are building resources on a local or regional level.

Indeed with our clients' needs, as already discussed, being so temporary, fluid and unpredictable, we see our collections as having an increasing role in the world library community. This is particularly vivid since even the largest collections can no longer be "everything for everybody" and all of us are increasingly turning to a more "focused" type of service.

With the advent of computer-aided retrieval, we have gained speed and flexibility which allows us to adapt to our specific users needs. But the information specialist remains essential to link the ever more numerous resources to those needing them. Our users have shown that they are not concerned with how their problems are solved, only that responses are received which require a minimum amount of effort on the user's individual part. Most users, the world over, given access to the technology and resources to perform information retrieval for themselves do not now want to make that effort.

The future may be different, however. Especially with the advent of microcomputers powerful and cheap enough to run small libraries, our role is becoming ever more temporary. Decreasing telecommunications costs and improved methods of delivering information electronically will eventually cause the demise of short-term, problem-solving informations centers like the Postharvest Documentation Center and the Postharvest Institute's Information Center or at least their metamorphosis into completely different entities. The "appropriate" solutions, the "emergency information aid," we have offered will yield to the long-term elegant solution of adequate agricultural libraries throughout the world.

Notes

1. Board on Science and Technology for International Development. National Research Council. *Postharvest Food Losses in Developing Countries*. Washington, DC: National Academy of Sciences, 1978. p. 7.
2. Kotler, Philip. *Marketing for Nonprofit Organizations,* second edition. Englewood Cliffs, New Jersey: Prentice-Hall, 1982. p. 6.

Editor's Note: Anyone who wishes to contribute to either PHDS or PIPIC may contact Paulette Foss George at the following address: Post-Harvest Institute for Perishables, University of Idaho, College of Agriculture, Moscow, ID 83843.

New Product Analysis of Corporate Information Services

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■ **Ideas from the new product development process can be used to study the impact of new information services. The corporate information center of AT&T Communications used this method to evaluate a public access database service. Because valuable staff time and system resources would be needed to transform an internal database to a user friendly form, the need for study before implementation was critical. After gaining information on client needs, database development and possible impacts, the decision was made not to implement.**

MARKETING concepts have been applied successfully in examining many information center issues. Most studies focus on the marketing of already established research or current awareness services. However, consideration can be given to using marketing research techniques for developing new markets or services. The steps outlined in the new product development process can be used to study the potential and format of new information services. (*1*)

In the beginning of 1985, the Information Research Center (IRC) of AT&T Communications decided to explore offering one of its internal databases directly to all levels of sales and marketing staff. Since this internal resource would compete for staff time and IRC budget dollars, expenses had to be justified. The new product development process provided the means to explore its potential.

AT&T Communications and the IRC

AT&T Communications, a division of AT&T, provides inter-state and intrastate long distance services, as well as services to some 200 countries and territories worldwide. With offices around the country, AT&T Communications employs over 117,000 people. With a staff of over 100, the Information Research Center attends to the information needs of this dispersed and diverse clientele. Their information needs are much greater than just the long distance market or telecommunications services. Members of the AT&T sales force act as consultants to company executives in all industries. Therefore, sophisticated questions come from knowledgeable sales managers in industries from retail and packaged goods to aerospace and utilities.

In order to meet these needs, the services of the Information Research Center include more than those of a traditional library. In some cases, information specialists write reports from their findings. They also index and abstract important articles and reports in their subject areas. These items are input into internal online databases that supplement the range of printed and commercial online resources.

At the early stages of planning, we decided to employ techniques from the new product development process. We felt the impacts and demands of such a new service would be great. New product analysis offered a means for careful examination of all the issues to aid our decision process. We therefore familiarized ourselves with the various stages and steps involved in examining the development of new products or services. (*2–8*) The first stage, called the idea stage, involves identifying opportunities and ways to satisfy needs. It also means making an appraisal of the target markets. The second stage, or development stage, studies various product concepts that would meet the needs expressed in stage one. It involves product or service design and development. The total concept stage is the third stage. This stage involves a study of features and the marketing mix of the total product. A second market appraisal is made and various product costs would be discussed. The last, or test market stage, involves several steps: evaluation, market forecasting, and testing, which employs sampling techniques to study potential acceptance and demand.

Idea Stage

Reacting to a high level of demand and limited staff resources, the IRC sought other ways to meet client needs. In particular, clients demanded case histories of various ways that companies apply telecommunications to their business. The IRC staff thought an internal database of such case studies could be offered directly to our end users. Currently, the information specialists act as intermediaries. A database might provide a cost-effective way to re-use IRC efforts and provide more timely access to information.

The Database

We chose to examine one of the existing database systems in the IRC. This database housed article summaries that showed how companies and industries used telecommunications services. Each record consisted of a detailed abstract and citation. Some summaries were case studies of ways in which AT&T Communications customers have used its various long-distance and other network services. The sources cited were from a diverse array of published literature. The information specialists themselves abstracted and indexed articles for the database. For telecommunications applications, this database was a prime resource for answering research questions. Commercial databases either do not capture the relevant articles or do not index them in the necessary way. In some cases, the information was so detailed that research questions were answered directly from the summaries.

Project

We set a period of four months as the time needed to collect data for this feasibility project. We established the areas to be examined and the time frames for each. In order to make a final decision to implement, we made a careful examination of all the issues that had to be covered. A detailed time line was charted. (*9*)

A four-phase approach, corresponding to the steps involved in developing a new product (outlined previously), was decided upon. First, we needed to make an appraisal of our client market. Which client groups or set of needs would we address? Second, we had to develop the product concept. This meant developing the means, the database, to meet client needs. Third, we had to develop the total concept and make a second or revised projection of our client market. Fourth, we had to do test marketing using a prototype of the database.

The Tools

A full-time information specialist was assigned as project leader for four months. A project team of information specialists was formed to generate ideas and comments. Another team of four was assembled for survey development. The indexing committee was asked to do some examination of the database. One person on the database staff was assigned to work with the project leader on systems issues. Also, knowledge had to be gathered concerning the process for examining these issues. The project leader studied new product design and implementation, and learned techniques for holding focus groups. (*10*) Two groups outside the IRC were contacted for help. The market research department provided a consultant to the project. The corporate measurements group provided survey design and statistical measurement advice.

Step One: Appraisal of the Market

First, we went back and examined the market for the data resident in our database. After being briefed on focus group principles, we conducted a session with the information specialist project team in order to identify our client groups and their needs. We focused on three major groups in our study. They consisted of two groups in field sales and the regional technical centers, a support organization.

Second, we analyzed all the questions asked of our information specialists in 1984 that related to the subject area of the database. These requests were analyzed by 12 categories: department, level, several subject areas, type of question (i.e. company data, bibliography, etc.), amount of time spent on questions, and format of response.

Third, we sent out a brief questionnaire, designed by our survey team, to the subscriber list of one of our newsletters, which related to the subject area of the database. This gave us some qualitative responses to our perceptions of client needs.

From these responses, we decided which groups to more formally survey. Working with the Corporate Measurements group, we supplied questions related to use of the database. The measurements group conducted some telephone interviews with a sample of people from each client group.

Step Two: Creative Development

Next, we analyzed our current database for its ability to meet client needs. The information specialist project team did some brainstorming on the use and misuse of this database. Ideas for its adaptation were suggested. An additional committee working on indexing procedures was asked to analyze sections of the database. A citation analysis was done of approximately 2,000 records. Through index terms and key topics, we identified major areas of coverage.

The data obtained from this examination revealed problems with content and retrieval in the database. Some record abstracts were not detailed enough to provide valuable data. Many of these records were from earlier indexing in which abstracting was not considered valuable. Some records contained too many index terms which, when searched, resulted in many irrelevant hits. This might happen because current indexing policy drives searchers back to even brief mentions within the article.

On the client side, initial response indicated that most were not familiar with online searching technique. Most of our individual clients only used the IRC on occasion. We had only a small number of frequent customers. Also, the information needs of these clients were sophisticated enough to require a strong sense of search logic. We concluded that serious revision or weeding would be necessary to eliminate misleading or useless records. Also, the searching methods and access would have to be very "user friendly" for it to be effective.

Step Three: Total Concept Stage

To begin this stage we started by listing success criteria—an important step in designing new products or services. The suggestions were that the new service would:

- provide useful information to clients;
- provide information in fast-turnaround situations;
- broaden the base of clients served;
- be a more effective means to handle routine requests;
- be easy to access and use;
- be cost effective; and
- not create document demand (we decided against adding staff, coping with copyright, and expanding resources in this area).

Some expected benefits would include the re-use of IRC efforts, greater exposure to IRC services, and aid for marginal clients. Left unsolved were questions about the effect on demand, the focus on major or marginal clients, and the type of support to be offered.

The project leader worked with the database staff on options and possible changes. A test database was set up with copies of carefully selected records from the original database. Only those records containing significant facts were included and any open files or simple descriptive summaries were eliminated.

All the currently available gateways were evaluated for use with our database. None was deemed useful with this database and its search logic. Compatibility was also an issue. We deal with BRS/Search software within a UNIX environment. The number of packages applicable for our purposes is limited. Two packages we examined, called Searchmate and Colleague, came with BRS and we found them somewhat useful. One of two packages developed internally was found to be the best, but, with the new version of BRS, called 2.0, it was unusable.

We also analyzed the cost and logistics of access, system capacity, and passwords. Estimates were made of the potential user population and projections were made of staff and hardware ability to meet the need. We encountered no problems in this area; we could handle a large number of users.

Second Projection of the Market

With a still imperfect but usable prototype online, the project leader went out to managers of the key client groups again. Brainstorming was done through actual online searches. Sample search strategies and printed results were provided to client group leaders for further staff reactions. In two cases, they went back and gained significant additional feedback from their staff.

The native search mode of BRS was found to be the most straight-forward approach for the clients. Although the system seemed easy to use at first, end users encountered problems. Boolean logic and search structure proved difficult. Many reacted favorably to the value of the information, but not to its format and access. Some were pleased with the instant access and paperless environment presented.

From the information gained in telephone interviews, the Corporate Measurements group felt we should go back to the idea stage of the process. This conclusion was reached because of potential low usage per individual and the ease of obtaining information by the traditional route—calling an information specialist in the IRC. Another major objection was the apparent need for the original article, despite access to the database. Apparently, articles are used in the sales process itself in presenting ideas to clients and for internal education and training. This conclusion was also reached in the client presentations.

All findings pointed to problems with the database as it stood. Extensive revision of current records and future indexing procedures had to be made. Some records did contain valuable information. The client groups identified were the right ones based on need. However, only the small regional technical centers would clearly benefit from constant use because these people dealt with information requests on a daily basis.

Decision

Did we want to change the whole idea for the database? Based on the limited judgment samples we conducted, we realized we were not meeting several criteria for success. We decided not to go ahead to the test market stage. We had to discuss again the end user need for this database. It seemed that the costs of creating a new interface and revising the database would be high. Potential use seemed low or focused on too small a group of people.

However, in researching the needs of our clients in the marketing organization, we found opportunities for information services. The IRC could benefit by marketing itself to various segments of this large group of clients. It appeared that answering research requests met only some of their needs; more could be done to examine account executives' needs. It seems that although this particular product is not adequate at present, it might be adapted to serve a limited group. Several ideas for interesting alternatives arose during the course of this project and await trial in other new product feasibility studies.

Conclusion

The entire process proved to be a valuable one. It forced us to stay with a plan of action. Decisions had to wait upon the facts. It allowed for valuable input from our clients and from the information specialists who would be most involved. Given the excitement over trying this new offer, it was a hard decision not to go ahead with the service. However, given our list of success criteria and the resources on hand, the conclusion not to implement was obvious.

One lesson learned was that initial enthusiasm was soon tempered by the clearer picture obtained through the new product development process. As the case with many spin-off attempts, most of us were overly optimistic in judging the value and need for the service. Without this analysis process, we would not have planned enough or considered our clients' needs as the crucial issue.

As a side benefit, we learned much about the marketing of services, market research, and new product development. We understood something about survey and questionnaire design. In fact, several alternatives and new service ideas come out as the result of our in-depth inquiry. What started out as a simple examination of a database service became a much more diverse experience.

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Specialized Information Centers in the Nicaraguan Revolution

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■ Selected information centers established to support the Nicaraguan government's economic and social programs are described and some of their problems and successes are discussed.

ON JULY 19, 1979, the Sandinista National Liberation Front entered Managua, the capital of Nicaragua, thus ending the forty-five year rule of the country by the Somoza family. The new regime radically changed the political and economic structure of Nicaragua, giving priority to land reform, agricultural development, public health, and political and economic change (*1*). This article describes some of the major special information centers that have been created to support the government's activities in these areas.

Information Center of the Center for Research and Study on Agrarian Reform

This research center was founded in May 1980, under the direct orders of the Minister of Agricultural Development and Agrarian Reform. Specifically, the purposes of the Center are to investigate the problems of transforming the agricultural sector of Nicaragua and to establish contacts with governments and international organizations willing to supply technical and financial resources (*2*).

The collection of the Information Center consists of 3,000 books and 4,000 processed documents concentrated in the areas of agrarian reform, economic policy, agricultural policy and rural sociology. The collection is organized along guidelines provided by the Land Tenure Center of the University of Wisconsin, where the Head of the Information Center studied for several months. The Information Center maintains a comprehensive collection of documents of the Nicaraguan agricultural sector.

By order of the Minister, two copies of every publication produced by every office in the Ministry have to be deposited in the Information Center. This policy has been followed consistently since the inception of the Center and includes documents whose distribution is restricted, thereby giving the Center a collection of unique documents that cannot be found together in any other single library in the country.

Applied agriculture is not included in the collection. The Library is a depository for the publications of the Food and Agricultural Organization of the United Nations (FAO). About 200 periodical titles are received, seventy percent of which are on an exchange or gift basis. The budget for the purchase of publications generally comes from organizations that are funding projects of the Center, and the Information Center itself does not have its own publications budget.

There are about sixty or seventy researchers using the Information Center. At one time the Information Center was open to the public, but presently access is restricted to authorized researchers and other official users because of limitations of staff time. The microfilming of selected documents for both security and space-saving reasons has begun. The Information Center has shared access to a computer and is computerizing its collection with about 600 titles already processed. This work will be speeded up considerably as soon as it receives its own computer, which is being cleared from Customs.

National Center for Agricultural Information and Documentation

This Center was created in February 1984, as a result of the fusion of the Faculty of Agricultural Sciences of the National Autonomous University of Nicaragua and the divisions of Production and Agricultural Technology of the Ministry of Agricultural Development and Agrarian Reform. The Center has three principal divisions: Document Analysis, Technical Processes and the Library (*3*). The emphasis of the Library is on applied agriculture, and the collection is quite large, with about 18,000 books and documents, and about 450 titles of periodical publications. The outstanding aspects of this Library are its collection of reports and theses on Nicaraguan agriculture prepared by the students and faculty of the University, as well as its extensive collections of documents of FAO and of the International Institute of Agricultural Cooperation.

While the Library provides the information resources, the Center handles the dissemination of information. At present, the Center issues two publications, the *New Acquisitions Bulletin,* and the *Table of Contents,* which consists of reproductions of the tables of contents of the principal journals received by the Library. The second number of this publication was issued in February 1985, and covers thirty-five journals. This publication is distributed to ninety subscribers, and the Center photocopies requested articles, but difficulties in obtaining paper for the photocopier have begun to limit service.

The Center does not have a publications budget; books are received through donations. Journals come either by exchange or are paid for with funds from special projects. Recent extensive remodeling of the library has made it much easier to use for the public. This is especially important not only for the students of the Faculty (of which there are about 1,200), but also for the many secondary school students who arrive to complete class assignments. There are seventeen members on the staff of the library and the Center.

The Center is the input base for *Agrindex,* the worldwide agricultural bibliography sponsored by FAO, and therefore is responsible for organizing the indexing of all Nicaraguan agricultural publications. The Center is also the coordinating center for the Agricultural Information and Documentation Network of Nicaragua. At one time, this network was one of the most active in Nicaragua (*4*) but passed through a series of difficulties and is now being reactivated by the Center.

National Center for Information and Documentation in Health

Given the immediate priority of public health for the new regime, this information center was formed in October 1979 (*5*). It is part of the Ministry of Health. The collection consists of about 4,000 books, between 4,000–5,000 documents and 1,600 medical slides, which are loaned for instructional purposes. Fifty-seven subscriptions are received, all of which are paid for by the Pan American Health Organization, and another twenty titles are received by donation. There are eleven staff members.

The Center is open to the public for consultation but is housed in what were originally intended to be several small offices; it lacks a telephone as well as air conditioning, which is quite noticeable since it is located in one of the hotter parts of Managua.

One of the more serious problems faced by this Center is that it does not receive copies of the many publications produced by the various dependencies of the Ministry of Health, thus severely limiting its value as a resource for consultation of the national health literature.

One of the most important functions of this Center is its role as coordinator for the National Information and Documentation Health Network. Most of the staff members perform activities connected with the network. By means of the network, twenty-eight libraries or information centers in hospitals have been established throughout the country. The Center acquires books, catalogs them, and distributes them among the libraries. The Center has a large budget for this task from the Pan American Health Organization. It also receives 100 copies each of seven Cuban medical journals, which it sends to these libraries. The Center also offers workshops concerned with basic library techniques to the personnel of these libraries. The sixth and most recent workshop was offered in June 1985, and was concerned with the service aspects of library operations.

The Center provides information services to the network members not only through centralized acquisitions and cataloging and the workshops, but also through its service called TABCON, which is a publication consisting of reproductions of the tables of contents of journals received by the Center. One copy of each number of TABCON is sent to each regional library and the photocopies of articles are supplied by the Center upon receiving the request from the library. Other services which the Center provides are the publication of a union catalog (1981) of the collections in ten libraries of the network, and also a series of "Notebooks" of instructional character intended for the regional libraries, ten of which had been issued until 1983.

Documentation Center of The Institute for Economic and Social Research

The Institute was founded in 1981. Its objective is to study Nicaraguan social and economic conditions with the ultimate goal of proposing viable alternative policies (*6*). The Documentation Center was reorganized in 1984, and since then has been directing its efforts toward internal organization, development of a computer program, and improving its relations with libraries and documentation centers in the country.

The Center has about 8,500 books and documents and 500 periodical titles, of which about 350 are active. Most of these titles are received by exchange, for which the Center offers the Institute's journal, *Pensamiento Propio* (independent thought). The Institute is autonomous and receives its financing from foreign, non-governmental organizations. This gives the Center access to foreign exchange in order to acquire books and journals. The Center has eight staff members and provides reference and documentation services to visiting researchers and to those attached to the Institute.

The Center has published a series of bibliographies on such topics as Revolutionary Nicaragua, recent events in Grenada, and militarization of Central America.

The computerization program has been faced with several difficulties, but is expected to be operating in the near future. A monthly bulletin of new acquisitions is published. The Documentation Center has become a focal point for visiting scholars and others who have been attracted by the Nicaraguan Revolution.

Library of the National School of Cadres of the Sandinista National Liberation Front

The National School belongs to the Department of Propaganda and Political Education of the Sandinista National Liberation Front. The collection of the Library numbers about 10,000 volumes representing about 400 titles. The subjects covered are economics, political science, philosophy and history from a Marxist-Leninist perspective. There are about 350 students in the school receiving courses at a secondary school level with some at a university level. The school also gives seminars.

The Library functions basically as a textbook library and the books are lent to the students for the duration of each course. A staff of five work in the Library. The Library has no acquisitions budget, but rather depends completely upon donations for its books. The Library has a spacious reading room and along with the school is housed in what was a private school before the Revolution.

Center for Research and Documentation on the Atlantic Coast

The eastern half of Nicaragua, also known as the Atlantic Coast, is distinct ethnically, linguistically, and culturally from the western half of the country, and under the Somoza regime it was never effectively incorporated into the national domain (*7*). One of the priorities of the new regime has been to end the isolation, and to this effect, a special government institute was created, the Nicaraguan Institute for the Atlantic Coast. The research center originally formed part of this Institute but in 1982 was given its own legal identity (*8*).

The Center has as its objectives the formulation of studies that contribute to the socio-economic analysis and interpretation of the Atlantic Coast. The Documentation Center has the responsibility to centralize and organize all the information generated by these studies as well as any other studies relative to the Nicaraguan Atlantic Coast. The Center posesses about 700 books, receives fifty periodical titles and has about 500 documents which are mostly offprints, photocopies of articles, mimeographed papers, and other such materials. The Center also has a collection of tapes of oral history and the language of the Miskitos, the predominant ethnic group of the Atlantic Coast. There is no acquisitions budget, but the Center receives publications that are acquired by organizations that have projects studying the Coast. The Center publishes a bi-annual list of its acquisitions. A personal computer is available and is being used as a word processor. Assessors are expected to arrive shortly to instruct the staff in the computerization of the collection.

Conclusion

There are fifty-four special libraries and information centers in Managua (*9*). The enormous economic and political pressures confronting Nicaragua, with defense consuming 40 percent of the budget and inflation expected to rise to the 50 percent range (*10*), are affecting the ways in which these centers operate, and those reviewed here show some of the ways they are adapting.

For the acquisitions of publications, one of the biggest problems faced is lack of foreign exchange, specifically U.S. dollars, by those centers that do not have access to foreign financing. Unesco coupons, which can be bought with local currency and then used to purchase foreign publications priced in dollars, were apparently no longer being accepted by publishers because of problems involved with their redemption. The centers have become forced to depend upon donations of publications and especially exchange, the latter to a point where some of the centers obtain information or hard-to-get government documents for their foreign exchange partners in return for their publications.

The recently declared U.S. embargo, while not affecting mail (*11*), will force some of the centers to change their sources of supplies and equipment.

Inter-library cooperation in the form of book loans has become increasingly active because of the difficulties in obtaining publications from abroad. The establishment of national information networks connected to regional ones is providing another means of cooperation although the many problems facing the information centers and the environment as a whole have weakened the impetus of several years ago (*12*).

Many of the specialized information centers have opened their doors to the public, especially secondary school students, despite the problems this has brought them in serving their own clientele, because the economic conditions of the country do not permit the schools to develop adequate libraries.

Despite the problems facing the information centers, they move forward. New books and journals arrive, dissemination of information is achieved through table of contents publications and lists of new acquisitions, reference services are offered by all, and computerization of the collections is underway.

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Boston:

A Great City for a Conference

by Malcolm Hamilton

Chair, Social Sciences Division

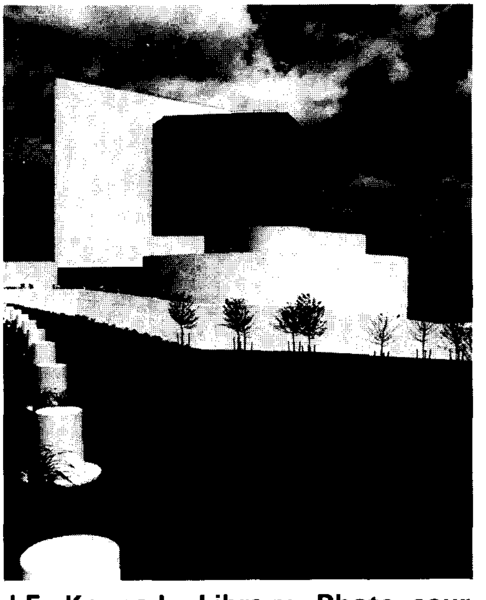
IN ANTICIPATION of the Special Libraries Association Annual Conference in Boston in June, members of the Boston Chapter have decided that some advance information will help our colleagues plan their visit more intelligently and even to include a vacation in Boston or nearby.

The city exudes a powerful charm, and Bostonians, as you will find, are fiercely patriotic. Perhaps living so closely with the monuments of American history has instilled this chauvinism into each of us. Boston is a modern, bustling city with a population of over one million people. Yet, it is also an historic museum. Skyscrapers form a backdrop for the red-brick residences of Beacon Hill, where gas lamps still light the streets. The grand townhouses of Commonwealth Avenue, built when the swampland known as the Back Bay was filled in, still speak of an era of horse-drawn carriages and an upstairs/downstairs style of living. A few of these gracious buildings are maintained as museums or serve other public functions, and so may be visited. But inside, most of them are now much more likely to be condominiums than single houses. There has been a real effort by public-spirited citizens to preserve the old Boston and its fine architecture.

The lessons learned by losing so many buildings forever to twentieth century bulldozers are too recent to forget.

Bits and Pieces About Boston

Boston's busy Logan Airport is served by 42 airlines with over 400 flights per day at five separate terminals. Arriving passengers usually take taxis to their destinations, especially to the Back Bay area where the SLA conference will be held. Fares will exceed $10 for the journey. The



J.F. Kennedy Library. Photo courtesy of The Greater Boston Convention & Visitor's Bureau.

The New England Aquarium on Boston's historic Waterfront offers educational displays of over 2,000 species of aquatic life. Photo courtesy of The Greater Boston Convention and Visitor's Bureau.

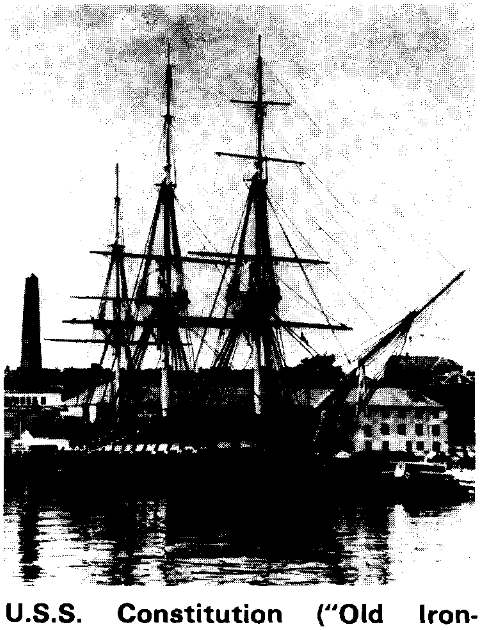
Sheraton, but not the Hilton, offers limousine service to and from the airport. Public transportation is available, but would require four changes that could thoroughly confuse travelers who are unfamiliar with the City's famous subway system. Once in the city, however, you'll quickly find the "T" to be the most efficient transportation around the city.

The weather is influenced heavily by the nearby ocean, which moderates, but does not necessarily control, the climate's diversity or frequent changes. Remember what they say about weather in New England: "If you don't like it, wait a minute, it will change." June temperatures average a high of 76.6° and a low of 59.3° (with a mean of 68°). June can be wet and cold, hot and humid, or just glorious. Better call ahead if weather is a factor in your plans. We're praying for "glorious."

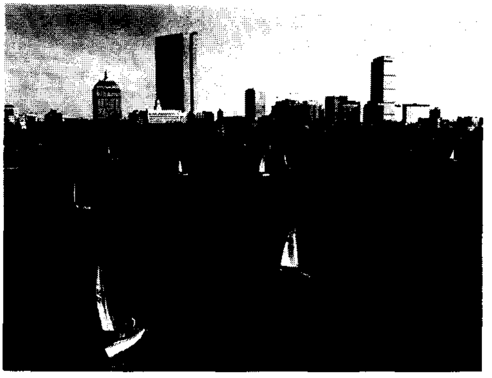
Crime? Sure we have it! This is a large urban area in 1986, but it's safe enough if you let common sense rule your activities. Boston ranks 266th out of 329 cities regarding crime rates, followed by such places as Anchorage, Phoenix, Little Rock, Sacramento, Denver, Washington, DC, Portland, OR, Detroit, New Orleans, San Francisco, Los Angeles, and, of course, New York City. We should of course, allay fears about the famous "Combat Zone." It is now reduced basically to one sleazy adult entertainment block that you are unlikely to encounter, and the folks that inhabit it are definitely not looking for librarians—no matter how "special."

With 186,445 people enrolled in degree-granting institutions, Boston has possibly more students per square inch than any other urban area in the country. It has 31 private and three public institutions as well as hundreds of other educational institutions. These colleges and universities offer a wide range of cultural activities for residents and visitors alike. Many of their libraries and museums are on most Divisions' lists of places to tour.

Overall, Boston's cultural facilities rank fifth in the country for museums, public radio and television, symphony orchestras (ten are noteworthy), theaters, opera and dance companies. For "recreation" (what the Almanac refers to as "the best places to play"), Boston comes in 32nd for its three four-star restaurants, opera and live theater, movie houses, sports teams, zoos, aquariums, race tracks, its inland and coastal recreation



U.S.S. Constitution ("Old Ironsides"). Photo courtesy of The Greater Boston Convention and Visitor's Bureau.



areas, and national forests, parks and wildlife refuges.

A recent survey of Boston Chapter members elicited interesting suggestions of "bests" not to be missed by our visiting colleagues. The long list of "overall" bests illustrates the variety of the city's sites and recreational opportunities and the equally diverse tastes of our members. Heading that list is the view from the top of the John Hancock tower, followed closely by Filene's Basement for bargain shopping, the Public Garden and the swan boats, and the Boston Pops Orchestra. Best historical site is the Freedom Trail, which takes in 16 buildings and monuments and leads one through the oldest parts of downtown and Beacon Hill, to the North End (Paul Revere's house, built in 1676, and the Old North Church) and across the river to the U.S.S. Constitution (Old Ironsides) with its new museum, and the Bunker Hill Monument.

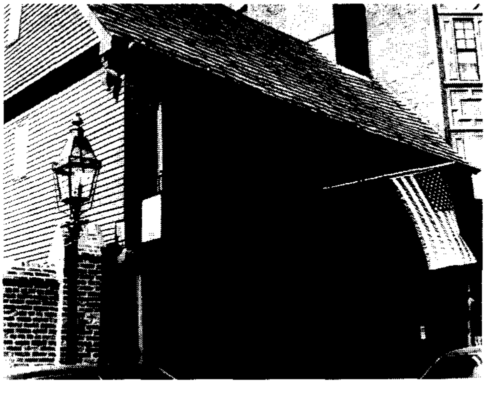
According to our members, the two top libraries: Boston Public (two blocks from the conference site), and the Athenaeum on Beacon Hill, are not to be missed. The best shopping is found in the Quincy Market area, but Back Bay visitors will also be tempted by the spectacular new upscale stores in Copley Place, including Neiman-Marcus and Tiffany's, with Lord and Taylor's and Saks Fifth Avenue close by.

The most popular restaurant, by far, is Legal Seafood in the Park Plaza, although 115 others were mentioned at least once and will form the core of a restaurant guide which will be available in June.

If you're leaving the city for day trips or longer, Chapter members recommend Salem and the Cape Ann towns to the North. On the same day, one can easily take in the House of Seven Gables and see legendary Motif #1 in Rockport, the quintessential fishing village-turned boutique. There isn't much east of the City, but the Harbor Islands are highly recommended and easily visited by any number of ferries, one of which also continues on to Provincetown. To the west, of course, lie Lexington and Concord, and to the south is Newport, RI, where the marble cottages of turn-of-the-century rich rival the stately homes of Britain (of which one hears so much this year). From either Hyannis or Woods Hole, ferries offer easy access to both Martha's Vineyard and Nantucket.

Further Resources

In Winnipeg, we were asked a great many questions about Boston that can be answered by a fascinating reference



Paul Revere House, owned and occupied by the famous patriot from 1770 to 1800. Photo courtesy of The Greater Boston Convention and Visitor's Bureau.

book. Rand McNally's 1985 edition of the *Places Rated Almanac* puts Boston second only to Pittsburgh as the most livable city out of 329 U.S. metropolitan areas covered.

There are many other resources to help with planning. To receive an information package on theater, museums, sports events, and other happenings, call Boston's hotline (800) 858-0200. Give your name, address, and zip code after the tone and you'll receive a current schedule of scheduled events.

Boston: Bright from the Start, The Official Guidebook to Boston is available from the Greater Boston Convention and Tourist Bureau (Prudential Tower, Suite 1944, Boston, MA 02115). This 112-page book covers the City, the North and South Shores, Cape Cod and the Islands, and the historic western suburbs.

The "Spirit of Massachusetts Vacation Planner" kits are available from the Division of Tourism (100 Cambridge St. 13th Floor, Boston 02202). The kit covers seven areas of the state.

The best overall guide to the area is the *Michelin Green Guide to New England* (2nd ed). This is a state-by-state, town-by-town detailed guide to the historic and cultural sites, recreational areas, the famous and the out of the way places to visit. It's thoroughly researched with typical Michelin format and up-to-date maps.

The following articles will round out anyone's reading before the conference and will more than likely stimulate side trips and adventures others will miss:

Balzer, Robert L. "Concerning Food and Wine: Edible Boston." *Travel-Holiday,* March 1985, pp. 74–75+.

Beyer, Beverly and Rabey, Ed. "Thorny Beantown Blooming Anew." *Los Angeles Times,* Oct. 13, 1985, pt. VII, p. 5+ (A view from afar of the town that King George III called "a thorn in my back.").

Boursier, Helen T. "Faneuil Hall Marketplace: Feasting on History in Boston." *Travel-Holiday,* Dec 1984, pp. 38–40.

Brand, Janice. "Boston's Beacon Hill: Two Hours Along the Cobblestoned Byways of Yankee Aristocracy" (walking tour with map). *Travel & Leisure,* July 1985, pp. 133-34.

Butterfield, Fox. "What's Doing in Boston." *New York Times.* November 10, 1985, sect. 20, p. 10.

——. "Institutional Boston: Cultivating Culture in New England." *Travel-Holiday,* March 1985, pp. 70–73+.

Miller, Neil. "Boston's Nearby Country Inns: Eight Places with Traditional New England Charm (and Rooms at Reasonable Prices, Good Food—From Casual to Formal)." *Travel & Leisure,* Nov 1985, p. E22+.

Moore, Milton. "What's Doing on Cape Cod." *New York Times,* June 23, 1985, section 20, p. 10.

——. "A New England Sampler: What to See and Do in Each of the Six States." *Travel & Leisure,* May 1985, pp. NE1–13 (a special section following page 154).

Sedgwick, John. "Boston's Glorious Gardner Museum: A Splendid Art Collection in a Latter-Day Venetian Palazzo." *Travel & Leisure,* Dec 1984, pp. E6–E10.

"Excellence in the World of Information"

SLA 77th Annual Conference
June 7–12, 1986
Boston, Massachusetts

THE QUALITY of excellence and the manner in which it can be translated into your professional life will be addressed in sessions throughout the week-long Annual Conference. The broad scope of programs to be offered will enable you to keep current in the information field whether you are a well-established professional or a newcomer. Attendance at the 1986 SLA Annual Conference will be an enriching experience for all registrants.

General Sessions

Rosabeth Moss Kanter is the dynamic speaker who will address General Session I, "Managing For Excellence." Dr. Kanter's name has been prominent in the recent press as a result of her appointment as full professor to the Harvard Business School. She is only the second female, tenured professor among 86 senior faculty. Dr. Kanter has pioneered in the study of organizational change, and her book *The Change Masters* focuses on easing barriers to innovations in corporations. This first General Session will present the most recent thinking on unique, people-oriented management techniques leading to the achievement of organizational goals.

The prominent Julianne H. Prager, Executive Director of Corporate Technical Planning and Coordination of the 3M Company will discuss "The Creative Environment for Excellence" during General Session II. How do effective managers encourage a creative environment? Information services as an integral part of the research and development effort can be a key element in fostering creativity. This session will offer insights into the theme of excellence in the world of information based on extensive technical and managerial experience. With a solid background as a research chemist and over 30 years with 3M, Dr. Prager has overall responsibility for Centralized Information Services and Technology Analysis Functions.

The third General Session, "Technological Innovations For Excellence" will feature a panel of experts who will discuss four major technological trends, their workplace applications and their broader significance for society. The topics and speakers are as follows:

"Artificial Intelligence: A Productivity Tool"
Karl Wiig, Director, Artificial Intelligence Applications Center, Arthur D. Little, Inc.

"High Technology Materials"
Dr. Ronald M. Latanision, Director, Materials Processing Center and Shell Profes-

sor of Materials Science, Massachusetts Institute of Technology

"Future Dimensions in Biotechnology"
Harvey Price, consultant, former Executive Director of the Industrial Biotechnology Association

"Ethical and Societal Implications of the New Technologies"
Dr. Edmund Pellegrino, Director, Kennedy Institute of Ethics, Georgetown University

Schedule of Events

The 1986 Conference will feature over 100 exciting and educational programs. These events are the result of many months of planning by the Boston Conference Program Committee, SLA Divisions, and several other committees. A wide range of topics will be covered and the hardest decision you might have to make is deciding which sessions to attend. These sessions are open to all conference registrants at no additional cost. A sampling of program titles follows:

SLA Members on Graduate School Boards
Automating Technical Services
Photos and the Future
Cartographic Users Advisory Committee Update
New or Unusual Sources for Competitive Intelligence
There's No Computer in My Future
Effect of Growth in a Business Library: The Addition of a Second Professional
Information Alternatives in the Regulatory Arena
Computers in Map Collections
Sources of Information in Agriculture
Desk Top Databases
Public Relations: Concepts, Committees, Competence and You
Cooperative R & D in the US & Japan
Entrepreneurship & Intrapreneurship in Corporate Libraries
Transportation of Hazardous Materials
Two Sides of Development
World Debt
Electronic Publishing: Fact or Fantasy
Excellence in Local Government Management
Socioeconomic Trends and the Provision of Information
World Trade Center, Boston—Boston's First Intelligent Building
The State of the Food Industry—The Food Marketing Industry Speaks
Current Issues in Consulting
Library Excellence: The Role of Staff Education & Training
Meet the Publishers
Creative Retirement: Health, Wealth, and Happiness after the Rat Race
Searching Maps and Online Data Bases
Truce with the Information Revolution: One Guerrilla's Guide to Survival
Meeting the Information Needs of Biostatisticians
Venture Capital & Its Influence on the Information World
Please, I'd Rather Do It Myself
Legislative Update
The One-Person Library
Easing Online Services into the Library
Nonbibliographic Data Bases in the Sciences
Downloading
Risk Taking in Career Building
Dewey Decimal Classification
Library Automation
Nutrition Concerns & Today's Consumer: How is the Food Industry Responding?
Solving Nuclear Information Problems
Planning a High Performance Library
Powerful Software—Puny Prices
International Defense Information Conference
End User Education
Government Information: A Public Good or a Commercial Product?
News Library Unions & Labor Relations
Changing Life Insurance Marketplace
Everything You Wanted to Know About Women & Their Concerns
What's the Competition Up To? New Product Intelligence
Innovations in Materials & Manufacturing Technology
The Employment Interview: What Managers Look For
Picture Research
Cataloging of Rare and Special Materials
Managing with Technology
Tapping the Resources of EPRI
Post Processing of Statistical Data Using a Microcomputer
Vendor Update
CAS Roundtable
Privatization in the Transportation Industry
Networking Within the Corporation
Staff Meetings with Snap
What to Do with Your Money: Options and Explanations
Book and Author Lunch with Tracy Kidder
Appraising the News Collection

The Right Image: Planning & Creating the Public Face of the Information Center
Office Politics: Make It Work For You
The Role of Numeric Databases in the Management School Library
Groundwater: Issues & Information Resources
Changing Technologies, Changing Roles
Conservation Practices
Quality in Picture Collections
Preserving the News Collection
Standards Roundtable
The Value & Practical Uses of Patent Information
The Reinsurance Market: Lloyds of London and the American Scene
Imaging Technology: Beyond the Microform
Trends and Forecasts in Copyrighting: A New Federal Agency
Optical & Digital Disk Storage for News Libraries
Library Marketing Today
Geography & Map Division Contributed Papers
Records Management Principles
Half-staff, Non-staff, Non-company: Managerial Excellence in a Shrinking or Vanishing Corporate Environment
Computer Applications Workshop
Microcomputer Applications in Picture Collections
Broadcast Librarians Roundtable
Library School Alumni Reunions
Search Strategy Clinic
Marketing Workshop

Visit the Exhibits

Keeping current in your rapidly changing profession poses a challenge to all information specialists. The SLA Exhibit Hall provides the perfect opportunity for you to stay on top of the most recent developments in the information marketplace while viewing the services and products of the more than 200 exhibiting companies. Knowledgeable booth personnel will be on hand to provide demonstrations of featured equipment and to answer questions you may have regarding their products/services. SLA's 1986 Exhibit Hall will be conveniently located in the lower level of the Sheraton Boston Hotel.

Special Exhibit Hall Events

Sunday, June 8 3:00 p.m.–5:00 p.m.	Exhibit Hall Reception Free drinks for all attendees.
Tuesday, June 10 1:30 p.m.–2:30 p.m.	Dessert in the Exhibit Hall Complimentary dessert for all attendees.

Support These Exhibiting Companies: They Help Support SLA

Aball Software
Academic Press
Access Innovations
Acme Bookbinding Company
Addison-Wesley/Benjamin/Cummings Publishing
Alfred Jaeger, Inc.
American Chemical Society
American Institute of Aeronautics and Astronautics
American Institute of Physics
American Management Association
American Mathematical Society
American National Standards Institute
American Society of Civil Engineers
American Society of Mechanical Engineers
ASTM
Baker and Taylor
Ballen Booksellers International, Inc.
Bank Marketing Association
Battelle Memorial Institute
Bechtel Information Services
Bell and Howell
Bernan Associates
Beverly Books, Inc.
Biosciences Information Service
Blackwell Library Systems, Inc.
Book Clearing House
The Book House, Inc.
Book Services International
R. R. Bowker Company

BRS Information Technologies
The Bureau of National Affairs, Inc.
Burrelle's Information Services
Business Research Corporation
Butterworth Publishers
Cambridge Scientific Abstracts
Cambridge University Press
Carroll Publishing Co.
CDA Investment Technologies
Center for Association Publications, Inc.
Charles E. Simon and Company
Chemical Abstracts Service
Circa Publications, Inc.
CLSI
Combined Consultants Exhibit
Comex Systems, Inc.
Commonwealth Agricultural Bureaux
Comstow Information Services/Bibliotech
Conference Book Service, Inc.
Congressional Information Service (CIS)
Corporate Technology Information Services, Inc.
Coutts/Menzies/Bennetts
Cuadra Associates, Inc.
Data Trek, Inc.
Datatek Corporation
Datext, Inc.
Department of Housing and Urban Development
Derwent, Inc.
Dialog Information Services, Inc.
Disclosure
Dow Jones and Company, Inc.
Dun's Marketing Services
Dun's Marketing Services—Online
Dynamic Information Corp.
EBSCO Subscription Services
The Economist Publications
EIC/Intelligence, Inc.
Elsevier Science Publishing Co.
Encyclopaedia Britannica, Inc.
Engineering Information, Inc.
Euromoney Publications
Faxon Company
Federal Document Retrieval, Inc.
Finsbury Data Services
Fuji Photo Film U.S.A.
Gale Research Co.
Gaylord Brothers, Inc.
Gordon & Breach Science Publishers
Grolier Educational Corp.
Grolier Electronic Publishing, Inc.
Gulf Publishing Co.
Otto Harrassowitz
Harwood Academic Publishers
The Highsmith Co.
IEEE/INSPEC
Info Globe
Informatics General Corporation
Information Access Company
Information Handling Services
Information Management Consultants, Inc.
Information Marketing International
Information on Demand
The Information Store, Inc.
Inforonics, Inc.
Inmagic, Inc.
Inspec
Institute for Scientific Information
Interdok Corp.
International Library Service
International Monetary Fund
International Publishers Service, Inc.
JA Micropublishing, Inc.
Kluwer Academic Publishers
Knowledge Industry Publications, Inc.
Library Bureau, Inc.
The Library Corp.
Library Wholesale Services
Little, Brown and Co.
Marcive, Inc.
Market Data Retrieval
Martinus Nijhoff International
McGregor Subscription Service, Inc.
Mead Data Central
R.S. Means Company, Incorporated
Meckler Publishing
Micro Aero Charts, Inc.
Minolta Corp.
Moody's Investors Service
National Central Library of China
National Ocean Service
National Register Publishing Company, Inc.
NERAC
Nichols Advanced Technologies, Inc.
Nils Publishing Co.
Notis
OCLC
Organization for Economic Cooperation and Development
The Oryx Press
Oxbridge Communications
Patent Depository Library Program
Pergamon Infoline, Incorporated
Pergamon Press, Incorporated
Personal Bibliographic Software, Inc.
Pioneer Hibred Int'l. Inc.
Plenum Publishing Corp.
Predicasts
Princeton Microfilm Corp.
Public Affairs Information Service, Inc.
The Publishers Book Exhibit, Incorporated
Publishers' Showcase
QL Systems, Limited
Questel, Inc.
The Ralph McElroy Translation Co.
Read-More Publications, Inc.
Regulatory Information Service
Research Books, Inc.
Research Publications
Robert P. Gillotte Co.
RSC Books and Periodicals, Inc.
Sadtler Research Laboratories
Safety and Security Systems/3M
Scarecrow Press
Scholium International, Inc.
SDC Information Services
Seal Products, Inc.
SHL Business Systems, Limited
Sobeco
Society of Automotive Engineers, Inc. (SAE)
Springer-Verlag New York Publishers, Inc.
Standard and Poor's Corp.
Stockton Press
Swets North America, Inc.
Sydney Dataproducts, Inc.
Taylor and Francis, Inc.
Thomson and Thomson
Turner Subscriptions
U.S. Bureau of Census
U.S. Geological Survey
USBE, Inc.
U.S. Library of Congress
United States Book Co.
University Microfilms International
University Products, Inc.
University Publications of America
Utlas
Van Nostrand Reinhold/Jane's Publishing
VU/Text Information Services, Inc.
Wadsworth, Inc.
Warren, Gorham & Lamont
Washington Service Bureau, Inc.
John Wiley and Sons, Inc.
H. W. Wilson Co.
The Worden Co.
The World Bank

Continuing Education

The Professional Development Section will offer a diverse program of courses designed to advance the knowledge and skills of both new and experienced special librarians and information specialists. Participants earn 0.6 Continuing Education Units (CEUs) and a certificate upon completion of each course.

CE courses will be conducted on Saturday, Sunday, and Thursday, June 7, 8, and 12.

Several courses are now offered for those information professionals with experience or advanced subject knowledge in the particular field of instruction. The listing of courses is as follows (Advanced courses are indicated by an asterisk (*).):

Division Related

CE 128 How to Build an Online Data Base

Management

CE 200 Organizational Management for the Information Professional
CE 204 Managing the One-Person Library
CE 205 Basic Management Skills
CE 206 Conquering the Challenge of Stress Management
CE 207 Time Management in the Small Library
***CE 232** Creative Conflict Management
***CE 252** The Human Factor in Management
***CE 258** Support Staff in Special Libraries: Roles and Responsibilities

Communication

CE 302 Practical Research for the Practicing Special Librarian
CE 304 User Surveys as a Marketing Tool
CE 326 Management Communication in Special Libraries and Information Centers
CE 353 Design and Development of Promotional Materials

Technology

CE 405 Introduction to Microcomputers for Special Librarians
***CE 481** Advanced Applications of Library Microcomputers
CE 485 Systems Analysis Techniques for Information Managers

Information Science

CE 503 The Information Industry in Europe: Services and Providers
CE 509 Cost-Benefit Analysis for Librarians
CE 511 Corporate Library Excellence
CE 512 Special Librarians in the Information Age
CE 515 Office Automation and the Special Librarian
***CE 520** Making Money: Fees for Information Services
CE 523 Space Planning/Evaluation for Libraries and Business Information Centers
CE 550 The Responsibilities of Special Libraries in Emergency Management

Workshop

CE W1 Career Advisory Workshop

Middle Management Institute

The Middle Management Institute (MMI) is the second phase of SLA's Professional Development Program. The MMI consists of 75 hours of instruction divided into five units:

- Management Skills
- Analytical Tools
- Human Resources
- Marketing and Public Relations
- Materials and Machines

Each unit will include 15 hours of interactive instruction spread out over two and a half days. Participants will earn 1.5 CEUs for each completed MMI unit. An MMI Certificate will be awarded to participants who complete all five units within an approximate 24-month period. In addition to the units offered during the conference, SLA has scheduled Middle Management units in various locations throughout the United States over the next several years.

The MMI units featured at the Annual Conference this year will be held June 6–8, 1986.

"Human Resources" will assist participants in developing and refining the interaction techniques necessary in effective management. Negotiation interviewing, performance appraisal, conflict resolution and time management are some of the topics that will be presented.

"Analytical Tools" will acquaint participants with several of the most important aspects of effective management, including budgeting, strategic planning, and statistical methods. Through an understanding of the quantitative tools of management, attendees will develop skills and learn practical techniques to improve decision-making and managerial effectiveness within their institutions.

For additional information, contact Kathy L. Warye, Director, Professional Development.

Management Cinema

SLA management films will again be featured at the Annual Conference. Viewers will have the opportunity to learn about sophisticated and timely management topics through a well-designed and interesting format. Titles, descriptions, and times will be listed in the Final Conference Program.

For information on any of the Professional Development Programs presented by Special Libraries Association, please contact Kathy Warye (202/234-4700).

Boston: The City

Boston has been an exciting city in which to hold meetings since the 1700's. Malcolm Hamilton, Harvard University, Kennedy School of Government Library, has written an article (found elsewhere in this issue) that provides conference-goers with both historical information and "insider" tips on getting the most from your visit to Boston.

SLA has scheduled several conference-wide events to acquaint attendees with various aspects of this historic city.

Boston By Night is a bus tour planned for Saturday evening. The round the town bus route will bring participants through "Old" Boston to view lovely Beacon Street townhouses, along the Charles River to see the skyline of "New" Boston while viewing numerous landmarks along the way including the Old North Church, Boston Common, the Old State House, to name a few.

The SLA Fundraiser during the 1986 Conference will take place Sunday evening at that quintessential Boston landmark—The Dome and Great Hall above the Quincy Market building at the center of Faneuil Hall Marketplace. A reception has been planned that will include host and cold hors d'oueuvres, an open bar, entertainment and roundtrip bus transportation.

Since $4 of the ticket price will be donated to the SLA Building Reserve Fund, your attendance at this event will accomplish two things—an enjoyable evening for you and a donation to a worthwhile cause.

A field trip to the Kennedy Library Exhibit and Lexington/Concord has been planned for Thursday, June 12. A visit to the JFK Library Exhibit has proven to be a moving experience for all who attend. This modern historical building will provide an interesting contrast to the bus tour along the "Battle Road"—Lexington and Concord. Lunch will be provided.

Contributed Papers

An unprecedented response to the Call for Papers for this Conference is a strong indication of the timeliness of the Conference theme: "Excellence in the World of Information." Contributed Papers Sessions will be held on Monday, Tuesday and Wednesday afternoons.

Monday's session is titled "Creating Excellence in the Special Library" and the titles and authors of the papers to be presented are as follows:

"A Passion for Excellence: 12 Command-

ments for Achieving Special Library Excellence"
Speaker: Becki Balok, Energy Devices, Inc.
"Excellence: How Am I Doing?"
Speaker: Miriam Drake, Georgia Institute of Technology
"Excellence in Library Management"
Speaker: Deborah Naulty, Federal Reserve Bank of Philadelphia
"Excellence—Responsiveness to a Changing Management and Technological Environment"
Speaker: Ruth A. Pagell, The Wharton School, University of Pennsylvania
"Positive Reinforcement, Enhanced Performance, and the Achievement of Excellence"
Speaker: Lester J. Pourciau, Jr., Memphis State University
"Productivity Measurement in Special Libraries: Road to Excellence or False Lead?"
Speaker: Robert V. Williams, University of South Carolina
"Libraries and Information Centers Within Women's Studies Research Centers"
Speaker: Grace Jackson-Brown, Miami University, Oxford, Ohio
"Meeting the Information Needs of the Cosmetics and Chemical Specialties Industry"
Speaker: Linda M. Botti, American Cyanamid Company
"Marketing Information in a Technical Library"
Speaker: Linda Appel, Tektronix, Inc.
"Getting to Know You—Resources to Help Business Clients Understand the Behavioral/Cultural Aspects of International Business"
Speaker: Linda J. Suzuki, Predicasts, Inc.

"Creating Excellence in the Special Library: Strategies for Survival" is the title of Tuesday's session. The topics to be covered and the authors of the papers are:

"The Corporate High Technology Library—Survival Is Excellence"
Speaker: Sharon Mehl, Scitex Corporation Ltd.
"Doing More With Less"
Speaker: Linda Wagenveld, Herman Miller, Inc.
"How to Make the Best Use of What You've Got"
Speaker: Yan Y. Soucie, Tektronix, Inc.
"Maximizing the Use of Minimum Resources"
Speaker: Adrienne Krause, The Information Store, Inc.
"Revitalizing of a Corporate Library, or, Dealing with One More Chance"
Speaker: Deborah J. Froh, Canadian Utilities Limited
"Reorganizational Priorities for the Private Library: Achieving Excellence through Change"
Speakers: Andrew Berner and Guy St. Clair, University Club
"Surviving the Acquisition and Sale of the Corporation—An Active Process Defined"
Speaker: Valera Rohrer, Onan Corporation
"Taking the IRC Public: Achieving Excellence in Fee-Based Services"
Speakers: Susan Montgomery and Melanie Strub, AT&T Communications

On Wednesday afternoon, the final Contributed Papers Session, "Creating Excellence in the Special Library through Innovative Technology" will take place. The papers to be presented and their authors are:

"No Longer a Pipe Dream: A Fully Automated Library"
Speaker: Kurt O. Baumgartner, International Minerals & Chemical Corporation
"Multiple-User Microcomputer Technology and its Application to the Library Environment: A Cost-Effective Alternative for Automating Small to Medium Sized Operations"
Speaker: Cathleen D. McCarthy
"Quality Assurance and Online Searching: Empowering the Searcher"
Speaker: Mary Chitty, Massachusetts College of Pharmacy
"Creating Your Own Database Using PC Focus"

Speaker: Anne Jones, American Management Association

"The Intergrated Bibliographic Information System: Concept and Application for Resource Sharing"

Speakers: Gladys A. Cotter, Defense Technical Information Center, and Richard W. Hartt, Logistics Management Institute

"The Importance of Subject Indexing in Electronic Databases"

Speaker: Trish Yancey, Information Handling Services

"TRSEARCH—State of the Art Computer Power for Today's Special Library Users"

Speakers: L. H. Eschen, M. E. Madden, and M. L. Tennesen, Monsanto Company

"Technology to Provide Excellence in Information Services"

Speaker: Hilary D. Burton, Lawrence Livermore National Laboratory

"The Continuing Contribution to the Excellence of Special Libraries Made by Microforms through new Electronic-Based Access Techniques"

Speaker: Sally K. Ritter, Pergamon Press, Inc.

Hotels

The Sheraton Boston is the headquarters hotel for this conference. SLA is also holding a block of rooms at the Back Bay Hilton, the Marriott/Copley Place, Colonnade, Copley Plaza, Copley Square, Lenox and MidTown Hotels. All hotels are located in the Back Bay section of Boston and are within a few blocks of each other. In an effort to offset the additional expenses to SLA due to the closing of Hynes Auditorium for renovation, all of the above-listed hotels have agreed to pay for some additional services and labor. This concession was based on a formula of $3 per room night ($5 from the Sheraton). Room pickup is only a base for the formula and in no way affects room rates. A housing registration form will be printed in the Preliminary Conference Program.

Registration

Registration will take place in the Sheraton Boston Hotel. Advance registration for the Boston Conference is strongly encouraged to avoid long, time-consuming lines and to save you money. All SLA members will be mailed a copy of the Preliminary Conference Program in early March.

If you are not an SLA member and wish to receive a copy of the Preliminary Conference Program, or if you have any questions about the conference, please contact the Manager, Conference and Exhibits, Special Libraries Association, 1700 18th Street, N.W., Washington, DC 20009; (202) 234-4700.

Rosabeth Moss Kanter

IFLA '85

Libraries and the Universal Availability of Information Chicago, IL

Pat Molholt

IN AN OUTSTANDING show of cooperation, the U.S. Library Associations, the Library of Congress, and the National Commission on Libraries and Information Science hosted the 51st Council and General Conference of the International Federation of Library Associations and Institutions (IFLA). The scene was Chicago, which for some international visitors still held the aura of gangsters and speeding get-away cars!

Three years of planning preceded the week-long event, with fund-raising activities organized by former SLA President, Shirley Echelman, and program planning led by Irwin Pizer, SLA member and representative from the Medical Library Association. On both fronts, considerable work was required to accomplish the goals of the U.S. Organizing Committee. Unlike the norm, where the host country's government contributes considerable support, all of the funding for IFLA '85 was acquired through contributions, grants, and registration fees. It was an arduous task which may not yet be completed. Although the official figures have not been released, preliminary signs show a deficit of \$10–\$12,000, roughly 2% of the budget.

The program's goal was to present a group of speakers who represented diverse geo-political perspectives, but were tied together by the strong title theme. Vartan Gregorian, President of New York Public Library and Co-Chair of the conference, set the pace in his opening remarks at the first of two plenary sessions. He reminded the delegates that libraries are the only institutions which allow for the co-existence of diverse and opposing political, social, and religious views.

Daniel Boorstin, Librarian of Congress, addressed the delegates on "The Indivisible World: Libraries and the Myth of Cultural Exchange." He suggested that libraries, and especially books, can and do serve a unique cultural function. Cultural exchange nearly always involves distributing books and maintaining libraries, at least from the time Callimachus went to Alexandria to build that famous library's collection. Boorstin suggested that the myth lies in the concept of exchange, which brings with it illusionary ideas of embargo, equal value, and the possibility of control. Books represent ideas and as "such a book is a uniquely explosive device. But ideas, unlike people, do not exterminate one another. We have known genocide, but we will never see ideacide! There never was an idea that could not be revived and given new life. Ideas may seem to compete, but no one ever finally wins that competition. So long as people live and think, there will never be an enduring monopoly by any idea. We need no anti-trust laws in the world of ideas. The diffusion of any idea—democracy or communism, for example—in the long run will increase man's desire to know other ideas. No government can permanently stultify this appetite."

John Brademas, President of New York University, shared the platform with Boorstin. His remarks highlighted some of the government's support of libraries as well as Mr. Brademas' disagreement with some of President Reagan's policies and proposals regarding access to information. Such open criticism of one's government, Brademas acknowledged to the international audience, may be startling to some. It is, however, common in American politics.

In the closing Plenary Session, four speakers brought the delegates a close, often moving look at the state of libraries in the Soviet Union, India, Brazil, and Mexico. Particularly in the cases of Brazil and Mexico, the picture painted was one of striving against odds impossible to imagine—social, political and economic. It was a poignant note on which to close—a reminder, once again, to those of us from wealthy open societies, that the world of information is complex, multi-faceted, and not equally available to all.

The attendance in Chicago was surprisingly low, which is a constant concern to the U.S. Organizing Committee. Conference participants numbered 1,216 delegates and 504 exhibitors. Sixty percent were from North America, 21% from Europe, 8% from Asia, 6% from Africa, 3% from Latin America, and 1% each from Australia and the Middle East.

Delegates were able to choose from over 120 program sessions. In addition, approximately 100 business sessions were conducted. Over 150 papers were presented, most of them available in several languages. Over 500,000 pages were photocopied in preparation for the conference.

Meeting themes included knowledge-based information systems, collaborative collection development, international bibliographic standards, software evaluation, and library research among many others. As with most conferences, it is impossible to attend all the sessions which are of interest. Fortunately within IFLA there is a system for obtaining copies of papers during the conference—a good idea for others to consider!

The major item of business for the IFLA conference was the election of officers. The American members, both library institutions and organizations, successfully organized to elect a second American to the Executive Board of IFLA. Robert Wedgeworth joined Henriette Avram on the Board in what, I believe, is a first for U.S. representation. The election of Irwin Pizer, a former member of the Professional Board, to the chairship of that Board, was also an important milestone. The U.S. now has significant representation in all areas of IFLA's activities.

Cultural and social events always play an integral part in IFLA conferences. The opportunity to mingle informally and exchange ideas and views with counterparts from around the world is both pleasant and productive. The opening reception for IFLA officials was held at the recently rennovated Newberry Library where visitors toured one of the country's premier collections. Next came the State of Illinois reception held in the breathtaking open lobby of the State of Illinois Building. Only recently opened, this space treated visitors to a taste of one of Chicago's hallmarks—stunning architecture.

It is tradition for the special libraries of the host country to give a reception in honor of special librarians attending IFLA. The reception held in Chicago took honors in every regard and will be remembered for its congeniality and its elegant setting in the lobby of the Santa Fe Building. This was one of the few times Chicago-area special librarians relaxed and were able to enjoy the conference. A great vote of thanks is due the Illinois Chapter members for their hard work, extending over at least a year's time. Every local arrangements committee (tours, transportation, hospitality, information booth, etc.) was staffed by local SLA members who gave generously of their time and remained enthusiastic throughout.

The city of Chicago hosted a reception at the Chicago Public Library Cultural Center, replete with classical, blues, folk, and popular music performed in different locations throughout the building. The evening culminated in spontaneous and lively dancing. Delegates from many of the 86 countries represented at the conference reaffirmed that music and its enjoyment, like libraries, are truly international.

The final reception was hosted by the U.S. library associations. Although recalling a street party held during the Brussels conference in 1977, the "Taste of Chicago Block Party" was quite mind-boggling to nearly all of the foreign delegates and impressive even to the U.S. delegates, most of whom had not experienced such an event in their own communities. One had to admit that closing a block-long stretch of a major street in downtown Chicago is not easily accomplished!

Next year's IFLA conference will be held August 24–29, 1986 in Tokyo. It promises numerous excellent sessions under the theme of "New Horizons of Librarianship Towards the 21st Century." Anyone wishing detailed information may contact SLA's IFLA representative, David Bender, at the Association Office or Pat Molholt at Rensselaer Polytechnic Institute, Troy, NY 12180.

PAMPHLET BRINGS BACK MEMORIES

Thank you for the message in [the] pamphlet, *SLA Moves to Washington*.

Looking through it brought on memories of the 1940s when I became a member, as a War Widow with a baby son to bring up. Thanks to SLA, I always had a job, giving me the means to bring up my boy and put him through college, as well as taking care of my aging parents. No wonder that I still keep up my membership though retired, and contribute what I can toward the Scholarship Fund.

My gratitude encompasses a long-lasting regard for SLA and its services, which found me a job as a cataloguer at CBS, whose book collection at that time was arranged by size and color! (Incidentally, whose library served as a background for the play, *Desk Set*, which later was made into a movie.) Then I went to Pan American Airways, also cataloguing their collection and contributing to the cataloguing scheme devised by the newly-established PICAO (Provisional Internation Civil Aviation Organization), whose documents arrived in PAA in cartons numerous enough to fill a small room up to the ceiling. The organization is the ICAO (International Civil Aviation Organization.)

Still, as a cataloguer, I went on to the executive offices of General Motors near Columbus Circle in New York, and later became their librarian. I was there until my mother passed on when I moved to California where my sister could take care of my boy while I went to work for Ampex, newly established, and organized an electronics library from scratch.

Before I retired, I organized still another library (microwave this time) for Microwave Electronics Laboratories (later became MELABS), and which was sold to the typewriter people—Smith-Corona (SCM).

Again, [I] am very fond of SLA and owe it a lot of gratitude for the greatest part of my work life which made it possible for me to have been a successful mother / homemaker / provider. I re-married after retirement and after my son was married. [I] am now a happy grandma with three grandchildren and another on the way!

Mrs. Josephine Joan Williams Peyton
Virginia Beach, VA

Reviews

Business Technology for Managers by Neil Perlin. White Plains, NY, Knowledge Industry Publications, Inc., 1985. 206 p. ISBN 0-86729-124-9. $32.95. ISBN 0-86729-123-0 (paperback). $29.95.

This is a very good book with only limited application to libraries. As the title indicates, the author has prepared an introductory text for office managers who want or need to automate their operations. Three broad areas are covered. First, there is a brief introduction to computer hardware and software. This is followed by descriptions of various automation technologies which may be of use in an office setting, especially communications, text-processing, and management technologies. Finally, the author addresses the broader issues of how automation may affect people and organizations. The text is supplemented with a list of vendors and a bibliography, both very selective, as well as an index.

The main argument of the book is that managers must define and address the automation needs of their own offices, instead of responding to a broader technological imperative. A great deal of excellent common-sense advice is given to help them do that, including lists of advantages and disadvantages of the technologies described, as well as suggestions for evaluating each one. (The suggestions appear in the vendor list instead of the text and may be overlooked by the casual peruser.)

The chapters on computers and people (one on staff and another on management) cover the kinds of reactions and problems which are likely to occur, and suggest ways of handling them. The author's prose is wonderfully straightforward, free of jargon and cute condescension. The book is actually a pleasure to read.

This work is a painless and thought-provoking introduction to office automation, and deserves a wider readership among librarians than it will probably enjoy. Most of us are used to viewing library automation as something very different from office automation, but there are similarities—notably in the area of information management—which should make us look more closely for ways in which libraries can benefit from the automation experience of offices.

This book will certainly not replace more specifically library-oriented texts. However, for those of us who have not yet been thrust into automation, it can serve as a useful introduction, although its cost is rather high. For those who have been exposed to automation without developing any great understanding of it, the simple explanations and common-sense approach of this book can help to make us more comfortable with the changing context of our work.

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The Librarian's Helper: Productivity Tool for Librarians. Jennifer Pritchett and Fred Hill. [Version 3.2 for IBM-PC, XT, AT]. Metuchen, NJ: Scarecrow Press, 1985. Package includes: 1 diskette, 1 3-ring user manual, and 1 copy of **Akers' Simple Library Cataloging** by Arthur Curley and Jana Varlejs, 7th ed., Metuchen, NJ: Scarecrow Press, 1984. $195 for IBM systems; $295 for APPLE IIe systems (includes CP/M card).

Although many libraries may have a microcomputer, not all of them can convert their card catalog to an "on-line" system. Therefore, a way to continue to maintain such a manual catalog is needed which can be executed in the most timely, cost-efficient manner. One solution is to have cards printed using the capabilities of the microcomputer. *The Librarian's Helper* is one of several packages available to do just that.

The hardware requirements for this package include: a microcomputer with at least one disk drive and 64K RAM for CP/M systems, 256K RAM for MS-DOS systems; and a printer with adjustable vertical forms tractor. In addition, the operating system required must be either PC-DOS, MS-DOS, CP/M, CP/M-86, or APPLE II or IIe with a CP/M card. This review was based on running the package on an IBM PC (512K RAM) using PC-DOS version 2.0, with an IBM Graphics Printer attached.

The manual's form sits nicely on the ledge at the top of the keyboard for easy reference. After a brief introduction (which also lists some of the main features), such as "Production of catalog cards and labels for spine, book pocket and circulation card in conformity to AACR2 standards," a warning by the authors note that the user should read most, if not all, of the manual before using the package. I agree. It is only 30 pages long and can be read in a very short time. Much of what the manual explains is easy to follow, however there are sections that require a second or third reading, especially if the user is not already familiar with the setup of software packages.

The first part of the manual discusses the program disk included with the package, as well as printer installation. This is important as some printers, including the one I used, ". . . are notorious for 'eating' cards." If the printer used is not a bottom feed or one that can handle card stock (the authors recommend an Okidata printer), the cards will get stuck in it and result in a mess.

The next section explains LIBSETUP, which lets the user indicate the kind of computer, printer, card stock, and prompt selections that fit many system requirements. This configuration will be permanent unless LIBSETUP is run again and the options are changed. One particularly good feature is the capability to designate which fields will be used for data entry. For example, if there is no need for analytical entries, that field can be marked for "never prompt" and therefore will not be seen during the data entry process. Another feature is the ability to specify one or two additional Main Entry cards, or wait to be prompted for extra cards at the time they are printed.

The instructions are generally easy to understand and I was able to complete the setup in just a few minutes. However, a few sample screens included with the text would have made the job easier. In addition, although each section has a heading, the manual's design does not separate the different sections with enough distinction. When I wanted to scan back to a particular section for review, I had to either go back to the table of contents or keep flipping pages and carefully reading each section heading in order to find the part I needed.

A "user input form" is included at the back of the manual to be filled in before entering data. The fields are listed in the order in which they appear on the screen and the user is encouraged to adapt it according to local needs. There is no indication of the maximum size of the fields (although the brochure indicates "32 optimum-length fields" and "4 variable-length note paragraphs") and thus cards for some items with lengthy titles and/or other information may not be able to be printed using this package.

The program allows the user to preview cards before printing, which is a good feature. Cards are displayed and printed in ISBD format. Alignment checks for both cards and labels before printing them is another good feature.

Entry of more than one accession number in the shelf card field, during data entry, causes additional sets of labels to be printed automatically. Each line of the call number is centered on the labels when printed and no adjustments can be made to this format, such as left justification. In addition, libraries using the Library of Congress Classification system will find another, more troublesome, limitation. The double cutter is printed on the spine label and not any other labels, such as the one for the book card. This can be a serious problem if a significant portion of a collection requires such classification.

If either cards or labels are not printed before entering new data or exiting the program, the user is prompted with a warning to return to the main menu to do the required printing before the data is purged. The version of the package I tested did not allow data for more than one item to be entered before printing cards and labels. This is neither convenient nor efficient.

According to the brochure included with the package, a version is available which allows the user to save data input for more than one item and to make changes after a set of cards and labels have been printed and then print a new set. In addition, it will print bibliographies or acquisition lists sorted by author, title, or call number, as well as allow the transfer of data saved on disk to on-line catalogs and data base programs. This all sounds fine, but I suggest testing the version to see how easy all this can be done before purchasing it. In addition, none of the fields have MARC tags and this could present a problem in uploading to a system that has tagged fields. The added features of this enhanced version increases the price to $225.00 for IBM systems, $325 for APPLE systems.

The appendix includes information for installing *The Librarian's Helper* using CP/M or MS-DOS. The program can be started automatically using the AUTOEXEC file, and this is also explained. A list including a card stock supplier and several label stock suppliers can be found in the appendix. I tested a sample of cards and labels from University products and, aside from "eating" the cards due to the printer, I had no problems.

Given the limitations of this package, small- and medium-sized libraries will find it worthy of consideration for use by a staff member with at least basic knowledge of cataloging principles using AACR II.

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